

Our Ref: 660-EN-0041
Your Ref:



Fortescue
The New Force In Iron Ore

Referral Business Entry Point
Environment Assessment Branch
Department of Sustainability, Environment,
Water, Population and Communities
GPO Box 787
CANBERRA ACT 2601

ATT: Mr Dean Knudson

27 August 2012

Dear Mr Knudson

**REFERRAL OF A PROPOSAL TO THE DEPARTMENT OF SUSTAINABILITY,
ENVIRONMENT, WATER, POPULATION AND COMMUNITIES – THE NORTHSTAR
HEMATITE PROJECT**

Fortescue Metals Group (Fortescue) wishes to formally refer the North Star Hematite Project (the proposal) to the Department of Sustainability, Environment, Water, Population and Communities under the *Environment Protection and Biodiversity Conservation Act 1999*. Please find enclosed a completed referral form for consideration, supporting documentation and accompanying attachments on CD.

The proposal consists of a new iron ore mine and associated infrastructure at Fortescue's North Star deposit approximately 110km south east of Port Hedland in the Pilbara region of Western Australia.

If you have any queries regarding the enclosed information please do not hesitate to contact Matthew Dowling, Fortescue's Senior Environmental Advisor for the North Star Project on 9230 1301 or at mdowling@fmgl.com.au.

Yours sincerely

FORTESCUE METALS GROUP

ISAK BUITENDAG

Group Manager – Health, Safety, Environment and Security

Enc. Referral Form
Enc. Supporting Documentation
Enc. CD

The New Force in Iron Ore
www.fmgl.com.au

Fortescue Metals Group Limited ABN 57 002 594 872 ACN 002 594 872
ADDRESS Level 2, 87 Adelaide Terrace, East Perth, Western Australia 6004
POSTAL ADDRESS PO Box 6915, East Perth, Western Australia 6892
TEL +61 8 6218 8888 FAX +61 8 6218 8880 EMAIL
fmgl@fmgl.com.au



Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided that sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
 - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
 - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. Additional sectoral guidelines are also available.
- the Policy Statement titled Significant Impact Guidelines 1.2 – Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.

- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

Can I refer part of a larger action?

In certain circumstances, the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act). If you wish to make a referral for a staged or component referral, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referral Business Entry Point (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

Is your action in the Great Barrier Reef Marine Park?

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB, GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (the Authority) for the Authority to commence its permit processes as required under the Great Barrier Reef Marine Park Regulations 1983. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from <http://www.gbrmpa.gov.au/> or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379
Townsville QLD 4810
AUSTRALIA

Phone: + 61 7 4750 0700
Fax: + 61 7 4772 6093

www.gbrmpa.gov.au

Do I have to pay for my referral or assessment / what are the fees?

Currently the department does not impose fees for environmental impact assessments referred and assessed under the EPBC Act. However, new fees are proposed as part of cost recovery reforms to the EPBC Act from 1 December 2012. Final cost recovery arrangements will be subject to an amending Bill being passed by Parliament and the making of regulations. Fees for environmental impact assessments are proposed to apply to:

- all proposed actions referred after 8 May 2012 that are still undergoing assessment, decision on approval or that may be subject to post approval management plans after 1 December 2012 (fees will only apply to the work undertaken by the department after 1 December 2012); and
- all referrals on or after 1 December 2012.

For projects that are referred after 8 May 2012, that may be subject to fees, the department will inform proponents of their liability for potential fees prior to the introduction of cost recovery arrangements on 1 December 2012. Further details on the proposed cost recovery arrangements can be found here <http://www.environment.gov.au/epbc/publications/consultation-draft-cost-recovery.html>.

What information do I need to provide?

Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently. If a section of the referral document is not applicable to your proposal enter N/A.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in green text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents. Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below two megabytes (2mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referral Business Entry Point for advice. Attachments larger than two megabytes (2mb) may delay processing of your referral.

Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.

How do I submit a referral?

Referrals may be submitted by mail, fax or email.

Mail to:

Referral Business Entry Point
Environment Assessment Branch
Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are appreciated.

Fax to: 02 6274 1789

- Faxed documents must be of sufficiently clear quality to be scanned into electronic format.
- Address the fax to the mailing address, and clearly mark it as a 'Referral under the EPBC Act'.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

The proposed action would have UNACCEPTABLE impacts and CANNOT proceed

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

Compliance audits

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park*," p.2, for more details).

For more information

- call the Department of Sustainability, Environment, Water, Populations and Communities Community Information Unit on 1800 803 772 or
- visit the web site www.environment.gov.au/epbc

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Project title: North Star Hematite Project

1 Summary of proposed action

1.1 Short description

FMG Iron Bridge Limited proposes to develop the North Star Hematite Project (the Project), located approximately 110 kilometres (km) south of Port Hedland in the Pilbara region of Western Australia (Figure 1 of the Supporting Information). The Project will consist of a new iron ore mine and dry magnetic separation facility in order to produce a saleable mag-hematite product. Product will be trucked to Port Hedland for export from existing port infrastructure. It is proposed to extract a maximum of 11.3 million tonnes of ore at an annual rate of up to 5.0 Million tonnes per annum (Mtpa) for approximately two years.

1.2	Latitude and longitude	Location			Location		
		Point	Latitude	Longitude	Point	Latitude	Longitude
		1	119.067	-21.267	21	118.73	-21.194
		2	119.019	-21.267	22	118.717	-21.194
		3	119.009	-21.273	23	118.717	-21.189
		4	118.998	-21.273	24	118.731	-21.19
		5	118.99	-21.266	25	118.738	-21.192
		6	118.962	-21.274	26	118.769	-21.209
		7	118.942	-21.27	27	118.784	-21.206
		8	118.907	-21.247	28	118.788	-21.208
		9	118.889	-21.245	29	118.802	-21.235
		10	118.881	-21.248	30	118.86	-21.234
		11	118.856	-21.244	31	118.88	-21.238
		12	118.845	-21.244	32	118.891	-21.236
		13	118.836	-21.249	33	118.902	-21.237
		14	118.829	-21.244	34	118.946	-21.26
		15	118.797	-21.244	35	118.962	-21.264
		16	118.791	-21.228	36	118.99	-21.256
		17	118.783	-21.211	37	119	-21.262
		18	118.769	-21.213	38	119	-21.25
		19	118.766	-21.213	39	119.042	-21.225
		20	118.736	-21.196	40	119.066	-21.225

1.3 Locality and property description

The Project is located within pending mining tenements M45/1226 (mine and processing infrastructure), L45/293 (access road) and L45/294 (access road), approximately 110 km south of Port Hedland and 70 km west of Marble Bar. Access to the Project area from Port Hedland will be via the Great Northern Highway, local roads and a purpose built new access road between the BHP Billiton Newman Mainline railway and the North Star mine site.

1.4 **Size of the development footprint or work area (hectares)** Up to 480 hectares (ha)

1.5 **Street address of the site** N/A

1.6 **Lot description**

The Project is located on Wallareenya and Kangan Pastoral Leases. The proposed accommodation camp, and mining and processing infrastructure is located on pending Mining Lease 45/1226, while the proposed Mine Access and Haul Road is located on pending Miscellaneous Licences 45/293 and 45/294.

1.7 **Local Government Area and Council contact (if known)**

The majority of the Project is within the Shire of East Pilbara. The western end of the Mine Access and Haul Road is within the Town of Port Hedland.

1.8 **Time frame**

Subject to the granting of approvals, the Project development timeframe is presented as follows:

- Commence early pioneering earthworks – Jan 2013.
- Commence pre-stripping and mining – Jan 2013.
- First production of ore – March 2013.
- Completion of Mining – May 2015.
- Mine Closure and Rehabilitation – December 2015.

1.9	Alternatives to proposed action	X	No
			Yes, you must also complete section 2.2
1.10	Alternative time frames etc	X	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	State assessment	X	No. The Project will be referred to the Western Australian (WA) Environmental Protection Authority (EPA).
			Yes, you must also complete Section 2.5
1.12	Component of larger action	X	No
			Yes, you must also complete Section 2.7

1.13	Related actions/proposals		No
		X	<p>The Project is located within the same ore reserve as the North Star Magnetite Project. The North Star Magnetite Project is proposed to consist of a single open pit, processing plant, accommodation camp and support facilities in order to produce a saleable magnetite concentrate for export. The North Star Magnetite Project is a separate, stand alone project to the North Star Hematite Project. It will be referred to the EPA and the Federal Department of Sustainability, Environment, Water, Populations and Communities (DSEWPaC) at the appropriate time and is not the subject of this referral.</p> <p>This Project will extract an area of discrete mag-hematite oxide ore which has been identified near the top of the larger North Star magnetite reserves. The footprint of the Project has been designed to align with the conceptual footprint of the Magnetite Project such that the future combined area of disturbance is minimised. However, it should be acknowledged that this Project is not reliant on the North Star Magnetite Project and is considered a standalone project. A Mine Closure Plan will be developed for the Project such that the area can be effectively and appropriately decommissioned and rehabilitated regardless of whether the North Star Magnetite Project proceeds.</p>
1.14	Australian Government funding	X	No
			Yes, provide details:
1.15	Great Barrier Reef Marine Park	X	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

FMG Iron Bridge proposes to develop the North Star Hematite Project (the Project), located approximately 110 km south of Port Hedland in the Pilbara region of Western Australia. A detailed description of the Project follows. FMG Iron Bridge Limited is a subsidiary company of Fortescue Metals Group Limited. All further references in this document to 'Fortescue' include both Fortescue Metals Group Limited and FMG Iron Bridge Limited.

Mining Operations

Project Reserve

A reserve statement for the Project is provided in Table 1.

Table 1: Project Ore Inventory

	Unit	Quantity
Total Tonnes Ore	Mt	11.3
Total Tonnes Waste	Mt	13.2
Total Tonnes Extracted from Pit	Mt	24.5
ROM Feed	Mtpa	5.0
Waste Rock from Pit	Mtpa	5.9
Total Extraction Rate	Mtpa	10.9
Process waste (dry rejects)	Mtpa	3.0
Product	Mtpa	2.0

Mining Method

Up to 10.9 Mtpa of ore and of waste rock will be excavated from the open pit to produce up to 2 Mtpa of export product. The open pit will be mined using conventional drill and blast methods, followed by hydraulic excavation, crushing and screening then load and haul by road to Port Hedland.

