



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4681/1
Permit Holder:	Fortescue Metals Group Limited
Duration of Permit:	30 January 2012 – 30 January 2022

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of constructing an overpass, road realignment and associated borrow pits.

2. Land on which clearing is to be done

Lot 203 on Plan 220594 (Boodarie 6722)

Licence number 00616-1983_5_67 located within the following properties:

Lot 265 on Plan 193736 (Boodarie 6722)

Lot 487 on Plan 61851 (Boodarie 6722)

Lot 307 on Plan 193735 (Boodarie 6722)

Lot 203 on Plan 220594 (Boodarie 6722)

Lot 308 on Plan 193736 (Boodarie 6722)

Lot 500 on Plan 59880 (Boodarie 6722)

Lot 283 on Plan 193735 (Lot No. 283 Quartz Quarry Boodarie 6722)

Lot 254 on Plan 93426 (Boodarie 6722)

Lot 75 on Plan 93427 (Boodarie 6722)

Lot 5164 on Plan 214200 (Lot No. 5164 Shoata South Hedland 6722)

Road Reserve (Boodarie 6722) (Pin 11437400; 1734364; 11437402)

3. Area of Clearing

The Permit Holder must not clear more than 80 hectares of native vegetation within the area hatched yellow on attached Plan 4681/1.

4. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 30 January 2017.

5. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

6. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the *Land Administration Act 1997* or any other written law.

7. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

8. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

9. Weed control

- (a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
 - (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
 - (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
 - (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.
- (b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

10. Fauna management

- (a) Prior to undertaking any clearing authorised under this Permit, the area(s) shall be inspected by a *fauna specialist*, in accordance with *Guidance Statement No 56* for the presence of fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice*.
- (b) Where fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice* is identified in relation to condition 10(a) of this Permit, the Permit Holder shall prepare, implement and adhere to a Fauna Management Plan (*FMP*) that will contain the following:
 - (i) measures for identifying suitable relocation sites and relocation techniques or other means of ensuring the ongoing appropriate protection of fauna identified under condition 10(a);
 - (ii) measures for follow-up surveys and delineation of populations of fauna identified under condition 10(a);
 - (iii) measures for monitoring and reporting the success of relocation or other agreed means of appropriate protection employed;
 - (iv) a table setting out the Permit Holder's commitments within the *FMP*; and
 - (v) a program for monitoring compliance with the *FMP* commitments.
- (c) Where an *FMP* is required to be prepared and implemented in accordance with condition 10(b) of this Permit, no clearing can occur unless the *FMP* is approved by the CEO.

11. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) at an *optimal time* following clearing authorised under this Permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit by:

- (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and
 - (ii) ripping the ground on the contour to remove soil compaction; and
 - (iii) ripping the pit floor and contour batters within the extraction site; and
 - (iv) laying the vegetative material and topsoil retained under condition 11(a) on the cleared area(s) that are no longer required for the purpose for which they were cleared under this Permit.
- (c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 11(b) of this Permit:
- (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 11(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
- (d) where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 11(c)(ii) of this permit, the Permit Holder shall repeat condition 11(c)(i) and 11(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 11(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 11(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 11(c)(ii).

PART III - RECORD KEEPING AND REPORTING

12. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to the preparation and implementation of an *FMP* pursuant to condition 10 of this Permit:
 - (i) a description of the activities undertaken in accordance with the *FMP*.
- (c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 11 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*, and
 - (v) a copy of the environmental specialist's report.

13. Reporting

- (a) The Permit Holder must provide to the CEO on or before 31 July of each year, a written report:
- (i) of records required under condition 12 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 July and 30 June of the preceding year.
- (b) Prior to 30 October 2021, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

fill means material used to increase the ground level, or fill a hollow;

FMP means fauna management plan;

Guidance Statement No 56 means Guidance for the Assessment of Environmental Factors: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No 56, Environmental Protection Authority (2004);

local provenance means native vegetation seeds and propagating material from natural sources within 30 kilometres of the area cleared;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

optimal time means the period from November to December for undertaking *direct seeding*;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*; and

Wildlife Conservation (Specially Protected Fauna) Notice means those fauna taxa gazetted as rare fauna pursuant to section 14(4)(a) of the *Wildlife Conservation Act 1950* (as amended).

