



Title of Proposal - Eliwana Iron Ore Mine Project

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Mining

1.2 Provide a detailed description of the proposed action, including all proposed activities.

Fortescue Metals Group Ltd (Fortescue) is proposing to develop the Eliwana Iron Ore Mine Project (the Project) in the Pilbara region of Western Australia. The Project is located approximately 90 km west-north-west of Tom Price. Fortescue currently owns and operates a number of mining and infrastructure projects in the Pilbara; including the Cloudbreak, Solomon and Christmas Creek iron ore mines along with the Fortescue rail network and the Anderson Point port facility.

While preliminary planning for the location of these components and associated infrastructure has been undertaken, detailed design of the Project is still underway. To accommodate refinements in Project layout during the design process, the Project Area has been defined through the use of a development envelope. Fortescue proposes clearing of up to 8,560 ha of native vegetation within the 70,000 ha Mine Development Envelope.

Over the life of the mine, the average annual production rate is estimated at 30 Mtpa but infrastructure will be constructed to reflect peaks in the annual production rate up to 50 Mtpa. The estimated mine life is at least 24 years.

The Project includes the development of above and below water table mine pits, along with associated infrastructure, processing facilities, water management infrastructure for groundwater abstraction and surplus water disposal, temporary and permanent waste landforms and tailings storage facilities.

Operational elements of the Project include:

- Mining in the Eliwana Area (below water table mining, operational temporary standing water and permanent and ephemeral post closure pit lakes in mine voids)
- Mining in the Flying Fish Area (above water table mining and ephemeral (surface water driven) pit lakes in mine voids)
- Ore processing
- Water supply of up to 12 GL/a from a combination of mine dewatering and water supply borefields
- Surplus water resulting from mine dewatering will be managed through a combination of surface discharge and controlled aquifer reinjection
- Onsite power generation.



Proposed infrastructure within the Mine Development Envelope is listed below.

- open cut pits
- waste landforms
- tailings storage facilities (above and below water table)
- ore processing facility
- ROM facility
- crushing and screening facilities
- borrow areas
- ore stockpiles
- topsoil stockpiles
- conveyors
- haul roads
- access roads
- dewatering and surplus water management infrastructure
- gas and water pipelines
- water supply borefield
- culverts
- bridges
- water storage infrastructure
- airport
- accommodation camps (construction)
- accommodation camp (operations)
- communications infrastructure
- landfill and bioremediation facilities
- explosives storage facility
- laydown areas
- fuel storage
- power station
- power transmission lines
- workshops and warehouses
- laboratory and sample stations
- administration buildings
- wastewater treatment plants.

The Eliwana Iron Ore Mine Project specifically excludes the following activities:

- construction of the Eliwana Railway (subject of a separate EPBC Act referral) and Frederick Spur (to be constructed under existing Solomon Mine Approvals).
- sterilisation drilling beneath prospective mine infrastructure
- mining exploration activities associated with Exploration tenements underlying the Mine Development Envelope.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.



Area	Point	Latitude	Longitude
Approximate MDE	1	-22.32750612152	116.6051380451
Approximate MDE	2	-22.32369507383	116.62436411932
Approximate MDE	3	-22.317343096375	116.92511485174
Approximate MDE	4	-22.344019458343	117.39340708807
Approximate MDE	5	-22.41513145721	117.40576670721
Approximate MDE	6	-22.53314773472	117.29865000799
Approximate MDE	7	-22.543294971506	117.09814951971
Approximate MDE	8	-22.446866142741	116.60925791814
Approximate MDE	9	-22.32750612152	116.6051380451

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The Project is located approximately 90 km west-north-west of Tom Price WA. The Mine Development Envelope is approximately 70,000 ha in size and consists of the following Fortescue-managed tenure:

M47/1509, M47/1522 (Pending), M47/1523 (Pending), M47/1524 (Pending), M47/1525 (Pending), M47/1526 (Pending), E47/1194, E47/1195, E47/1196, E47/1299, E47/1300, E47/1301, E47/1302, E47/1373, E47/1500, E47/1533, E47/1861, E47/2037, E47/3291, E47/3334, E47/3686, P47/1650, P47/1665, P47/1667, P47/1668, P47/1669, P47/1670, P47/1671.