Pre-stripping

Development of the Project area requires basic preparatory works including vegetation clearing and topsoil stripping. Ore predominantly outcrops at the surface and, as topsoil and vegetation is generally sparse, minimal pre-stripping is required to expose it.

Topsoil and vegetation will be removed and stockpiled for later use in rehabilitation activities. Topsoil stockpiles will be located south of the administration area between the tenement boundary and the Mine Access and Haul Road.

Open Pit Configuration

The Project involves the development of a single open pit which will be approximately 1.7 km in length and 250 metres (m) in width.

Benches at hilltop level will be free-dug where possible, exposing hard rock for drill and blast to the first bench level. The first blast bench will have a maximum height of five metres, with the following benches being up to 12.5 m in height.

Design parameters for the open pit are as follows:

- Bench Slopes: 70°.
- Bench Height: 12.5 m.
- Berm width: 17.7 m.
- Inter-ramp angle: 29°.
- Ramp width: 40 m.
- Ramp Grade: 10%.

Grade control will be undertaken using a combination of reverse circulation (RC) drilling and blast hole sampling, or similar, in advance of mining, to establish ore blocks.

The waste rock dump and ore stockpiles have been located outside of the potential zone of instability of the open pit.

Drill and Blast

All areas that are not classified as “free dig” will be drilled and blasted utilising modern blasting techniques. The number of blasts will be minimised within the constraints of maintaining a continuous supply of broken rock for the mining operations.

Mining Equipment

The indicative mining fleet for the Project is provided in Table 2. Standby units, including those for the dump trucks and the bulldozer may also be site-based.

Table 2: Indicative Mining Fleet

Type	Make / Model	Capacity	Quantity
Komatsu HD1500	Dump Truck	150t	4
Komatsu HD785	Dump Truck	100t	8
Haitachi EX2500	Excavator	250t	1
Komatsu PC3000	Excavator	300t	1
Komatsu PC1250	Excavator	100t	2
Komatsu GD825	Grader	16ft Blade	1
Komatsu D375	Track Dozer		1
Caterpillar D9	Track Dozer		2
Komatsu HD325	Water Cart	30kl	1
Kenworth T350	Service Truck		2
Atlas Copco L8	Drill Rig		2

There will be a number of smaller vehicles and equipment required onsite in addition to the mining fleet, such as forklifts, light vehicles, service vehicles and generator-driven lighting plants.

Dewatering

As mining will be conducted above the watertable, pit dewatering will not be required. In-pit sumps may be required to collect any incidental rainfall or seepage during mining activities with sub-surface drainage from the sumps into the ore body. The surrounding topography and bund will direct any runoff away from the open pit, therefore the majority of water in the open pit will be from direct rainfall, rather than runoff.

Calculations of the direct rainfall volumes entering the open pit for a 1 in 5 year Average Recurrence Interval (ARI) and a 1 in 100 year ARI indicate the open pit would not be inundated with volumes that will cause significant disturbance to mining activities. Water which accumulates in the open pit will be used for dust suppression purposes, however, there may be a requirement to discharge excess water to a local creek during periods of high rainfall. Prior to discharge, water quality will be assessed and the water treated (if required) to reduce the risk of contamination of natural surface water flows.

It is proposed to construct a bund around the mine infrastructure area to provide flood protection for a 1 in 100 year ARI.

Ore Stockpiling and Processing

The processing infrastructure area will contain the following components:

- Run of Mine (ROM) ore pad.
- Crushing and Screening Plant.

- Product Stockpiles.
- Road train loading area.
- Power supply.
- Administration, lunch room and ablution buildings.

An area of 75 ha has been allocated for the processing infrastructure area.

Ore Stockpiling and Management

Ore will be transported via haul trucks to the run-of-mine (ROM) facility, where it will be stockpiled prior to processing. ROM stockpiles will be constructed radially around an arc centred on the crusher feed bin.

Dust from the product stockpiles will be minimised via the mobile crushing and screening plant's sprinkler system, or via water carts. Trafficked areas around these stockpiles will be watered by the water carts on a regular basis.

No dust suppression is required for the ROM ore stockpiles, as they will consist of blasted ore with limited fines. However, should dust become evident at these stockpiles, the Project's dust control practices will be reviewed and additional management put in place if required.

Crushing and Screening

Ore will be crushed, screened and stockpiled into separate lump and fines products at the processing infrastructure area, before being loaded onto road trains and transported to ore stockpiles and shipping facilities at Port Hedland.

Ore hauled from the open pit to the ROM pad will undergo processing through crushing, screening and magnetic separation. The plant layout is based on the requirements of production up to 5.0 Mtpa ROM feed on a double shift. It is proposed to use contracted mobile crushing, screening and magnetic separation plant(s) capable of producing a dry fines product and dry rejects. The top particle size of the product and reject streams will be nominally 3 millimetres (mm).

The proposed plant includes three to four crushing stages, two screening stages and a single dry magnetic separation stage. A conceptual process flow diagram is provided in Drawing 1. The process includes the following elements:

- **Loader Fed into Feeder Hopper with Vibrating Grizzly:** A front-end loader will be used to load the feeder hopper, with a backup loader included to ensure continuity of supply and/or manage the product and reject stockpiles.
- **Primary Crusher:** The primary crusher will be a mobile crusher powered by diesel engine.
- **Vibrating Screens:** The screening plants will be mobile units incorporating an inclined single deck or inclined double deck with discharge conveyors.
- **Secondary Crusher:** The secondary crusher will be a mobile crusher powered by diesel engine.
- **Tertiary Crusher:** The tertiary crusher will be a mobile crusher powered by diesel engine.
- **Dry Magnetic Separation:** For magnetic separation, a dry drum separator is proposed, comprising a travelling conveyor belt with a magnetic end pulley, producing a dry magnetic product stream and a dry non-magnetic reject stream.
- **Dust Suppression:** Water mist dust suppression will be used throughout the plant on all transfer points as well as on the stockpile conveyor discharge points.

Control Philosophy

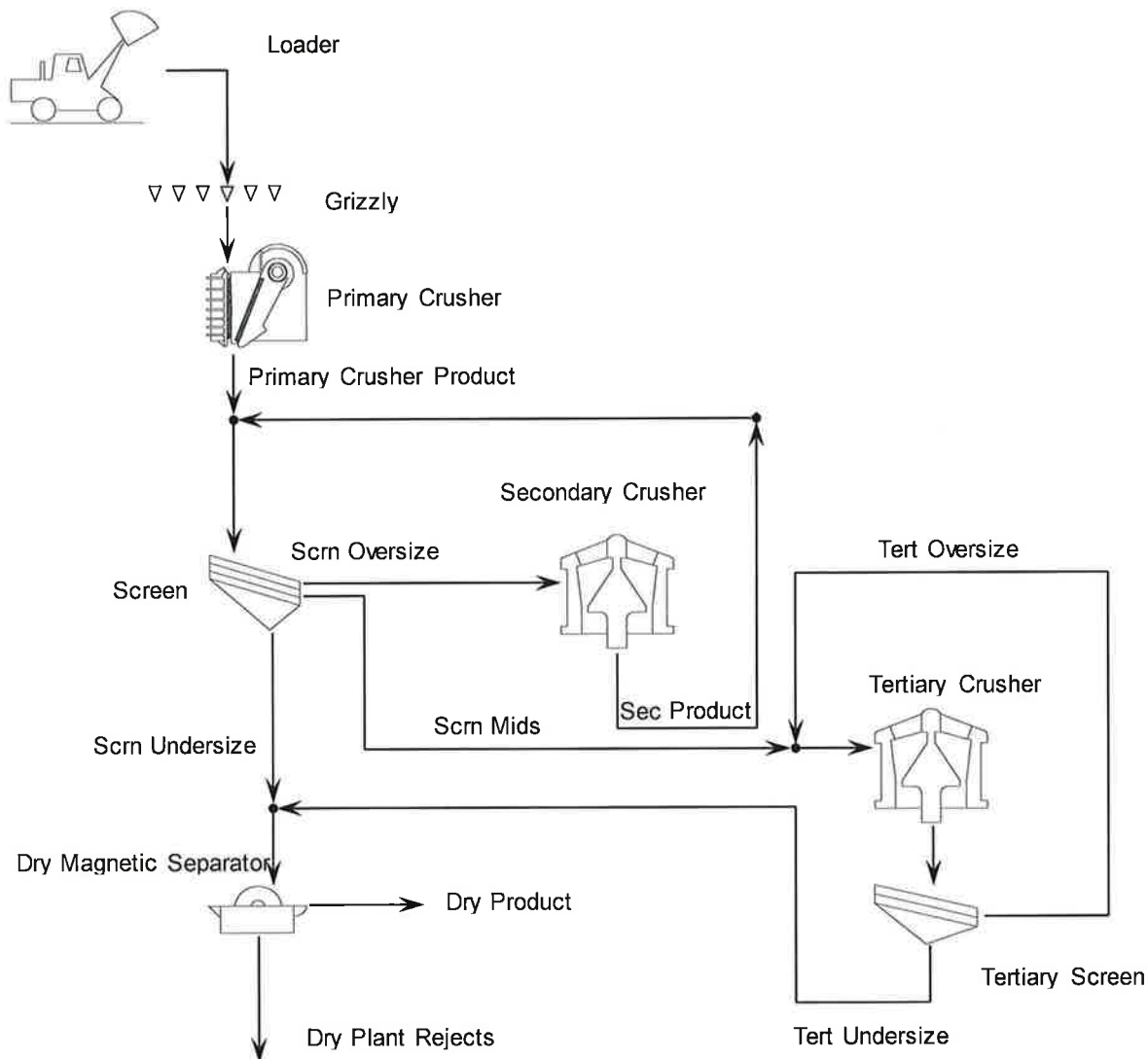
The plant will be electrically interlocked via an integrated computerised operating system (PLC) mounted in an air-conditioned control room.