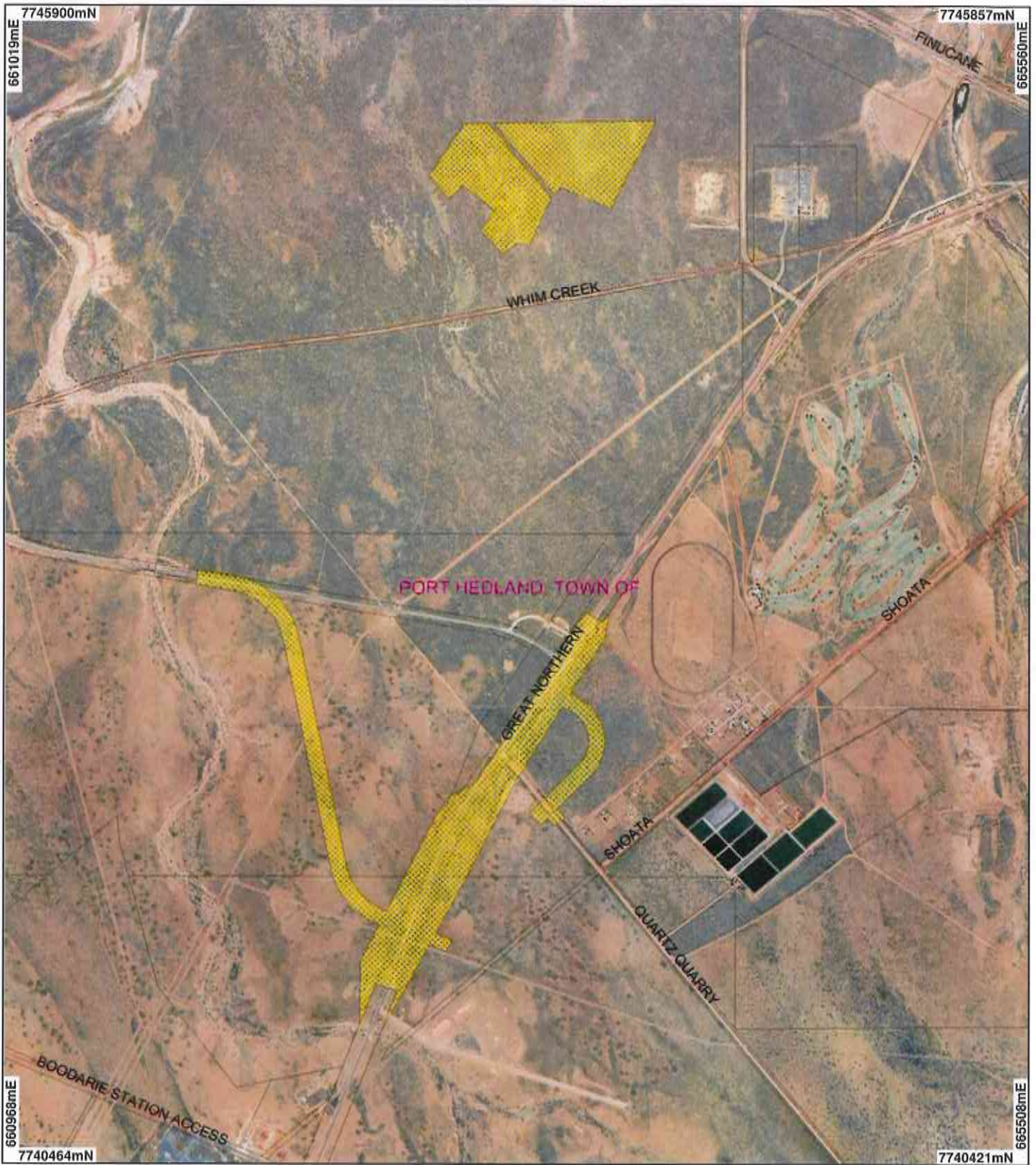
A handwritten signature in cursive script, appearing to read 'M Warnock', is written over a horizontal line.