There are portions of unallocated crown land (UCL) and third party tenure within the Mine Development Envelope. Unless tenure or access arrangements are negotiated, no disturbance will take place in these areas. The Mine Development Envelope may be refined as the project progresses to align with changes in tenure or access agreements.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

Clearing of 8,560 ha within a Mine Development Envelope of 70,000 ha.

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Cannot be described by Lot address. Refer to Mining



Act 1978 (Mining Act) tenure listed above.

1.8 Primary Jurisdiction.

Western Australia

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 06/2019

End date 06/2044

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

Primary environmental approval for the Project will be sought under Part IV of the *Environmental Protection Act 1986* (EP Act). The Project was formally referred under the EP Act on 7/7/2017. Secondary approvals will be required under Part V of the EP Act, along with the *Mining Act 1978* (Mining Act) and *Rights in Water and Irrigation Act 1914* (RIWI Act).

The Eliwana Railway, linking the proposed Eliwana Iron Ore Mine with Fortescue's existing rail network, is the subject of separate referrals under both the EP Act and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Pre-referral consultation has been undertaken with several regulatory agencies including:

- * the Office of the Environmental Protection Authority (OEPA, now Department of Water and Environment Regulation (DWER)) - regular meetings plus specific project information session on 2/6/2017

- * Department of the Environment and Energy (DoEE) - regular meetings plus specific project consultation on 19/5/2017

- * Department of Water (DoW, now DWER) - 17/5/2017



Preliminary Project information was provided to Department of Parks and Wildlife (DPaW, now Department of Biodiversity, Conservation and Attractions (DBCA)).

Consultation with native title groups has commenced and is ongoing. A project specific information package was presented to the Puutu Kunti Kurrama Pinikurra (PKKP) working group during a regular working group meeting held on 23 March 2017. Fortescue holds a Land Access agreement with PKKP.

Fortescue undertakes regular consultation with pastoral leaseholders. Consultation specifically relating to the Project has included discussions regarding infrastructure location and interaction with pastoral infrastructure, access for biological and other surveys and investigation works.

Regulatory and public consultation will be ongoing as the Project progresses. There is limited public interest in the Project due to its considerable distance from towns/localities.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

The Project was referred under Part IV of the EP Act on 7/7/2017. Secondary approvals will be required under Part V of the EP Act, along with the Mining Act and RIWI Act.

Previous exploration at the Eliwana site has been conducted under various Programmes of Work issued under the Mining Act and associated approvals for construction of wells and water supply under the RIWI Act. Copies of these approvals are available on request but have not been appended due to the very large number which apply.

As the project is only at the referral stage, formal environmental impact assessment is yet to occur. A copy of the EP Act referral document is provided for information as it contains a preliminary environmental impact assessment.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

The Eliwana Iron Ore Mine Project is associated with Fortescue's existing approved Port, Railway and the Solomon Iron Ore Mine, and the proposed Eliwana Railway.



Ore from the Eliwana Mine will be transported via the proposed Eliwana Railway (the subject of separate referrals under both the EP Act and EPBC Act), before being transported along the existing Fortescue Rail network (MS 690/ MS 707/ EPBC 2010/5513/ EPBC 2012/6314) to the Port facility (MS 690) for export.



Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The [interactive map tool](#) can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

- [Profiles of relevant species/communities](#) (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- [Significant Impact Guidelines 1.1 – Matters of National Environmental Significance](#);
- [Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies](#).