Finished Product Stockpile Management

For stockpile dust control, misting water sprays will be added at the top of the stockpile conveyors to maintain moist 'active' stockpiles. Reject stockpiles, inactive stockpiles, loading stockpiles and surrounding areas will be sprayed by a water truck as required to maintain acceptable dust levels.

Any oversize from the vibrating grizzly in the crusher feed will be stockpiled and broken on a campaign basis prior to re-feeding to the crushing plant.

Drawing 1: Process Flow Diagram



Tailings Storage

No tailings will be produced for the Project.

Waste Rock Management

Up to 13.2 Mt of waste rock will be mined throughout the life of the Project.

Ore and waste rock will be loaded and hauled separately from the open pit. Waste rock will be used initially for bulk earthworks and then stored within the Waste Rock Dump (WRD). The WRD will require an approximate area of 47 ha to contain the volume of waste rock generated and will have a maximum height of 50 m above the existing ground level, which is the approximate height of the surrounding ridgelines. The WRD will therefore reflect the current landscape and topography.

The WRD is located 340 m from the pit edge and has the following design parameters:

- Lift height 20 m.
- Berm width 29.5 m.
- Final face angle 20°.
- Overall slope angle 15°.

Waste rock will consist of relatively competent material with a low soil size fraction. Geochemical assessment of waste rock has been undertaken by GHD on behalf of the proponent, and indicates waste rock is non-acid forming given the low sulphur content of waste material and excess neutralisation capacity. The assessment further concluded that there was a low potential for metalliferous, saline or acidic drainage from waste rock.

Geochemical characterisation of the waste rock is ongoing and will be undertaken prior to its deposition to determine its acid-forming and elemental composition. While it is not expected that potentially acid forming (PAF) materials will be encountered, any PAF material discovered will be encapsulated in the waste rock dump.

Ore Haulage

Ore will be hauled in 120 tonne payload road trains from the mine product stockpiles to Fortescue's existing Anderson Point shipping facilities at Port Hedland. Eight to nine road trains, each making four to five trips per day, are needed to haul the required quantity of ore to Port Hedland. This equates to one truck movement (empty return or loaded) approximately every 16 minutes.

A new North Star Mine Access and Haul Road to the Great Northern Highway will be built with a total length of 38.5 km. This will involve:

- Construction of a new road from the Wittenoom Rd to North Star.
- Use of 1.5 km of the existing Wittenoom Road and existing level crossings at the BHP Billiton Newman rail mainline.
- Construction of a new road between the BHP Billiton Newman rail mainline and Great Northern Highway.
- A new crossing constructed on the Fortescue rail mainline.

The road will be nominally 20 m wide with berms and water control extending to a total of 30 m where required. The unsealed haul road will also function as the main site access to the Project for supplies, workforce traffic and visitors. The unsealed haul road will be maintained and watered to provide a safe, trafficable surface.

Road trains will then travel 106 km north along the sealed Great Northern Highway to Anderson Point.

Support Facilities

Construction Facilities and Utilities

Construction of the Project is anticipated to take four to six months and will require a number of temporary facilities. Fortescue will at first provide good quality road access and water to enable pioneering works. The construction workforce will initially be housed at the exploration camp. By constructing the Project accommodation camp early in the construction period, subsequent construction teams can then be housed at the new accommodation camp to complete their activities more efficiently.

Pioneering works will include earthworks and road works. Partial completion of the pioneering works will allow the following activities to commence:

- Construction of the accommodation camp.
- Construction of the mine operations centre and contractors' area.
- Establishment of the heavy mining equipment workshop.
- Mobilisation of heavy mining equipment.

Accommodation Camp

An accommodation camp for up to 200 persons will be constructed. This will accommodate both construction and operations personnel. The accommodation camp will be designed and constructed in accordance with Fortescue Specifications, relevant Australian Standards, Building Code of Australia, and Shire statutory requirements. The accommodation camp will include:

- Up to 200 rooms with ensuites.
- Dry mess and kitchen.
- Wet mess and outdoor area.
- Gymnasium.
- Recreation room.
- Multi sports court.

- Primary first aid facility (including provision of an ambulance).
- Laundry facilities.
- Camp management office.
- Telephony and Internet room.
- Ice rooms.
- Power generation facilities.
- Potable water treatment infrastructure.
- Wastewater treatment infrastructure.
- Communications infrastructure.
- Fire fighting equipment (package diesel, electric and jockey pump, fire water tank and associated fire water pump).
- Car parks and landscaped areas using native species. Subject to the appropriate approvals, the landscaped areas will be irrigated with effluent from the wastewater treatment plant.

All buildings and structures will be designed for wind loads in accordance with Australian Standard 1170.2:2011 (Structural design actions – Wind actions).

Mine Operations Centre

The Mine Operations Centre will serve as the co-ordination centre for mining operations. The Mine Operations Centre will provide office facilities for site-based employees and will consist of transportable buildings.

The Mine Operations Centre will consist of the following:

- **Administration Office:** A number of transportable buildings for offices, communications equipment room, meeting room, reception area and a crib room.
- **Stores:** The stores will likely comprise several shipping containers.
- **Secondary First Aid Facility.**
- **Ablution Block:** One transportable building containing male and female ablutions. Sewage from the ablutions will be stored in a tank and will be disposed either through pumping out by truck for off-site disposal or connection to the accommodation camp waste water treatment system.

- **Parking Facility for Light Vehicles.** This will be designed for reverse parking and will contain windrows to check the rear tyres.

Potable water will be reticulated to the Mine Operations Centre office buildings and amenities from the accommodation camp treatment plant. Storage tanks will be used to provide back-up supply in case of service disruption.

Contractor Facilities

Contractors will be employed to undertake the mining, processing and product transport operations. Contracting companies will be responsible for supplying office buildings, amenities, ablutions, services and facilities in accordance with the relevant Contract. Waste water for ablutions will be stored in an onsite tank and pumped out by truck for off-site disposal.

The contractor facilities will also contain fuel storage and refuelling area, workshop, washdown area, and laydown area, all of which are discussed in more detail below.

Fuel Storage and Refuelling Area

Diesel fuel will be stored in double skinned (self-bunded) tank/s, to comply with Australian Standard 1940-2004. These tanks will be fitted with overfill alarms and visual indicators of an internal wall rupture (i.e. dip tube) and protected from vehicle strikes with windrows and/or bollards.

A lined refuelling pad will be provided adjacent to the fuel storage tanks, with at least one of the tanks consisting of an on-board bowser for dispensing fuel to light vehicles, and a fast fill for refuelling heavy earth-moving equipment.

A contracted fuel supplier will transport diesel fuel to site on a regular basis by tanker road train deliveries.

Workshop and Washdown Area

A workshop and washdown area will be established for the maintenance of Contractor plant and equipment.

The washdown area will be designed to incorporate a collection sump to collect and store runoff that is potentially contaminated with hydrocarbons. This sump will also collect drainage from the workshop area. Any potentially contaminated water will be treated through an oil-water separator to remove hydrocarbon residues. Treated water will be used in dust suppression, while oily residue will be removed from site using a licensed contractor for disposal at a licensed facility.

Contractors' Parking and Laydown Area

The parking and laydown area will primarily be used for heavy vehicles and the storage of spares and waste materials to be transported offsite. Designated parking areas will provide a forward facing 'go-line' to avoid reversing manoeuvres and windrows to check vehicle movements. This area will be wetted and rolled to create a trafficable hardstand surface prior to use to minimise dust emissions.

Wastewater Management

All camp sewage and wastewater will be treated in a wastewater treatment plant. The wastewater treatment plant will consist of an aerobic treatment unit constructed and operated in accordance with Western Australian Department of Health and local government regulations. Treated effluent will be disposed of at a spray irrigated evaporation area and will meet quality standards described in the Draft Guidelines for Use of Recycled Water in Western Australia (Department of Health, 2009) applicable for use as garden irrigation and any other statutory requirements.

At an average domestic water consumption of 350 litres per person per day and a workforce roster that allows for approximately 170 people on site at any one time, an estimated disposal volume of 60 kilolitres (kL) per day is anticipated. This quantity is within the Category 85 Registration threshold (>20 but <100 kL/day) but well below the Category 54 Licence threshold (>100 kL/day) stipulated by Schedule 1 of the Environmental Protection Regulations 1987 (WA). Should the camp be full, up to 70 kL per day is anticipated. This is still below the Category 85 Registration threshold.

The quantity of wastewater from ablutions at the mine site is expected to be significantly less than the accommodation village. The mine site facilities do not include shower, laundry or kitchen wastewater. Mine site wastewater will be stored in a tank and will be disposed either through pumping out by truck for off-site disposal or connection to the accommodation camp waste water treatment system.

Explosives Magazine

The explosives magazine has been located in a designated area 1.5 km from the mine bund wall. The transport, storage and use of explosives will be subcontracted to a licensed service provider. Ammonium nitrate based explosives will be stored separately to detonators, ripcords and any other site-stored explosives. All explosives material and equipment will be stored in a magazine compliant with the *Dangerous Goods Safety Act 2004* (WA) and the *Mines Safety Inspections Act 1994* (WA).

Water Production Bores and Pipelines

Water supply for the project has been designed to meet the project's peak water demand of approximately 234,000 kL per month, occurring in 2014. Initial water supply for the purpose of mine and road construction, mine operations and camp supply will be provided by up to 12 existing bores located within Fortescue's rail corridor, previously approved by the Department of Water. Delivery to the mine area will be via above ground pipes to storage tanks or storage ponds (turkey nests).

Water supply for potable use will be treated using a packaged Reverse Osmosis (RO) plant or ultraviolet treatment. Should a RO plant be used, Fortescue will investigate disposal options for the small volumes of brine that would be produced, including dilution and reuse in operations or dust suppression water stream.

Table 3 below provides details of the production bores planned to supply this water requirement.