M Warnock
A/MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

5 January 2012

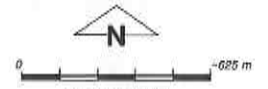
Plan 4681/1



LEGEND

- Road Centrelines
- Cadastre
- Clearing Instruments
- Areas Approved to Clear
- Local Government Authorities

Port Hedland 50cm
Orthomosaic - Landgate
2004



Scale 1:25000
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

audited Date 5/1/12

M. Warnock

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Department of
Environment and Conservation

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1. Application details

1.1. Permit application details

Permit application No.: 4681/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Fortescue Metals Group Limited

1.3. Property details

Property: LOT 203 ON PLAN 220594 (BOODARIE 6722)
LOT 265 ON PLAN 193736 (BOODARIE 6722)
LOT 487 ON PLAN 61851 (BOODARIE 6722)
ROAD RESERVE (BOODARIE 6722)
LOT 307 ON PLAN 193735 (BOODARIE 6722)
LOT 308 ON PLAN 193736 (BOODARIE 6722)
LOT 500 ON PLAN 59880 (BOODARIE 6722)
LOT 283 ON PLAN 193735 (Lot No. 283 QUARTZ QUARRY BOODARIE 6722)
LOT 254 ON PLAN 93426 (BOODARIE 6722)
LOT 75 ON PLAN 93427 (BOODARIE 6722)
LOT 5164 ON PLAN 214200 (Lot No. 5164 SHOATA SOUTH HEDLAND 6722)

Local Government Area: Town of Port Hedland
Colloquial name: Additional Rail Infrastructure Project – Great Northern Highway Overpass

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
80		Mechanical Removal	Road construction or maintenance

1.5. Decision on application

Decision on Permit Application: GRANT
Decision Date: 5 January 2012

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard Vegetation Association: 647 is described as Hummock grasslands, dwarf-shrub steppe; *Acacia translucens* over soft spinifex (Shepherd, 2009). The borrow pit area is mapped as this vegetation type.

589 is described as Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex (Shepherd, 2009). The overpass area is mapped as this vegetation type.

The southern half of the overpass area is described as *Acacia stellaticeps* open scrub over *Triodia epactia* mid-dense hummock grassland; while the northern half of the overpass area and the borrow pit area is *Acacia stellaticeps* scattered shrubs to low shrubland over *Triodia epactia*, *T. schinzii* dense hummock grassland (Ecoscape, 2011).

Clearing Description

The proposal is to clear up to 80 hectares of native vegetation across two areas, within a footprint of approximately 93 hectares, for the purpose of constructing an overpass on the Great Northern Hwy over Fortescue Metals Group Limited's (FMG) railway, realigning Quartz Quarry Road and HBI Road, and borrow pits associated with the road works (FMG, 2011). The overpass will be sufficient length to span a minimum of four railway tracks and an access maintenance road (FMG, 2011).

The northern application area is for the proposed borrow pits and is approximately 34.5 hectares in size. It is located within a large remnant of native vegetation within an existing FMG rail loop.

The overpass area (southern application area) is located at Chainage 5.7 kilometre, where the existing FMG railway crosses the Great Northern Highway (FMG, 2011). This clearing area is adjacent to the existing Great Northern Highway and includes some areas that have been previously disturbed and cleared for railways and other infrastructure.

Vegetation within the application areas is considered to be of high quality and exposed

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994)

To

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994)

Comment

Vegetation condition was determined through aerial imagery and flora and vegetation survey conducted in September 2011 (Ecoscape, 2011).

to low levels of disturbance, except along roadside areas where weed invasions is high and the vegetation is exposed to disturbance from edge effects to cleared areas. Ecoscape (2011) reported the native vegetation to range from good to excellent (Keighery, 1994) condition, with the weedy roadside areas being degraded to completely degraded (Keighery, 1994).

3. Assessment of application against clearing principles

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

Comments

Proposal may be at variance to this Principle

The proposal is to clear up to 80 hectares of native vegetation within a footprint area of approximately 93 hectares across two locations, for the purpose of constructing an overpass on the Great Northern Highway and associated borrow pits.

A level 1 flora and vegetation survey over the application area was undertaken in September 2011 and identified two priority flora species within the clearing footprint (Ecoscape, 2011).

Ecoscape (2011) observed *Tephrosia rosea* var. *venulosa* (Priority 1) at one location within the overpass clearing area (southern application area), where approximately ten plants were recorded. The closest mapped record of *T. rosea* var. *venulosa* is approximately 1.1 kilometres north of the southern application area and there are 8 mapped records of this species within the local area (20 kilometre radius). This species was listed as Priority 1 in 2008 due to its restricted distribution and being known from a small number of locations in the vicinity of Port Hedland. Since being listed, several small populations have been identified around the Port Hedland area during flora surveys for environmental impact assessment. The survey for this application was only for the project area (not targeted) therefore it is unknown whether more plants/populations exist outside the impact area and therefore may result in the extinction of the population at this location. However given the project is within the distribution range of the species and the disturbance footprint is only over a small part of its area of occurrence, it is unlikely to be a significant impact at the local level.