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Calidris ferruginea (Curlew Sandpiper):	Species listed in Protected Matters Search Tool



Species	Impact
Critically endangered	as 'may occur within area'. This species has not been recorded within the Project Area and based on the description of suitable habitat (coastal and estuary along with some inland ephemeral lakes), it is not expected to occur. As such no impacts to the species or species habitat are expected.
Pezoporus occidentalis (Night Parrot): Endangered	Species listed in Protected Matters Search Tool as 'may occur within area'. This species has not been recorded within the Project Area and based on the available description of suitable habitat, it is not expected to occur. The nearest known records are west of Cloudbreak Mine near the Fortescue Marsh and a recent record near Broome. No impacts to the species or species habitat are expected.
Rostratula australis (Australian Painted Snipe): Endangered	Species listed in Protected Matters Search Tool as 'may occur within area'. This species has not been recorded within the Project Area and based on the description of suitable habitat (shallow terrestrial freshwater/brackish wetlands, including temporary and permanent lakes, swamps and claypans), it is not expected to occur. As such no impacts to the species or species habitat are expected.
Dasyurus hallucatus (Northern Quoll): Endangered	Species listed in Protected Matters Search Tool as 'species or species habitat known to occur within area'. Potential (unidentifiable) scats have been previously recorded within the Mine Development Envelope. Suitable habitat including ridgelines, gorges and gullies exists within the Mine Development Envelope. Targeted baseline survey work for this species is currently being undertaken. This species was not recorded during the first phase of the current survey (May 2017). Northern Quoll was very recently identified on motion cameras within the Mine Development Envelope during the second phase of the current survey. Preliminary assessment indicates that the species may use parts of the Project Area as foraging habitat. No significant populations have been recorded or are expected to occur. Significant impacts to the species are considered to be unlikely, based on limited presence within the Project Area. A full



Species	Impact
	environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Macroderma gigas (Ghost Bat): Vulnerable	Species listed in Protected Matters Search Tool as 'breeding known to occur within area'. This species has been recorded from within the Mine Development Envelope. Targeted baseline survey work for this species and in particular, identification of potential roost caves is currently being undertaken. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Macrotis lagotis (Greater Bilby): Vulnerable	Species listed in Protected Matters Search Tool as 'species or species habitat likely to occur within area'. This species has not been recorded within or in close proximity to the Mine Development Envelope. Impacts to the species are predicted to be minimal, based on lack of presence within the Project Area. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Rhinonicteris aurantia (Pilbara Leaf-nosed Bat): Vulnerable	Species listed in Protected Matters Search Tool as 'species or species habitat known to occur within area'. This species has been recorded from within the Mine Development Envelope. Targeted baseline survey work for this species and in particular, identification of potential roost caves is currently being undertaken. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Lepidium catapycnon: Vulnerable	Species listed in Protected Matters Search Tool as 'species or species habitat likely to occur within area'. This species has not been recorded within or in close proximity to the Mine Development Envelope, despite targeted survey effort. Impacts to the species are predicted to be minimal, based on lack of presence within the Project Area. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Liasis olivaceus barroni (Pilbara Olive Python): Vulnerable	Species listed in Protected Matters Search Tool as 'species or species habitat likely to occur within area'. This species has been recorded



Species	Impact
	from within the Mine Development Envelope. Targeted baseline survey work for this species is currently being undertaken. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Apus pacificus (Fork-tailed Swift): Migratory Marine	Species listed in Protected Matters Search Tool as 'species or species habitat likely to occur within area'. This species has not been recorded from within the Mine Development Envelope. Impacts to the species are predicted to be minimal, based on limited presence within the Project Area and largely aerial habit. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Hirundo rustica (Barn Swallow): Migratory Terrestrial	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the Project Area and largely aerial habit. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Motacilla cinerea (Grey Wagtail): Migratory Terrestrial	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area.