Table 3: Production bore details for mine area supply

Bore Name	Easting	Northing	Cased Depth (mbgl)	Screened Interval (mbgl)	Casing ID	Casing Material	Screened Aquifer
WS05P3	677647	7671007	54	14 – 50	155	PVC	Fractured rock (FR)
WS05P4	677347	7671040	48	6-48	155	PVC	FR
WS06P1	678403	7667448	69.5	3.5-69.5	155	PVC	FR
WS06P2	678730	7666739	66	6-66	155	PVC	FR
WS06P3	678571	7667676	50	4-50	155	PVC	FR
CWS01P3	680644	7666772	39.4	9.4-39.4	155	PVC	FR
CWS01P4	680509	7666854	38.4	2.4-38.4	155	PVC	FR
WS07AP1	683093	7656517	52	22-52	155	PVC	FR
WS07AP2	683038	7656657	45	15-45	155	PVC	FR
WS08P1	694678	7631905	43	13-43	155	PVC	FR
WS08P2	694922	7632381	63.9	3.9-63.9	155	PVC	FR
WS08P3	694733	7632083	54	10.6-52.5	155	PVC	FR

Waste Management

Wastes produced will be those routinely produced at mining facilities and will include general refuse, medical waste, non-metal scrap (containers, pallets, wood, plastic, concrete), office and administrative waste, putrescible waste, tyres, batteries and wastewater.

Wastes will be segregated and stored appropriately before being removed from site by a licensed contractor for disposal at an appropriately licensed facility as required. There will be no on-site waste disposal. Waste storage will be designed to minimise wildlife access, with closed lids on any putrescibles and crib waste collection and storage vessels.

As previously identified, should a RO plant be used, Fortescue will investigate disposal options for the small volumes of brine that would be produced, including dilution through addition to the process or dust suppression water streams.

Workforce

The construction workforce will consist primarily of contractor employees, supplemented with a small number (25 to 30 persons) of Fortescue personnel, primarily in management and technical roles. A permanent workforce of approximately 235 people will be required. This will be split into three rostered shifts, such that only two thirds of this workforce (157 people) will be on site at any one time. Where possible, local contractors and employees will be used, depending on availability and the skills required.

Due to the remote location of the mine site, all personnel will be fly in/fly out from Port Hedland and will be transported to and from site by bus. The majority of the workforce will be accommodated onsite.

In addition to the permanent workforce, external providers will be required to supply maintenance and service personnel on an as-needed basis. This is estimated to average 10 additional personnel. Catering personnel are estimated to add another 10 personnel and an additional allowance of 10 persons has been provided for visitors. This gives a total of 265 contractors, Fortescue staff and visitors. With approximately one third of the total workforce rostered off, it is anticipated approximately 160-170 people will be on site at any one time.

Mining, processing and product transport are expected to operate 24 hours a day, seven days a week. Drill and blast will be restricted to day shift operations as a safety precaution.

Haulage and Access Roads

Product Transport and Export

Fortescue is proposing to haul iron ore by road from the mine to Fortescue's existing Anderson Point facilities. The haulage operation is proposed to be a 24 hour operation with triple configuration road trains. The trucking frequency will be in the order of one loaded truck every 30 minutes.

The North Star Mine Access and Haulage Road will be constructed for access to the Great Northern Highway and will be suitable for Class 1, 2 or 3 traffic. A 15 m wide constructed road pavement will be required to allow for access of heavy haulage trucks and light vehicles. The total disturbance width of the road will be 30 m to allow for road berms, shoulders and drains. In consideration of the

Project's relatively short mine life, the access road basis of drainage design will satisfy a 1-in-5-year ARI rain event.

According to Regulation 13.7 of the *Mines Safety and Inspection Regulations 1995*, it is the responsibility of the Mine Manager to ensure that the design and construction of each road will allow the safe operation of all mobile equipment authorised to travel on the road. The North Star Mine Access and Haulage Road will be designed to satisfy this requirement.

The Great Northern Highway has Main Roads Western Australia (MRWA) concessional load haulage requirements. Fortescue will comply with all MRWA notifications and permits for concessional load haulage.

The North Star Mine Access and Haulage Road will be located within pending Miscellaneous Licences L45/293 and L45/294.

Access Ramp

An access ramp will be constructed between the open pit and ROM pad to provide access for haulage of material from the Mine Pit to the processing plant. Design of the Access Ramp will be in accordance with the relevant Fortescue Specifications and Australian Standards.

Access Roads and Tracks

A number of internal access roads and tracks will be required to provide access to various facilities including the accommodation camp, explosives magazine and water supply bores. Existing exploration and/or pastoral tracks will be used where possible to minimise disturbance.

Due to the short mine life and relatively small footprint of the Project, all roads and access tracks are planned to be unsealed and constructed with local material.

Access roads and tracks will avoid any larger vegetation where possible. Road construction will consist of stripping groundcover vegetation and topsoil and stockpiling it in windrows either adjacent to the roads or in designated stockpile areas. A scraper-grader will then form the road and create an additional windrow to protect stockpiled soil from potential disturbance. Passive drainage will be created through construction of each minor access road. Significant drainage requirements (e.g. culverts) are not anticipated but may be required in low points.

Resource Requirements and Regional Infrastructure

Water Usage

Water supply for potable, processing, dust suppression and other requirements will be supplied from 12 existing bores located in Fortescue's mainline rail corridor. Table 4 provides the water demands for the construction phase of the Project while Table 5 provides details of the operational water requirements for the Project. Average demand during construction is estimated to be 216,000 kL/month while average demand during operations is expected to be 234,000 kL/month. Water demand will gradually increase following construction and during operational ramp up, resulting in a peak average water demand of approximately 234,000 kL/month.

Table 4: Mine Area Construction Groundwater Demands

Demand Item	Average Monthly Demand (kL)	Annual Abstraction (kL)	Demand Duration (months)
Earthworks	36,000	432,000	6
Road	72,000	864,000	6
Camp	18,000	216,000	6
Other	18,000	216,000	6
Construction Total	216,000	2,592,000	6

Table 5: Mine Area Operations Groundwater Demand Details

Demand Item	Average Monthly Demand (kL)	Annual Abstraction (kL)	Demand Duration (months)
Dust Suppression Mine	72,000	864,000	22
Dust Suppression Road	72,000	864,000	22
Processing Plant	36,000	432,000	22
Washdown/Infrastructure	18,000	216,000	22
Camp	36,000	432,000	22
Operations Total	234,000	2,808,000	22

Commercial dust suppression products/surfactants (for example Dustmag) will be used to minimise the amount of water required for haulage route dust suppression and maximising the length of time between water applications.

Water extracted from the production bores will be delivered to site via above ground high density polyethylene (HDPE) piping and stored in a 16 ML capacity lined water storage pond in the mine area. This will provide up to two days storage for peak daily demand up to 8,000 kL/day.

The water storage pond is expected to be constructed using mining waste material. The pond will either be landscaped to allow animal egress or have specific animal egress points installed.

Water extracted for potable purposes will be piped to the accommodation camp where it will be treated to meet the minimum requirements of the Australian Drinking Water Guidelines (NHMRC, NRMCC, 2011). Treated water will be stored in a tank with five days storage capacity. Potable water demands for other areas within the Project will be reticulated from the accommodation camp.

Energy Usage

Power distribution assets are not located within a reasonable distance of the Project area. As such, power supply for the Project will be sourced from multiple mobile diesel generators. The Project power demand will be up to 8.0 MW which includes:

- Mining Infrastructure – up to 0.5 MW.
- Mobile Crushing Hubs – 6.5 MW.
- Accommodation camp – (200) persons – 0.8 MW.

Diesel generator sets will be located at each of these main demand locations.

All electrical installations will conform to Fortescue Specifications, Australian Standards, Western Australia Electrical Requirements, and the *Mines Safety and Inspection Act 1995* and associated Regulations.

Fuel Usage and Hydrocarbons

It is estimated that up to 29 ML per annum (MLpa) of diesel will be required for the Project. This includes:

- Offices, Workshop and Fuel Facility – up to 0.44 MLpa.
- Camp – up to 0.44 MLpa.
- Site Establishment and Infrastructure – up to 4.75 MLpa.
- Mining – up to 8.77 MLpa.
- Crushing – up to 4.4 MLpa.
- Drill and Blast – up to 1.26 MLpa.
- Ore Transport – up to 8.91 MLpa.

Onsite diesel storage will provide capacity for up to 605 kL based on one week's storage for 29 MLpa. Diesel will be stored in up to 11 double skinned (self-bunded) 55 kL capacity tanks

compliant with Australian Standard 1940:2004 (The storage and handling of flammable and combustible liquids). It is expected that these tanks will be located at the following locations:

- 2 x 55kL tank at the accommodation camp (power generation and light vehicles).
- 9 x 55kL tanks at the Mining Area (infrastructure power station, mining fleet).

Tanks will be fitted with overfill alarms and visual indicators of an internal wall rupture (i.e. dip tube) and protected from vehicle strikes with windrows and/or bollards. A lined refuelling pad will be provided adjacent to the fuel storage tanks, with at least one of the tanks consisting of an on-board bowser for dispensing fuel to light vehicles, and a fast fill for refuelling heavy earth-moving equipment.

A contracted fuel supplier will transport diesel fuel to site on a regular basis by tanker road train deliveries.

A range of lubricating oils will also be required. Bulk storage tanks of 10 kL for each oil grade will be required. These will similarly be either self-bunded tanks or tanks located in a bunded compound. An additional oil tank of 10 kL will be used to collect waste oil for offsite disposal.

A licence to store dangerous goods will be submitted to the Department of Mines and Petroleum (DMP) when exact storage capacities and locations are finalised.

Bulk Earthworks

A total of 3.34 million cubic metres (Mm^3) of material is required for bulk earthworks at various locations across the Project. Material will be sourced from mine waste and includes the following:

- Main pad for the Mine Infrastructure area – 1.5 Mm^3
- Main pad for the Camp – 0.6 Mm^3
- Miscellaneous – 0.1 Mm^3
- Cut and fill Ramp from the top of the North Star plateau for access. – 1.14 Mm^3

Communications

A stand-alone satellite link system will provide television, telephone and data communications for the site.