One *Goodenia nuda* (Priority 4) specimen was observed at three locations within the overpass area (southern application area) and at one location within the borrow pit area (Ecoscape, 2011). This species is recorded as having very small population sizes but is known from numerous populations and is widely distributed, occurring on a variety of habitats in the Pilbara Region. There are records of *G. nuda* occurring in the Port Hedland area and therefore the proposed clearing is unlikely to be a significant impact to this taxon at the local level.

Mapping included in Ecoscape's (2011) flora and vegetation survey indicates there are records of other priority flora within close proximity of the application area, with *Gymnanthera cunninghamii* (Priority 3) within a nearby creek line to the west of the western end of the overpass application area and *Phyllanthus aridus* (Priority 3) approximately 800 metres to the east of the same application area (Ecoscape, 2011). Considering habitat preferences (Western Australian Herbarium, 1998-), mapped soil and vegetation types the application areas may provide suitable habitat for these taxa. It is unlikely that impacts would be deemed significant to the conservation of the species if found within the impact area.

While it is noted the flora and vegetation survey was not conducted in accordance with the Environmental Protection Authority's (EPA) Guidance Statement 51 for terrestrial flora and vegetation surveys, information currently available indicates that the proposed clearing is not likely to impact upon the conservation status of significant flora species.

Suitable habitat for fauna of conservation significance has been identified within the application areas (Ecoscape, 2011). As the proposed clearing is relatively large in scale and concentrated in nature (80 hectares across two areas), there may be impacts to habitat availability and increased fragmentation of remaining vegetation, reducing habitat continuity. Surveys and relocation of significant fauna and rehabilitation of temporarily cleared areas will reduce this impact.

The 34.5 hectare proposed borrow pit area (northern application area) is within approximately 1.6 kilometres of the coastal system of inundation and 3.8 kilometres of the coastline.

The mapped vegetation associations retain approximately 100 per cent of the pre-European extents within the Pilbara bioregion (Shepherd, 2009), however the Port Hedland area is undergoing significant development and vegetation remaining in proximity of the townships and harbour is becoming increasingly fragmented. Therefore calculations of remaining vegetation and percentages may not be an accurate reflection of the current vegetation extents. Fragmentation of native vegetation degrades the ecological function of the remaining habitat and linkages through the landscape, reducing viability and long term sustainability.

One weed (*Cenchrus ciliaris*, buffel grass) that is rated high within the Environmental Weed Strategy of Western Australia has been recorded throughout the application area (Ecoscape, 2011). The control of high rated

species is desirable to prevent spread to new areas. This species is considered to have high ecological impact (causes disruption of ecological processes dominates and/or significantly alters vegetation structure, composition and function of ecosystems), rapid invasiveness and low feasibility of control (Ecoscape, 2011). Removal of native vegetation and soil disturbance associated with clearing increases the risk of weeds being spread or introduced into new areas. Weed management conditions and rehabilitation of temporarily cleared areas will reduce this risk.

Considering the above, the application areas may comprise high biological diversity and the proposed clearing may be at variance to this principle.

Methodology References:
Ecoscape, 2011
FMG, 2011
Shepherd, 2009
Western Australian Herbarium, 1998-
GIS Databases:
- Port Hedland 50cm Orthomosaic - Landgate 2004
- Pre-European vegetation - DA 01/01
- SAC Biodatasets - 11/11
- Soils, Statewide - 11/99

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

Comments Proposal may be at variance to this Principle

Three threatened and fauna species (not including marine species) may occur within the local area (20 kilometre radius).

A level 1 fauna survey was conducted over the application areas which included a site visit in September 2011 to search for visual evidence of significant fauna species (Ecoscape, 2011). The application areas were found to contain suitable habitat for the greater bilby (*Dasyurus hallucatus*) (Endangered, Wildlife Conservation Act 1950; Endangered, Environment Protection and Biodiversity Conservation Act 1999) and crest-tailed mulgara (*Dasyercus cristicauda*) (Vulnerable, Wildlife Conservation Act 1950; Vulnerable, Environment Protection and Biodiversity Conservation Act 1999) (Ecoscape, 2011). Ecoscape (2011) reported that there have been three other fauna surveys conducted since 2004 that included the application areas and that each one observed signs of mulgara and greater bilby within or close to the areas under application.