Species	Impact
	Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the Project Area and largely aerial habit. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Motacilla flava (Yellow Wagtail): Migratory Terrestrial	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the Project Area and largely aerial habit. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Actitis hypoleucos (Common Sandpiper): Migratory Wetland	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the project area and wetland habitat preference. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Calidris acuminata (Sharp-tailed Sandpiper): Migratory Wetland	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the project area and wetland habitat preference. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Calidris ferruginea (Curlew Sandpiper): Migratory Wetland; Critically Endangered	Refer to impact table in Section 2.4.1 above.
Calidris melanotos (Pectoral Sandpiper): Migratory Wetland	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the Project Area and wetland habitat preference. A full environmental impact



Species	Impact
	assessment is yet to be undertaken following the completion of baseline survey work.
Charadrius veredus (Oriental Plover): Migratory Wetland	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the Project Area and wetland habitat preference. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.
Glareola maldivarum (Oriental Pratincole): Migratory Wetland	Species listed in Protected Matters Search Tool as 'species or species habitat may occur within area'. This species has not been recorded within or in close proximity to the Project Area. Impacts to the species are predicted to be minimal, based on the large distribution, lack of presence within the Project Area and wetland habitat preference. A full environmental impact assessment is yet to be undertaken following the completion of baseline survey work.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?



No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No



Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

FLORA & VEGETATION

The receiving environment in the Project Area is generally well understood. Fortescue has conducted extensive mineral exploration activities in the area and significant survey effort was undertaken to support these exploration activities. The most relevant previous survey relating to flora and vegetation is the *Eliwana and Flying Fish Level 2 Flora and Vegetation Survey* (ecoscape 2015).

Vegetation

The project is located within the Hamersley subregion of the Pilbara IBRA bioregion. Vegetation systems occurring within the project area, as mapped by Beard (DAFWA 2012) include:

- * 18 – Low woodland; Mulga (*Acacia aneura*)
- * 82 – Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*
- * 175 – Short bunch grassland - savanna/grass plain (Pilbara)
- * 567 – Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex and *Triodia basedowii*.

Mapping of vegetation types within portions of the Project Area from previous surveys has resulted in a significant amount of pre-existing data which will be verified and consolidated as part of the current flora and vegetation surveys.

The condition of vegetation within the Project Area ranges from Completely Degraded/Cleared to Excellent, with the majority falling within the Very Good – Excellent categories.

Significant Vegetation

No vegetation within the Mine Development Envelope is known to represent a Threatened Ecological Community (TEC). Vegetation type AcTwEI, which is known from previous surveys to occupy a small portion of the Mine Development Envelope, was determined as marginally representing the P3 'Triodia sp. Robe River assemblages of mesas of the West Pilbara' Priority Ecological Community (PEC).



Vegetation considered to represent a Groundwater Dependent Ecosystem (GDE) or potential GDE is known to occur within the Project Area.

Flora

No Threatened Flora, as listed under the EPBC Act or the *Wildlife Conservation Act 1950* are known to exist within the Project Area.

A number of Priority flora species have been recorded within the Project Area.

Fortescue is currently undertaking further flora and vegetation surveys in the Eliwana Area to support this Proposal and provide adequate and up-to-date data to support EIA. Following completion of the current surveys, a consolidated flora and vegetation report for the Eliwana Project Area will be prepared.

FAUNA

The most relevant previous survey relating to terrestrial fauna is the *Western Hub Project – Eliwana and Flying Fish Terrestrial Vertebrate Fauna Assessment* (Ecologia 2015). This survey incorporated opportunistic observations, trapping (pit traps/drift fence, Elliott traps, funnel traps and cage traps), acoustic recording and motion cameras.

Fauna Habitat

Broad fauna habitat types known to occur within the project area include:

- * Hilltops, hillslopes, ridges and cliffs
- * Footslopes and plains
- * Major creeklines
- * Gorges and gullies
- * Mixed acacia woodlands - mulga and snakewood.

Fauna habitat is affected to some extent by grazing and trampling by cattle and feral donkeys in localised areas, but generally is considered to be in good condition.

Despite targeted searches, no significant roost caves supporting the Pilbara Leaf-nosed Bat are known from within the Project area.