2.2 Alternatives to taking the proposed action

N/A

2.3 Alternative locations, time frames or activities that form part of the referred action

N/A

2.4 Context, planning framework and state/local government requirements

Fortescue is proposing to develop iron ore resources at North Star in response to current and expected future global demand for iron ore. The following provides a brief legislative context for mining projects within Western Australia and a summary of associated environmental approvals. Key environmental legislation and regulations relevant to this Project are described below.

Mining Act 1978

The *Mining Act 1978* (WA) regulates mineral exploration and mining in Western Australia. A mining proposal will be submitted to the Department of Mines and Petroleum (DMP) in accordance with the Mining Environmental Management Guidelines – Mining Proposals in WA.

Environmental Protection Act 1986

The *Environmental Protection Act 1986* (WA) is the primary legislation that governs environmental impact assessment and protection in Western Australia. Fortescue has referred this Project to the EPA under Section 38(1) of the EP Act.

The mobile crushing and screening plant is classified as a prescribed premises (Category No. 12: crushing and screening of 50,000 tonnes or more of ore per annum) under Schedule 1 of the Environmental Protection Regulations 1987 and will require approval under Part V of the EP Act. Additionally, the wastewater treatment plant will be of a size that triggers Category 85 (sewage facility: premises on which sewage is treated (excluding septic tanks) or from which sewage is discharged to land or waters of capacity more than 20 but less than 100 m³/day), which requires a works approval and subsequent registration.

Fortescue will submit works approval and licence/registration applications for concurrent assessment by the Department of Environment and Conservation (DEC) with the mining proposal. Subject to approval of the works approval and completion of construction activities, Fortescue will then submit an application for an operating licence, seeking approval to operate the prescribed premises.

Rights in Water and Irrigation Act 1914

The *Rights in Water and Irrigation Act 1914* (RIWI Act) (WA) is the primary legislation under which the Department of Water (DoW) manages and allocates terrestrial water resources in Western Australia. Fortescue propose to extract water from a number of existing bores located in Fortescue's Special Rail Licence (L1SA) for the Port Hedland to Cloudbreak Mainline Railway. Fortescue will discuss with DoW the existing groundwater bores within determine what approvals will be required to extract water from these bores.

Aboriginal Heritage Act 1972

The *Aboriginal Heritage Act 1972* (AH Act) (WA) makes provision for the preservation of places and objects customarily used by or traditional to the original inhabitants of Australia or their descendants. The Project area is located within areas subject to the Njamal and Kariyarra Native Title Claims; Fortescue signed a Land Access Agreement (LAA) with the Kariyarra People in 2005 and a Project Agreement with the Njamal People in 2012. Guided by these agreements, heritage surveys (archaeological and ethnographic) have been completed over significant portions of the proposed Project area, identifying a number of heritage sites. Fortescue will continue to conduct surveys, in collaboration with Heritage Consultants and relevant Traditional Owners, to ensure all sites of heritage significance are recorded and a management framework in place to protect key heritage values.

Although the majority of project infrastructure and ground disturbing activity has been designed to avoid heritage sites, if a site cannot be avoided by works, Fortescue will lodge an application under Section 18 (s18) of the AH Act for consent to use land on which an Aboriginal site is located. Subsequent to receipt of any s18 consent, all works conducted in the vicinity of heritage sites will be managed under Fortescue's Ground Disturbance Permit (GDP) Procedure in order to avoid impacts to sites, which may include the implementation of site specific mining practices to minimise the risk of impact to sites.

Other Approvals

In the event that the Project is considered to be environmentally acceptable and sanctioned by Government, it will be bound by the provisions of complimentary planning, heritage and environmental legislation, including (but not limited to):

- *Agriculture and Related Resources Protection Act 1976* (WA).
- *Australian Heritage Council Act 2003* (Cth).
- *Contaminated Sites Act 2003* (WA).

- *Dangerous Goods Safety Act 2004 (WA).*
- *Dangerous Goods Safety (Explosives) Regulations 2007 (WA).*
- *Dangerous Goods Safety (General) Regulations 2007 (WA).*
- *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007 (WA).*
- *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 (WA).*
- *Environmental Protection Regulations 1987 (WA).*
- *Environmental Protection (Noise) Regulations 1997 (WA).*
- *Health Act 1911 (WA).*
- *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 (WA).*
- *Heritage of Western Australia Act 1990 (WA).*
- *Land Administration Act 1997 (WA).*
- *Local Government Act 1995 (WA).*
- *Main Roads Act 1930 (WA).*
- *Mine Safety and Inspection Act 1995 (WA).*
- *Native Title Act 1993 (Cth).*
- *Road Traffic Act 1974 (WA).*
- *Soil and Land Conservation Act 1976 (WA).*
- *Town Planning and Development Act 1928 (WA).*
- *Wildlife Conservation Act 1950 (WA) (WC Act).*

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

N/A

2.6 Public consultation (including with Indigenous stakeholders)

Stakeholder consultation on the Project has formed part of an ongoing extensive stakeholder engagement programme for Fortescue projects undergoing environmental approvals. The overarching objectives of the program are:

- To disclose the Project to all interested parties with sufficient detail such that they are able to raise issues and concerns and obtain feedback at the project development stage.
- To establish relationships with key stakeholders that enable ongoing dialogue through implementation and regulation of the Project.

Stakeholder Engagement Process

Fortescue has undertaken stakeholder engagement in relation to a range of projects since 2011. Consultation to date revolved primarily around the proposed development of the North Star Magnetite Project. These discussions have been extended to include this Project (Hematite) by way of conceptualising the mine planning options associated with the Magnetite Project and the opportunity for staged development, trucking and production of a dry, high grade product.

Key stakeholders were identified through Fortescue experience in the Pilbara and project managers have collaborated to support each other's stakeholder engagement through joint identification of stakeholders and integrated engagement activities. Fortescue also adopted previous recommendations from State Government agencies on stakeholders that should be included in the program. Key stakeholders identified to date are detailed in Table 6.

Table 6: Key Stakeholders for the North Star Project

Government Agencies	Community and Surrounding Land Users	Mining Companies
Department of Sustainability Environment Water Population and Communities (DSEWPaC)	Njamal People (Traditional Owners)	Atlas Iron
WA Office of the Environmental Protection Authority (OEPA)	Wallareenya Pastoral Station	
WA Department of Environment and Conservation (DEC) (both Perth and Regional Karratha offices)	Kangan Pastoral Station	
WA Department of Mines and Petroleum (DMP)	Newman Community Consultative Group	
WA Department of State Development (DSD)	Port Hedland Chamber of Commerce and Industry	
WA Department of Water (DoW)	Care for Hedland	
WA Department of Indigenous Affairs (DIA)	Conservation Council of WA	
Department of Transport WA	World Wildlife Fund (WWF)	
Main Roads WA	Pilbara Wildlife Carer's Association	
Shire of East Pilbara	Kings Park and Botanic Gardens	

Government Agencies	Community and Surrounding Land Users	Mining Companies
Town of Port Hedland	Wildflower Society	
Pastoral Lands Board		
Department of Health		
Port Hedland Port Authority		

In addition to ongoing one-on-one telephone and email liaison, Fortescue employed the following modes of engagement in the development of the Project:

- Face-to-face meetings.
- Site visits.
- Direct mail.
- Group emails.
- Teleconferencing.
- Telephone contact.

Integrated engagement ensured efficient use of stakeholders' available time and resources by avoiding multiple briefings for multiple projects.

Stakeholder Comments and Proponent Responses

The consultation activities undertaken to date and the issues raised are summarised in Table 7. In addition, Fortescue are also engaged in ongoing and ad hoc interactions with stakeholders on a one-to-one basis.

Ongoing Consultation

Fortescue will continue to maintain established communication channels and stakeholder relations throughout the life of the Project. The engagement program established with stakeholders regarding the Project prior to its referral to the EPA will be continued as a normal part of Fortescue business practices.

Planned upcoming consultation includes:

- Letters to community groups, pastoral station owners, industry groups and non-government organisations.

- Site visits with Traditional Owners (Njama People). This will be at the request of the Traditional Owners and is likely to occur in July 2012.
- Shopping centre information days at Port Hedland and South Hedland in July 2012.
- Meetings and information sessions with regulatory agencies:
 - EPA, DEC, DoW, DMP, DIA, Department of Health (DoH) and DSD: June 2012.
 - Regional offices of DoW and DEC and Port Hedland Port Authority.