Considering the northern quoll (*Dasyurus hallucatus*) (Endangered, Wildlife Conservation Act 1950; Endangered, Environment Protection and Biodiversity Conservation Act 1999) appears to be most abundant in habitats within 150 kilometres of the coast and has been recorded in Pilbara land systems which comprise tussock grasslands (DSEWPC, 2011), the vegetation under application may contain suitable habitat for this species.

The Port Hedland area is undergoing significant development and calculations of remaining vegetation and percentages may not be an accurate reflection of the current vegetation extents. Vegetation remaining in proximity to the townships and harbour is becoming increasingly fragmented and the proposed large scale clearing may have a cumulative impact upon the habitat available for indigenous, and conservation significant, fauna.

Considering the above, the proposed clearing may be at variance to this principle. Fauna management conditions and the rehabilitation of temporarily cleared areas will reduce impacts to indigenous fauna.

Methodology References:
DSEWPC, 2011
Ecoscape, 2011
FMG, 2011
Shepherd, 2009
GIS Databases:
- Port Hedland 50cm Orthomosaic - Landgate 2004
- SAC Biodatasets - 11/11

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

Comments Proposal is not likely to be at variance to this Principle

There are no known records of declared rare flora within 20 kilometres of the application area and the proposed clearing is therefore not likely to be at variance to this principle.

Methodology References:
GIS databases:

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

Comments **Proposal is not likely to be at variance to this Principle**
 There are no known records of threatened ecological communities within 20 kilometres of the application area and the proposed clearing is not likely to be at variance to this principle.

Methodology GIS databases:
 - SAC Biodatasets - 11/11

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments **Proposal may be at variance to this Principle**
 The mapped vegetation associations retain approximately 100 per cent of the pre-European extents within the Pilbara bioregion (Shepherd, 2009), however the Port Hedland area is undergoing significant development and the vegetation remaining in proximity of the townships and harbour is becoming increasingly fragmented. Therefore calculations of remaining vegetation and percentages may not be an accurate reflection of the current vegetation extents.

Considering the above and that: the proposed clearing is relatively large in scale and concentrated in nature (80 hectares across two clearing areas); the application areas support priority flora and suitable habitat for fauna of conservation significance; and the northern application area is located within 1.6 kilometres of the coastal system of inundation and 3.8 kilometres of the coast, the proposed clearing may be at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion* Pilbara	17,804,193	17,785,000	100	8
Shire* Town of Port Hedland	1,850,070	1,846,056	100	0
Beard Vegetation Association in Bioregion*				
589	730,718	730,683	100	2 (12,946ha)
647	196,371	196,371	100	0

* Shepherd, 2009

Methodology References:
 Shepherd, 2009
 GIS Databases:
 - Port Hedland 50cm Orthomosaic - Landgate 2004
 - Pre-European vegetation - DA 01/01

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

Comments **Proposal may be at variance to this Principle**
 A minor non-perennial watercourse is mapped as passing through the southern extent of the southern application area (overpass area). Aerial imagery indicates that approximately 0.1 hectares of the tapered clearing areas at the southern end of the overpass area extend beyond the high water mark and into the body of the drainage line.

The same watercourse passes approximately 150 metres to the west of the western end of the overpass application area.

Considering this, the southern application area may contain some riparian vegetation and the proposed clearing may therefore be at variance to this principle, however impacts of clearing within this area are likely to be minimal and short term.

Methodology GIS Databases:
 - Hydrography, linear - DoW 07/06
 - Port Hedland 50cm Orthomosaic - Landgate 2004

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

Comments Proposal is not likely to be at variance to this Principle

The soils mapped over the application area are described as extensive sandy plains chiefly of red earthy sands and with some hard red soils along creek lines (Northcote et al., 1960-68). The area under application does not include coastal dunes and is not considered not to be particularly susceptible to erosion.

The application area is of a low salinity risk.

The rehabilitation of temporarily cleared areas will reduce the risk of appreciable land degradation as a result of the proposed clearing.