Mapping of habitat types within portions of the project area from previous surveys has resulted in a significant amount of pre-existing data which will be verified and consolidated as part of the current terrestrial fauna surveys.

Significant Fauna



Several Threatened fauna species, pursuant to the EPBC Act, have previously been recorded from within the Project Area:

- * Endangered: Northern Quoll (*Dasyurus Hallucatus*)
- * Vulnerable: Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)
- * Vulnerable: Ghost Bat (*Macroderma gigas*)
- * Vulnerable: Pilbara Olive Python (*Liasis olivaceus barroni*)

A number of Priority fauna species have been recorded within the Project Area.

Fortescue is currently undertaking further terrestrial fauna surveys incorporating general and targeted searches and delineation of fauna habitat in the Project Area to support this proposal and provide adequate and up-to-date data to support EIA. Following completion of the current surveys, a consolidated terrestrial fauna report for the Project Area will be prepared.

In addition, specifically targeted surveys for Pilbara Leaf-nosed Bats and Ghost Bats are also being undertaken.

3.2 Describe the hydrology relevant to the project area (including water flows).

The Mine Development Envelope falls within the Ashburton River catchment and the Duck Creek subcatchment (which encompasses Caves Creek and Boolgeeda Creek). Duck Creek and Caves Creek are located to the north of the Mine Development Envelope and Boolgeeda Creek to the south of the Mine Development Envelope. Duck Creek/Caves Creek and Boolgeeda Creek flow west to the Ashburton River, which runs north-west and reaches the coast just west of Onslow.

Fortescue is currently developing a conceptual hydrogeological model of the Mine Development Envelope. Key features include shale units running in an east-west direction to the north and south of the mine. These units restrict groundwater flow to the north and south. A series of cross-cutting dolerite dykes restrict east-west groundwater flow. The result is a series of isolated compartments where there will be very little groundwater flow in and out.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

A soil assessment will be undertaken for the Project Area in late 2017.

Vegetation characteristics are described above in the flora and fauna section (section 3.1).

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.



The Project Area does not host any outstanding natural features. Features are typical of the biogeographical subregion.

3.5 Describe the status of native vegetation relevant to the project area.

Large portions of the Project Area are used for pastoral grazing and substantial mineral exploration has been undertaken in localised areas. The condition of vegetation within the Project Area ranges from Completely Degraded/Cleared to Excellent, with the majority falling within the Very Good – Excellent categories.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

Elevation ranges from 330 m AHD to 1020 m AHD. Gradient varies from open, flat topography to areas of steep hills, gorges, and gullies.

3.7 Describe the current condition of the environment relevant to the project area.

Large portions of the Project Area are used for pastoral grazing and substantial mineral exploration has been undertaken in localised areas. Existing mining operations are located in relatively close proximity (including Fortescue's Solomon Mine, Rio Tinto's Silvergrass and Brockman/Nammuldi operations). The condition of vegetation within the Project Area ranges from Completely Degraded/Cleared to Excellent, with the majority falling within the Very Good – Excellent categories.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

N/A

3.9 Describe any Indigenous heritage values relevant to the project area.

Fortescue is currently in the process of conducting heritage surveys across the Project Area. Fortescue will manage sites of indigenous heritage significance in accordance with current processes and in the legislative context of the *Aboriginal Heritage Act 1972*.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The Mine Development Envelope is approximately 70,000 ha in size and consists of the following Fortescue-managed tenure:



M47/1509, M47/1522 (Pending), M47/1523 (Pending), M47/1524 (Pending), M47/1525 (Pending), M47/1526 (Pending), E47/1194, E47/1195, E47/1196, E47/1299, E47/1300, E47/1301, E47/1302, E47/1373, E47/1500, E47/1533, E47/1861, E47/2037, E47/3291, E47/3334, E47/3686, P47/1650, P47/1665, P47/1667, P47/1668, P47/1669, P47/1670, P47/1671.