Table 7: Summary of Stakeholder Consultation

Date	Location	Stakeholder Group(s)	Attendees	Consultation Method	Issues Raised
12-Jan-11	West Perth	Port Hedland Port Authority	Sean David, Ross Atkin, Jonathon Clements, Katarina Busunovich,	Meeting and brief presentation on North Star	Impact of trucking on Utah Road, possibility of trucking direct to Finucane Island.
19-Oct-11	Paraburdoo	Shire of Ashburton	Sean McGunnigle, Ford Murray, Scott Hansen	Presentation	No issues raised
15-Nov-11	Karratha	Department of Water	Kevin Hopkinson, Hamid Mohsenzadeh, Natalie Leach, Gary Humphreys, Sean McGunnigle, Bobak Willis-Jones, Shaun Grein, Richard Martin, Les Egerton, Ian Brandes De Roos, Matt Dowling, Jacqui Hickey, Andrew Winzer, Michael Carroll, Rachael Sharpe	Meeting/information session	No issues raised
30-Nov-11	Canberra	DSEWPac	Sean McGunnigle, Deidre Willmott	Presentation	No issues raised
8-Dec-11		DSEWPac	Sean McGunnigle	Teleconference	No issues raised
14-Dec-11	Port Hedland	Town of Port Hedland	Sean McGunnigle, Ford Murray, Vicki James, Paul Martin, Councillors: Julie Hunt, George Daccache, Arnold Carter; Jan Gillingham	Presentation	Trucking of ore. Additional Infrastructure in Port Hedland
14-Dec-11		DSEWPac	Sean McGunnigle	Teleconference	Update on Projects
16-Dec-11	Newman	Shire of East Pilbara	Sean McGunnigle, Council	Council Meeting - Presentation	No issues raised
11-Jan-12		DSEWPac	Sean McGunnigle	Teleconference	Update on Projects
8-Feb-12		DSEWPac	Sean McGunnigle	Teleconference	Update on Projects

Date	Location	Stakeholder Group(s)	Attendees	Consultation Method	Issues Raised
14 & 15 Feb 2012	North Star	Regulatory Agencies	Sean McGunnigle, Shaun Grein, Rachael Sharp, Matt Dowling, Bobak Willis-Jones, Jonathon Clements, Sean David, Ford Murray, Deidre Willmott, Ian Zlatnik, Chris Stanley, Anthony Sutton, Phil Boglio, Gary Humphreys, Hamid Mohsenzadeh, Ryan Mincham, Carissa Aitken	Site Visit	Dust management What flora and fauna studies are planned Community opinion on trucking of ore to Port Hedland
22-Feb-12		DSEWPac	Sean McGunnigle	Teleconference	Update on Projects
7-Mar-12		DSEWPac	Sean McGunnigle	Teleconference	Update on Projects
14-Mar-12		DSEWPac	Sean McGunnigle, Kat Dunstan	Teleconference	Update on Projects
28-Mar-12		DSEWPac	Sean McGunnigle	Teleconference	Update on Projects
23-May-12	Canberra	DSEWPac	Sean McGunnigle, Isak Buitendag, Shaun Grein, David Clavert, Deidre Willmott, Kate Paull, Lachlan Wilkinson	Meeting and Presentation	Update on projects, presentation on matters of NES for each project.
28-June-12	North Star	DSEWPac	Sean McGunnigle, Matthew Dowling, David Calvert, Lachlan Wilkinson	Site Visit	Matters of NES (Northern Quoll, Pilbara Leaf-nosed Bat and Pilbara Olive Python), Mine Closure and relationship to other projects.
2011 - Ongoing	North Star	Njama! People and Heritage Consultants	Njama! Traditional Owners and Fortescue Representatives	Archaeological and ethnographic surveys	Recording and reporting of sites and areas of Aboriginal cultural heritage

2.7 A staged development or component of a larger project

N/A

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

No World Heritage Properties occur within 10 km of the Project.

Nature and extent of likely impact

N/A

3.1 (b) National Heritage Places

Description

No National Heritage Places occur within 10 km of the Project.

Nature and extent of likely impact

N/A

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

No Wetlands of International Importance (declared Ramsar wetlands) occur within 10 km of the Project.

Nature and extent of likely impact

N/A

3.1 (d) Listed threatened species and ecological communities

Description

Five threatened fauna species were identified by a search of the Project area using the EPBC Act Protected Matters Search Tool. Four of these have a medium to high likelihood of occurrence within the Project area (Table 8).

Table 8: EPBC Listed Threatened Species Relevant to the Project Area

Species	Common Name	EPBC Status	Likelihood of Occurrence
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered	High – Recorded during surveys
<i>Dasycercus cristicauda</i>	Crest-Tailed Mulgara	Vulnerable	Low – Little suitable habitat exists within the Project area
<i>Macrotis lagotis</i>	Greater Bilby	Vulnerable	Medium – Not recorded during surveys but habitat exists along the western portion of the access road
<i>Rhinonicteris aurantia</i> (Pilbara form)	Pilbara Leaf-nosed Bat	Vulnerable	High – Recorded during surveys
<i>Liasis olivaceus barroni</i>	Olive Python (Pilbara subspecies)	Vulnerable	High – Recorded during surveys

A Level 2 fauna survey of the mine area, access road as far as the Fortescue Mainline railway and surrounding areas was undertaken by *ecologia* Environment in March/April and October/November 2011. This survey covered an area of approximately 34,860 ha. A targeted fauna assessment of the area was undertaken in July 2011, specifically targeting Northern Quoll, Pilbara Leaf-nosed Bat and Pilbara Olive Python. These surveys were undertaken in accordance with EPA Guidance Statement 56 (EPA, 2004), Technical Guide - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA and DEC, 2010), referral guideline for the Northern Quoll (DSEWPaC, 2011a), and survey guidelines for Australia's threatened reptiles, mammals and bats (DSEWPaC 2011b; 2011c; 2010) as appropriate.

Detailed information in relation to threatened species and ecological communities is provided in Section 2 of the Supporting Information (Attachment 1). Reports for these surveys are provided in Appendix 1 of the Supporting Information.

Nature and extent of likely impact

Address any impacts on the members of any listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat.

Potential impacts to listed threatened species include:

- Degradation of habitat.
- Fragmentation of habitat.

- Noise and vibration impacts.
- Injury to or mortality of individuals.

Potential impacts, and proposed management measures, are discussed in detail in Section 3 of the Supporting Information.

3.1 (e) Listed migratory species

Description

A total of eight migratory species have been identified from searches of the EPBC Act Protected Matters Search Tool for the Project area. Of these, three species have a medium to high likelihood of occurring within the Project area. Listed migratory species that may occur within the Project area are shown in Table 9.

Table 9: EPBC Listed Migratory Species Relevant to the Project Area

Species	Common Name	Status	Likelihood of Occurrence
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory Marine	High – recorded during site surveys. As this species is largely aerial it is unlikely to be impacted by the Project
<i>Ardea alba/modesta</i>	Great Egret, White Egret	Migratory Marine / Migratory Wetland	Low – Project area does not provide preferred habitat for this species
<i>Ardea ibis</i>	Cattle Egret	Migratory Marine / Migratory Wetland	Low – area does not provide preferred habitat for this species
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Migratory Terrestrial	Low – Not recorded during fauna surveys.
<i>Hirundo rustica</i>	Barn swallow	Migratory Terrestrial	Low – normally recorded from coastal lowlands, near towns and cities
<i>Merops ornatus</i>	Rainbow Bee-eater	Migratory Terrestrial	High – recorded during site surveys
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	Migratory Wetland	Medium – recorded from the region
<i>Glareola maldivarum</i>	Oriental Pratincole	Migratory Wetland	Low – no records in the region

Nature and extent of likely impact

Migratory species recorded from the Project area are considered to be widespread, highly mobile and commonly recorded within the Pilbara region and are therefore unlikely to be significantly impacted by the Project. Additional information is provided in Section 3 of the Supporting Information.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

N/A

Nature and extent of likely impact

N/A

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

N/A

Nature and extent of likely impact

N/A

3.1 (h) The Great Barrier Reef Marine Park

Description

N/A

Nature and extent of likely impact

N/A

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	Is the proposed action a nuclear action?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))			
3.2 (d)	Is the proposed action to be taken on Commonwealth land?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))			
3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))			

3.3 Other important features of the environment

3.3 (a) Flora and fauna

Flora and Vegetation

A Level 2 flora and vegetation survey was undertaken by *ecologia* Environment for the mine area, access road as far as the Fortescue Mainline railway and surrounding areas. The survey covered an area of approximately 34,860 ha and was undertaken in accordance with EPA Guidance Statement 51. Additional surveys are currently underway for the remainder of the access road.

A total of 453 flora taxa were recorded during the 2011 surveys undertaken by *ecologia* Environment. This consisted of 55 families and 168 genera. The most commonly recorded families were Fabaceae (75 taxa), Poaceae (69 taxa) and Malvaceae (47 taxa). The most commonly recorded genera were *Acacia* (29 taxa) and *Ptilotus* (14 taxa).

The families and genera represented are considered typical of surveys within the Pilbara during favourable seasonal conditions, with the exception of the relatively high representation of the family Cyperaceae. An unusually high diversity of sedges were recorded during the survey as a result of the presence of semi permanent and permanent water sources, many of which were in excellent condition (*ecologia* Environment, 2011).

No EPBC listed Threatened flora species nor any State listed Threatened flora species have been recorded or are considered to potentially occur within the Project area. A total of eight DEC listed Priority Flora species have been recorded from the Project area and surrounds. These are:

- *Abutilon pritzelianum*.
- *Heliotropium muticum*.

- *Pityrodia* sp. Marble Bar.
- *Euphorbia clementii*.
- *Acacia glaucochaesia*.
- *Gymnanthera cunninghamii*.
- *Goodenia nuda*.
- *Ptilotus mollis*.

Vertebrate Fauna

The potential vertebrate fauna assemblage of the region comprises 47 native and six introduced mammals, 150 birds, 111 reptiles and seven amphibians (*ecologia* Environment, 2012). The Level 2 fauna survey recorded a total of 181 native vertebrate fauna species of the possible 315 species that may occur within the region (*ecologia* Environment, 2012). The recorded vertebrates comprised of 19 native mammal species, 3 introduced mammal species, 81 bird species, 75 reptile species and 6 amphibian species (*ecologia* Environment, 2012).

A total of 12 fauna species of conservation significance were recorded during the 2011 surveys by *ecologia* Environment. Of these, five are listed under the EPBC Act and *Wildlife Conservation Act 1950* while seven are listed on DEC's Priority Fauna List. A further seven species of conservation significance are considered to have a medium to high likelihood of occurrence. Table 10 lists the species recorded or having a medium to high likelihood of occurrence within the area surveyed.