There are portions of unallocated crown land (UCL) and third party tenure within the Mine Development Envelope. Unless tenure or access arrangements are negotiated, no disturbance will take place in these areas. The Mine Development Area may be refined as the project progresses to align with changes in tenure or access agreements.

3.11 Describe any existing or any proposed uses relevant to the project area.

Large portions of the Project Area are used for pastoral grazing and substantial mineral exploration has been undertaken in localised areas. Some private and public roads are present within the Project Area.



Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

As a full environmental impact assessment is yet to be undertaken, this section includes preliminary measures which will be undertaken in order to avoid or reduce impacts.

FLORA AND VEGETATION

Fortescue has applied the mitigation hierarchy to the Project in relation to flora and vegetation. Mitigation measures include:

Avoidance

Fortescue is currently undertaking flora and vegetation surveys which will identify flora and vegetation of significance which may be able to be avoided during the detailed design of the Project footprint.

Disturbance will be managed using Fortescue's Land Use Certificate system (superseding the Ground Disturbance Permit system) to avoid unauthorised clearing of vegetation.

Minimisation

Clearing and direct disturbance will be minimised where possible.

Disturbance will be managed using Fortescue's Land Use Certificate system in order to minimise clearing of vegetation.

Undertaking groundwater modelling to simulate groundwater drawdown in areas of groundwater dependent vegetation.

Undertaking surface water modelling identifying any impacts to sheetflow-dependent vegetation, should any be identified in the current survey.

Rehabilitation/Revegetation



Fortescue will rehabilitate disturbed areas at the end of their serviceable or operational life. These activities will be undertaken progressively during the operating life of the mine.

Fortescue will develop a Mine Closure Plan (as required under the *Mining Act 1978* and in accordance with DMP's Guidelines for Preparing Mine Closure Plans, May 2015) which will outline specific closure objectives and completion criteria related to rehabilitation.

Offset

Fortescue will develop an offset strategy, including offsets for disturbance of vegetation in good – excellent condition, in consultation with DBCA (formerly DPaW), DWER (formerly OEPA) and DoEE.

TERRESTRIAL FAUNA

Fortescue has applied the mitigation hierarchy to the Project in relation to terrestrial fauna. Mitigation measures include:

Avoidance

Fortescue is currently undertaking terrestrial fauna surveys (incorporating targeted searches) which will identify terrestrial fauna and supporting habitat of significance which may be able to be avoided during the detailed design of the Project footprint.

Disturbance will be managed using Fortescue's Land Use Certificate system (superseding the Ground Disturbance Permit system) to avoid unauthorised clearing of vegetation.

Clearing of critical habitat for the Northern Quoll, Pilbara Leaf-nosed Bat, Ghost Bat and Pilbara Olive Python will be avoided where possible.

Minimisation

Where it cannot be avoided, clearing of critical habitat for the Northern Quoll, Pilbara Leaf-nosed Bat, Ghost Bat and Pilbara Olive Python will be minimised where possible.

Clearing and direct disturbance will be minimised where possible.

Disturbance will be managed using Fortescue's Land Use Certificate system in order to minimise clearing of fauna habitat.

Vehicle speed limits will be enforced.

Rehabilitation/Revegetation

Fortescue will rehabilitate disturbed areas at the end of their serviceable or operational life. These activities will be undertaken progressively during the operating life of the mine.



Fortescue will develop a Mine Closure Plan (as required under the *Mining Act 1978* and in accordance with DMP's Guidelines for Preparing Mine Closure Plans, May 2015) which will outline specific closure objectives and completion criteria related to rehabilitation with respect to suitability for fauna habitat.

Offset

Fortescue will develop an offset strategy, including offsets for disturbance of critical fauna habitat, in consultation with DBCA (formerly DPaW), DWER (formerly OEPA) and DoEE.

HYDROLOGICAL PROCESSES

Fortescue has applied the mitigation hierarchy to the Project in relation to hydrological processes. Mitigation measures include:

Avoidance

The broad project footprint avoids interaction with significant surface water features such as major rivers and major creeks where possible.

Where possible, infrastructure and landforms will be placed to avoid interaction with minor surface water features.

Minimisation

Fortescue is currently developing geological and hydrogeological models of the Mine Development Envelope in order to allow impacts to be estimated.

Fortescue will undertake modelling of proposed groundwater drawdown associated with mine dewatering and water supply abstraction in order to allow impacts to be quantified.

Fortescue is undertaking surface water modelling in order to allow impacts to be quantified.

Fortescue is currently investigating options for management of surface water flow in areas of interaction with significant infrastructure or landforms in order to balance constraints such as topography and tenure with potential impacts to surface water flows and downstream impacts.

Rehabilitation/Revegetation

Fortescue will rehabilitate disturbed areas at the end of their serviceable or operational life. These activities will be undertaken progressively during the operating life of the mine.

Offset

Fortescue will develop an offset strategy, including offsets for disturbance to significant hydrological aspects as required, in consultation with DBCA (formerly DPaW), DWER (formerly OEPA) and DoEE.



4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The Proposal has the potential to impact two matters of national environmental significance:

- * threatened species or species habitats
- * migratory species or species habitats.

As outlined in the previous sections, impacts to threatened species are expected to be limited. Baseline survey work is still ongoing and the results of these surveys will inform management measures to be implemented in relation to each species which may be impacted as a result of the Project. The environmental objective is that no significant impacts to threatened species or species habitats will occur as result of the Project.

As outlined in the previous sections, no impacts are expected to occur to migratory species. Baseline survey work is still ongoing and the results of these surveys will inform any management measures to be implemented in relation to each species which may be impacted as a result of the Project. The environmental objective is that no significant impacts to migratory species or species habitats will occur as result of the Project.



Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No



5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

As outlined in previous sections, baseline surveys to support a full environmental impact assessment are currently being undertaken. Previous survey work indicates that while there are known or likely occurrences of threatened and migratory species within the Project Area, the limited occurrence of these species and their critical habitats, together with the management measures proposed to avoid, minimise, rehabilitate or offset impacts is unlikely to result in a significant impact to any matters of national environmental significance. As such, the Project would not constitute a controlled action. A full environmental impact assessment will be conducted following the completion of baseline biological surveys and impacts to threatened and migratory species will be able to be assessed in detail.



Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Fortescue currently operates three iron ore mines in addition to a railway network and iron ore port facility. All infrastructure is regulated under the EP Act, and the majority is also regulated under the EPBC Act. Fortescue's environmental record is publically available as reported in Annual Environmental Reports which address each site, and incorporate a statement of compliance status with each condition of approval.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

There are no past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Proponent.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

Fortescue operates under an Environment Policy (attached).

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes



6.4.1 EPBC Act No and/or Name of Proposal.

2014/7275: Solomon Iron Ore Project Expansion (under assessment)

2013/7055: Christmas Creek Iron Ore Mine Expansion Project

2013/6945: Nyidinghu Iron Ore Project (under assessment)