Table 10: Occurrence of Conservation Significant Fauna within the Project Area¹ and Surrounds

Species Common Name	Scientific Name	Conservation Status			Occurrence in Project Area	
		EPBC	WC Act	DEC Priority List	Recorded	Medium – High Likelihood of Occurrence
Mammals						
Greater Bilby	<i>Macrotis lagotis</i>	VU	S1			•
Northern Quoll	<i>Dasyurus hallucatus</i>	EN	S1		✓	
Pilbara Leaf-nosed Bat	<i>Rhinonicteris aurantia</i>	VU	S1		✓	
Spectacled Hare-wallaby	<i>Lagorchestes conspicillatus leichardti</i>			P3		•
Brush-tailed Mulgara	<i>Dasycercus blythii</i>			P4		•
Ghost Bat	<i>Macroderma gigas</i>			P4	✓	
Long-tailed Dunnart	<i>Sminthopsis longicaudata</i>			P4	✓	
Western Pebble-mound Mouse	<i>Pseudomys chapmani</i>			P4	✓	
Birds						
Eastern Great Egret	<i>Ardea modesta</i>	Mi	S3			•
Fork-tailed Swift	<i>Apus pacificus</i>	Mi	S3		✓	
Rainbow Bee-eater	<i>Merops ornatus</i>	Mi	S3		✓	
Peregrine Falcon	<i>Falco peregrines</i>		S4			•
Australian Bustard	<i>Ardeotis australis</i>			P4	✓	
Bush Stone-curlew	<i>Burhinus grallarius</i>			P4	✓	
Grey Falcon	<i>Falco hypoleucos</i>			P4	✓	
Star Finch (Western)	<i>Neochmia ruficauda subclarescens</i>			P4	✓	
Reptiles						
Pilbara Olive Python	<i>Liasis olivaceus barroni</i>	VU	S1		✓	
	<i>Ctenotus nigrilineatus</i>			P1		•
	<i>Ramphotyphlops ganei</i>			P1		•

3.3 (b) Hydrology, including water flows

The Project area lies on the catchment boundary of the Turner River and Strelley River. The Turner River has a catchment of 4,802 km² and is a major river of the Port Hedland Coast Catchment while the Strelley River has a catchment area of 2,805 km² and is a sub-catchment of the Shaw River (WorleyParsons, 2012).

¹ EPBC relevant categories include; EN – Endangered; VU – Vulnerable; Mi – Migratory and the schedules used under the WC Act are S1– Schedule 1; S2 – Schedule 2; S3 – Schedule 3; S4 – Schedule 4. The codes used by the DEC include CR – Critically Endangered; EN – Endangered; VU– Vulnerable; P1–Priority 1; P2–Priority 2; P3–Priority 3; P4–Priority 4; P5 –Priority 5.

Drainage lines in the region are ephemeral and generally only flow for short durations following rainfall events (WorleyParsons, 2012). Intermittent flows normally occur during the wet season with long periods of no flow during the dry season (WorleyParsons, 2012).

The local topography consists of a series of plateaus, hills, ridges and valleys ranging from approximately 220 mAHD to 420 mAHD. As a result, numerous ephemeral drainage lines are found across the project site. The hydrographic features of the Project area and surrounds are shown on Figure 9 of the Supporting Information. The main drainage lines in the area are:

- Lost Boys Creek to the north of the proposed mine pit, which ultimately flows into the Turner River via Chinamon Creek.
- An unnamed creek which parallels the mine access road and flows into the Turner River just south of Pincunah Waterhole.

Several small drainage lines on the eastern edge of the Project area flow into Six Mile Creek which ultimately flows into East Strelley River.

A number of water pools have been identified in the vicinity of the Project area. A total of 11 pools were located during the 2011 fauna surveys as shown on Figure 9 of the Supporting Information. These pools are likely to represent a refuge for fauna in drier months (*ecologia* Environment, 2012) however many are likely to be ephemeral. All pools are located outside of infrastructure development areas.

3.3 (c) Soil and Vegetation characteristics

Most soils in the Project area contained a high percentage of gravel and stone in the soil profile and are covered by a stony mantle (GHD, 2011). Soils are predominantly sandy and were found to be mostly shallow. Soils on areas of high relief are skeletal and while soil depth does increase in the valleys, soil depths of five centimetres and less were recorded at the majority of locations and subsoils are generally absent (GHD, 2011). The key factor in relation to the shallow soils of the Project area is that nearly all landforms are actively eroding with very few depositional areas (GHD, 2011).

A total of 33 vegetation communities have been mapped by *ecologia* Environment (2011) during the 2011 surveys. The three most prevalent vegetation communities are Tw³ (*Triodia wiseana* and *Triodia basedowii* hummock grassland), AaTw⁴ (*Acacia acradenia* and *Acacia inaequilatera* sparse mid shrubland over *Triodia wiseana* and *Triodia lanigera* hummock grassland) and Tw⁴ (*Triodia wiseana* hummock grassland).

3.3 (d) Outstanding natural features

The Project area is located on the edge of the Gorge Range and consists of valleys, ridges, plateaus, gorges and caves. A number of permanent and semi-permanent water pools are located in the vicinity of the Project area. The Gorge Range extends at least 70 km to the east and 45 km to the

south of the Project area and as such the landforms and natural features of the Project area and surrounds are expected to be representative of those broadly in the region.

3.3 (e) Remnant native vegetation

The region in which the Project is located has not been extensively cleared and the vegetation remains largely intact. As a result, the area is not considered to be a remnant of native vegetation.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The Project area is within a highly eroded ancient peneplain. Remnants of the surface of this peneplain now exist as plateaus, hills and ridges. It also lies over the Turner River and Strelley River catchments with the North Star plateau acting as the principle drainage divide between these catchments. The topography of the site varies from approximately 406 mAHD to 280 mAHD.

3.3 (g) Current state of the environment

The Project area is within a highly eroded ancient peneplain and all landforms are actively eroding with very few depositional areas. This has resulted in shallow soils across the local area.

Vegetation condition of the area surveyed was assessed using Trudgen's (1991) vegetation condition scale. Approximately 57% of vegetation within the area surveyed was assessed as being in excellent condition with 26% assessed as being in very good condition (*ecologia* Environment, 2011). The remaining areas were considered to be in good to poor condition due to disturbances from grazing of cattle and feral animals, weeds and previous mining activity. Approximately 55% of the area has been disturbed due to fire within the last five years (*ecologia* Environment, 2011).

No weeds of National Significance (WONS) or Declared Plants under the *Agriculture and Related Resources Protection Act 1978* were identified in the Project area or surrounds. Ten environmental weeds were recorded. These were *Aerva javanica* (Kapok Bush), *Bidens bipinnata* (Bipinnate Beggartick), *Cenchrus ciliaris* (Buffel Grass), *Cucumis melo* subsp. *agrestis* (Ullcardo Melon), *Digitaria ciliaris* (Summer Grass), *Echinochloa colona* (Awnless Barnyard Grass), *Indigofera oblongifolia*, *Malvastrum americanum* (Spiked Malvastrum), *Portulaca oleracea* (Purslane) and *Sonchus oleraceus* (Common Sowthistle) (*ecologia* Environment, 2011).

Three introduced mammals were recorded from the Project area during the 2011 surveys, these being cattle (*Bos taurus*), camels (*Camelus dromedarius*) and evidence of feral cats (*Felis catus*). These species are likely to occur in the area due to the presence of semi-permanent to permanent water sources. Numbers of these animals may increase in times of drought as other water sources dry up.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

The Project will not impact on any Commonwealth Heritage Places, World Heritage Places, National Heritage Places or State Heritage Places.

3.3 (i) Indigenous heritage values

The majority of the Project infrastructure is located within the boundaries of the Njamal Native Title Claim. This includes the mine pit, waste rock dump, associated mining infrastructure, processing infrastructure, administration facilities, accommodation camp and a large part of the mine access road. The western portion of the mine access road from the Turner River to the Great Northern Highway is within the boundaries of the Kariyarra People Native Title Claim.

A number of Aboriginal heritage sites have been identified from surveys undertaken across the project area and surrounds. These sites are shown on Figure 10 of the Supporting Information. No known Aboriginal heritage sites will be directly impacted by the Project.

3.3 (j) Other important or unique values of the environment

There are no national parks, conservation reserves, wetlands of national importance or other unique or important features of the environment in proximity to the project area.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

The mine pit, waste rock dump, processing infrastructure area and mine infrastructure area are situated on Unallocated Crown Land while the processing plant, accommodation camp, administration facilities and part of the access road are located on the Wallareenya Pastoral Lease. The remainder of the mine access road (from the BHP Billiton Newman Mainline railway to the Great Northern Highway) is located on Kangan Pastoral Lease.

The Project is located within pending mining tenements M45/1226 (mine and processing infrastructure), L45/293 (access road) and L45/294 (access road).

3.3 (l) Existing land/marine uses of area

Part of the project area is currently used for pastoral activities while the remaining area is Unallocated Crown Land and supports native vegetation.

3.3 (m) Any proposed land/marine uses of area

There are no known future land uses of the area beyond those proposed as part of this Project.

4 Measures to avoid or reduce impacts

Management Framework

Fortescue operates under an environmental management framework. In addition to implementing the requirements of specific environmental conditions set by regulatory authorities, Fortescue will minimise environmental impacts through:

- Maintaining an Environmental Management System (EMS).
- Implementing an Environmental Management Plan (EMP) for the Project.
- Regularly reviewing the performance of the EMS, EMP and developing environmental improvement plans for priorities identified in the reviews.
- Continually updating mine plans and closure, progressively rehabilitating and measuring success.
- Training staff and contractors in environmental requirements and considerations of their work.
- Stakeholder views are sought, respected and considered.
- Reporting regularly to stakeholders on performance.
- Aligning with the Fortescue Environmental Policy.

Fortescue will abide by all relevant current and future statutory requirements.

The proposed management of the key issues associated with the Project will be documented in an EMP to be implemented to manage specific environmental aspects of the Project. Implementation of the Project in accordance with the EMP will provide confidence that the Project meets all respective environmental obligations including internal objectives, legislation, regulations, and conditions of approval relating to operation of the Project.

The EMP will be comprised of management sub-plans that describe the specific environmental objectives and targets for each environmental factor, the management measures to be applied to avoid and minimise the environmental impact of the Project, monitoring measures to measure the performance of management against the targets, and contingency measures to mitigate unavoidable or accidental impact. The sub-plans will cover the following categories:

- Surface Water Management.
- Closure Management (Mine Closure Plan).
- Biodiversity Management with specific sections relating to conservation significant fauna such as Northern Quoll, Pilbara Leaf-nosed Bat and Pilbara Olive Python.
- Dust Management.
- Noise and Vibration Management.
- Cultural Heritage Management.