2012/6314: Additional Rail Infrastructure

2010/5706: Christmas Creek Water Management Scheme

2010/5696: Expansion of Cloudbreak Iron Ore Mine

2010/5567: Pilbara Iron Ore and Infrastructure Project: Solomon Mine

2010/5513: Additional Rail Infrastructure

2005/2205: Cloudbreak Mine

2004/1897: Stage B Pilbara Iron Ore and Infrastructure Project

2004/1562: Stage A Pilbara Iron Ore and Infrastructure Project



Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Protected Matters Search Tool	Maintained by DoEE. Reliable.	Nil.
DMP & EPA 2015. Guidelines for Preparing Mine Closure Plans, May 2015.	Prepared by DMP and EPA. Reliable	Nil.
Beard, J. S., Beeston, G.R., Harvey, J.M., Hopkins, A. J. M. and Shepherd, D. P. 2013. The vegetation of Western Australia at the 1:3,000,000 scale. Explanatory memoir. Second edition. Conservation Science Western Australia 9: 1-152. Data available via DAFWA (2012).	Reliable and well used source of pre-European vegetation. Mapping data managed by DAFWA.	Nil.
Ecoscope 2015. Eliwana and Flying Fish Level 2 Flora and Vegetation Survey	Reliable data, based on Level 2 survey undertaken in accordance with current EPA guidance material at the time of the survey.	Data does not cover entire Project Area and survey data is fairly aged. Used as a basic reference, not intended to be used to inform the full Project EIA - this will utilise baseline survey work currently being undertaken.
Ecologia 2015. Western Hub Project – Eliwana and Flying Fish Terrestrial Vertebrate Fauna Assessment	Reliable data, based on Level 2 survey undertaken in accordance with current EPA guidance material at the time of the survey.	Data does not cover entire Project Area and survey data is fairly aged. Used as a basic reference, not intended to be used to inform the full Project EIA - this will utilise baseline survey work currently being undertaken.



Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

No feasible alternatives were considered. The location, size and scope associated with the Proposal is based on mineral exploration activities which have led to the definition of viable resource areas.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No



Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Group Manager, Environment

9.2.2 First Name

Brett

9.2.3 Last Name

McGuire

9.2.4 E-mail

bmcguire@fmgl.com.au

9.2.5 Postal Address

PO Box 6915
East Perth WA 6892
Australia

9.2.6 ABN/ACN

ACN

002594872 - FORTESCUE METALS GROUP LTD

9.2.7 Organisation Telephone

6218 8888



9.2.8 Organisation E-mail

reception@fmgl.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature: N/A Date: N/A

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, Brett McGuire, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature: [Signature] Date: 22.8.17

I, Brett McGuire, the person proposing the action, consent to the designation of Fortescue Metals Group Ltd. as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature: [Signature] Date: 22.8.17

9.3 Is the Proposed Designated Proponent an Organisation or Individual?



Organisation

9.5 Organisation

9.5.1 Job Title

Group Manager, Environment

9.5.2 First Name

Brett

9.5.3 Last Name

Mcguire

9.5.4 E-mail

bmcguire@fmgl.com.au

9.5.5 Postal Address

PO Box 6915
East Perth WA 6892
Australia

9.5.6 ABN/ACN

ACN

002594872 - FORTESCUE METALS GROUP LTD

9.5.7 Organisation Telephone

6218 8888

9.5.8 Organisation E-mail

reception@fmgl.com.au

Proposed designated proponent - Declaration

I, Brett McGuire (Fortescue Metals Group Ltd), the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.



Signature:..... Date: 22.8.17

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Group Manager, Environment

9.8.2 First Name

Brett

9.8.3 Last Name

McGuire

9.8.4 E-mail

bmcguire@fmgl.com.au

9.8.5 Postal Address

PO Box 6915
East Perth WA 6892
Australia

9.8.6 ABN/ACN

ACN

002594872 - FORTESCUE METALS GROUP LTD

9.8.7 Organisation Telephone

6218 8888

9.8.8 Organisation E-mail

reception@fmgl.com.au

Referring Party - Declaration



I, Brett McGuire, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:  Date: 22.8.17



Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. 170323_pkkp_wg_presentation.pdf
2. 170323_pkkp_working_group_meeting_outcomes.pdf
3. 170519_doe_presentation_new_projects.pdf
4. 170707_eliwana_mine_referral_uid_70709_r.pdf
5. doe_meeting_170519.pdf
6. ecologia_2015_wh-as-en-0012.pdf
7. ecoscape_2015_wh-as-en-0013_part_1.pdf
8. ecoscape_2015_wh-as-en-0013_part_2.pdf
9. ecoscape_2015_wh-as-en-0013_part_3.pdf
10. eliwana_mine_location_and_layout.pdf
11. environment-policy-2016.pdf
12. epa_presentation_170607.pdf
13. mine_development_envelope_170713.zip
14. protected_matters_search_170713.pdf