The EMP will be regularly reviewed and revised where appropriate.

Key Management Measures

Key measures to avoid or minimise impacts to the Northern Quoll, Pilbara Leaf-nosed Bat and Pilbara Olive Python include:

- The open pit has been set back from the edge of the plateau in order to avoid impacts to Northern Quoll denning and breeding habitat.
- The mine pit has been planned to maximise the separation distance between blasting operations and potential roost caves for the Pilbara Leaf-nosed Bat.
- Likewise, other Project infrastructure (in particular, processing infrastructure) has been located to minimise noise impacts on potential roost caves.
- Known locations of Northern Quoll, Pilbara Leaf-nosed Bat and Pilbara Olive Python will be mapped and access to these areas restricted as far as practicable.
- Access to water pools will be restricted to authorised personnel only.
- Access to potential roost caves for the Pilbara Leaf-nosed Bat will be restricted to authorised personnel only. Entry into confirmed roost caves will be prohibited.
- An appropriate buffer will be established and maintained around identified potential roost caves for the Pilbara Leaf-nosed Bat.
- A monitoring program for Pilbara Leaf-nosed Bats will be undertaken in order to confirm the continued presence of the species in the area during the life of the Project.
- Monitoring will be undertaken in accordance with the Fortescue Mine and Rail Dust Management Plan in relation to dust impacts on vegetation of the Rocky Ridges, Breakaways and Rocky Gorges habitat.

Detailed information on additional management measures proposed for the Project are provided in Section 3 of the Supporting Information.

5 Conclusion on the likelihood of significant impacts

5.1 Do you **THINK** your proposed action is a controlled action?

X

No, complete section 5.2

Yes, complete section 5.3

5.2 Proposed action **IS NOT** a controlled action.

The Project is unlikely to result in significant impacts to listed threatened or migratory species. In relation to the Northern Quoll, an assessment of the project against the MNES Significant Impact Guidelines 1.1 (DEWHA 2009) indicates that implementation of the Project will not result in:

- A long-term decrease in the size of a population.
- Fragmentation an existing population into two or more populations.
- Adverse effects on habitat critical to the survival of a species.
- Disruption to the breeding cycle of a population.
- Modification, destruction, removal, isolation or decrease the availability or quality of habitat to the extent that the species is likely to decline.
- Invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.
- Introduction of disease that may cause the species to decline.
- Interference with the recovery of the species.

While there is the possibility that the area of occupancy of the Northern Quoll in the area may be reduced, this will be localised in extent and significant impacts at the species/population level are unlikely.

An assessment of the Project against the MNES Significant Impact Guidelines 1.1 (DEWHA 2009) was also undertaken for the Pilbara Leaf-nosed Bat and Pilbara Olive Python. This assessment concluded that implementation of the Project would not result in:

- A long-term decrease in the size of an important population of a species.
- Reduction the area of occupancy of an important population.

While there is potential for temporary abandonment of the potential roost cave nearest to the proposed open pit by the Pilbara Leaf-nosed Bat, this cave will not be destroyed and is expected to be available for re-colonisation at the completion of mining and processing

activities. Therefore there is unlikely to be a reduction in the area of occupancy of this species in the medium to long term.

- Fragmentation an existing important population into two or more populations.
- Adverse effects to habitat critical to the survival of a species.
- Disruption of the breeding cycle of an important population.
- Modification, destruction, removal, isolation or decrease the availability or quality of habitat to the extent that the species is likely to decline.
- Invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
- Introduction of disease that may cause the species to decline.
- Substantial interference with the recovery of the species.

Further detailed information in relation the expected environmental outcome for the Project is provided in Section 3.3 of the Supporting Information.

5.3 Proposed action IS a controlled action

Matters likely to be impacted

<input type="checkbox"/>	World Heritage values (sections 12 and 15A)
<input type="checkbox"/>	National Heritage places (sections 15B and 15C)
<input type="checkbox"/>	Wetlands of international importance (sections 16 and 17B)
<input type="checkbox"/>	Listed threatened species and communities (sections 18 and 18A)
<input type="checkbox"/>	Listed migratory species (sections 20 and 20A)
<input type="checkbox"/>	Protection of the environment from nuclear actions (sections 21 and 22A)
<input type="checkbox"/>	Commonwealth marine environment (sections 23 and 24A)
<input type="checkbox"/>	Great Barrier Reef Marine Park (sections 24B and 24C)
<input type="checkbox"/>	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
<input type="checkbox"/>	Protection of the environment from Commonwealth actions (section 28)
<input type="checkbox"/>	Commonwealth Heritage places overseas (sections 27B and 27C)

6 Environmental record of the responsible party

	Yes	No
<p>6.1 Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details</p> <p>FMG Iron Bridge Limited is a subsidiary company of Fortescue Metals Group Limited. Fortescue has been developing and operating its Cloudbreak project since 2005 and has an extensive understanding of the region. Fortescue has developed and implemented a number of environmental management plans in accordance with Ministerial Statements 690, 707 and 862. These plans have been updated as necessary and reviewed and approved by the EPA for implementation.</p> <p>The Cloudbreak Mine (EPBC 2005:2205) was deemed a Controlled Action under the EPBC Act. The Cloudbreak Mine is in full compliance with approval conditions as per the letter from the DSEWPaC dated 30 August 2011 (2011/05627).</p> <p>The Christmas Creek Water Management Scheme (EPBC 2010:5706) was also deemed a Controlled Action and approved by the DSEWPaC on 11 August 2011.</p>	X	
<p>6.2 Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</p> <p>If yes, provide details</p>		X
<p>6.3 If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</p> <p>If yes, provide details of environmental policy and planning framework</p> <p>The Environmental Policy is provided in Appendix 2 of the Supporting Information</p>	X	
<p>6.4 Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?</p>	X	

Provide name of proposal and EPBC reference number (if known)

FMG Iron Bridge Limited is a subsidiary company of Fortescue Metals Group, who has referred the following Projects under the EPBC Act:

- EPBC 2004/1562 Pilbara Iron Ore and Infrastructure Project.
- EPBC 2004/1987 Stage B – Pilbara Iron Ore and Infrastructure Project.
- EPBC 2005/2205 Cloudbreak Open Pit Iron Ore Project.
- EPBC 2010/5513 Additional Rail Infrastructure Project.
- EPBC 2010/5567 Solomon Project.
- EPBC 2010/5706 Christmas Creek Water Management Project.

7 Information sources and attachments

(For the information provided above)

7.1 References

- Department of Health. (2009). Draft Guidelines for Use of Recycled Water in Western Australia.
- DSEWPaC. (2010). Survey Guidelines for Australia's Threatened Bats. Australian Government.
- DSEWPaC. (2011a). EPBC Act 1999 referral guidelines for the endangered northern quoll, *Dasyurus hallucatus*. DSEWPaC.
- DSEWPaC. (2011b). Survey Guidelines for Australia's Threatened Reptiles. DSEWPaC.
- DSEWPaC. (2011c). Survey Guidelines for Australia's Threatened Mammals. DSEWPaC.
- ecologia* Environment. (2011). Vegetation and Flora Assessment. Unpublished report for Fortescue.
- ecologia* Environment. (2012). North Star Level 2 Terrestrial Vertebrate Fauna Assessment. unpublished.
- EPA and DEC. (2010). Technical Guide - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment. Perth: Government of Western Australia.
- EPA. (2004). Guidance Statement No. 56 Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia. Perth: Environmental Protection Authority.
- GHD. (2011). North Star Landform and Soil Report. Unpublished report for Fortescue.
- NHMRC, NRMCC. (2011). Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. Canberra: National Health and Medical Research Council, National Resource Management Ministerial Council Commonwealth of Australia.
- WorleyParsons. (2012). Surface Water Studies. North Star Hematite Project. Unpublished report for Fortescue.

7.2 Reliability and date of information

The information regarding the presence of matters of national environmental significance was obtained through the EPBC Act Protected Matters Interactive Search Tool.

All flora and fauna surveys described in this referral were conducted by qualified consultants with extensive survey experience in the Pilbara region of Western Australia.

Fortescue is not aware of any uncertainties in the information used to prepare this referral.

7.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Figures 1 - 3
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figures 4 - 10
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)	N/A	
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)	N/A	
	copies of any flora and fauna investigations and surveys (section 3)	✓	North Star Project Level 2 Vertebrate Fauna Assessment North Star Project Targeted Conservation Significant Fauna Survey
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	✓	North Star Project Level 2 Vertebrate Fauna Assessment North Star Project Targeted Conservation Significant Fauna Survey
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)	N/A	

8 Contacts, signatures and declarations

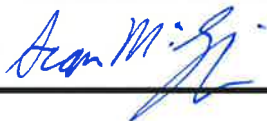
Project title: North Star Hematite Project

8.1 Person proposing to take action

Name Sean McGunnigle
Title Manager, Environmental Approvals
Organisation Fortescue Metals Group Limited
ACN / ABN (if applicable)
Postal address Level 2, 87 Adelaide Terrace
East Perth WA 6004
Telephone 6218 8888
Email smcgunnigle@fmgl.com.au

Declaration
I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
I agree to be the proponent for this action.
I acknowledge that I may be liable for fees related to my proposed action following the introduction of cost recovery under the EPBC Act.

Signature



Date

22/8/12

8.2 Person preparing the referral information (if different from 8.1)

Name Lisa Boulden
Title Senior Environmental Consultant
Organisation Sinclair Knight Merz Limited
ACN / ABN (if applicable)
Postal address Level 11, 263 Adelaide Terrace, Perth WA 6000
Telephone 94694667
Email LBoulden@globalskm.com
Declaration I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
Signature  Date 29/8/12

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ☐ Completed all required sections of the referral form?
- ☐ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ☐ Provided a map showing the location and approximate boundaries of the project area?
- ☐ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ☐ Provided complete contact details and signed the form?
- ☐ Provided copies of any documents referenced in the referral form?
- ☐ Ensured that all attachments are less than two megabytes (2mb)?
- ☐ Sent the referral to the Department (electronic and hard copy preferred)?