The proposed clearing is not likely to at variance to this principle.

Methodology

References:

Northcote et al., 1960-68

GIS Databases:

- Salinity Risk LM 25m - DOLA 00

- Soils, Statewide - 11/99

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

Comments Proposal is not at variance to this Principle

There are no designated conservation reserve areas within the local area (20 kilometre radius) and the proposed clearing is not at variance to this principle.

Methodology

GIS Databases:

- DEC Managed Lands & Waters - DEC 10/09

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

Comments Proposal is not likely to be at variance to this Principle

A minor non-perennial watercourse is mapped as passing through the southern extent of the southern application area (overpass area). Aerial imagery indicates that approximately 0.1 hectares of the tapered clearing areas at the southern end of the overpass area extend beyond the high water mark and into the body of the drainage line. The same watercourse passes approximately 150 metres to the west of the western end of the overpass application area.

The removal of riparian vegetation can result in increased sedimentation of watercourses and associated water quality issues.

Considering the small amount of clearing proposed within the banks of this watercourse, impacts of clearing upon water quality are likely to be minimal and short term and the proposed clearing is not likely to be at variance to this principle.

Methodology

GIS Databases:

- Hydrography, linear - DoW 07/06

- Port Hedland 50cm Orthomosaic - Landgate 2004

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

Comments

The soils mapped for the application area are extensive sandy plains chiefly of red earthy sands and with some hard red soils along creek lines (Northcote et al., 1960-68).

Whilst large rainfall events may result in the flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding and is not likely to be at variance with this principle.

Methodology

References:

Northcote et al., 1960-68

GIS Databases:

- Soils, Statewide - 11/99

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The proposed clearing is part of an overall Additional Rail Infrastructure Project currently being undertaken by Fortescue Metals Group Limited (FMG, 2011). This project was formally assessed under Part IV of the EP Act (Bulletin 1202 and 1173) and approved under ministerial Statements 690 and 707. Ministerial Statement 690 covers the rail corridor from the Anderson Point rail loop at Port Hedland, south the Chainage 182 and includes the proposed clearing area. The Ministerial Statements do not require the proposed clearing for an overpass, road realignment and borrow pits.

Main Roads Western Australia (MRWA) holds a Section 91 Licence, valid until 4 December 2013, to build the bridge on the Crown land adjacent to the Great Northern Highway in order for the highway to remain open to traffic during construction (DRDL, 2011). MRWA has advised the proponent (FMG) will be bound by a formal contract with MRWA to construct the overpass (MRWA, 2011). The proponent has advised that this contract is currently in draft form. The design of the overpass has been developed in consultation with MRWA and the new infrastructure will be handed over to MRWA for ongoing operation on the completion of construction (FMG, 2011).

The proponent holds a Special Rail Licence under State Agreement Act which covers the area that contains the proposed borrow pits (FMG, 2011).

The Town of Port Hedland supports the proposed road closures and dedications associated with the overpass construction and road realignments, with conditions (Town of Port Hedland, 2011).

The proposed clearing is within the Pilbara surface and groundwater areas proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act). The proponent intends to take groundwater under an existing licence for the Port Water Supply borefield and used via storage tanks at the Port operation or existing turkeys nest dams along the rail corridor (DEC Ref: A446971). A copy of groundwater licence GWL 163999 has been received. The Department of Water (DoW) is satisfied that the proposed clearing is unlikely to have a significant impact upon the quality of or quantity of groundwater, provided activities are carried out in accordance with DoW advice (DoW, 2011).

The DoW has also advised that where the clearing area intersects a waterway not within the proponent's tenement, the normal regulatory instruments under RIWI Act may apply (DoW, 2011). The proponent has advised that no disturbance of any watercourses will occur, however as the southern end of the overpass area appears to intersect a minor non-perennial watercourse, liaison with the DoW is recommended to determine requirements.

The application area is within the Karriyarra People's native title claim area. The proponent has advised there is a Land Access Agreement with Karriyarra People (FMG, 2011). Notification of the proposed clearing has occurred and no comments have been received.

There are no known Aboriginal Sites of Significance within the application areas.

Methodology

References:

DoW, 2011
DRDL, 2011
FMG, 2011
MRWA, 2011
Town of Port Hedland, 2011

GIS Databases:

- Aboriginal Sites of Significance
- RIWI Act, Groundwater areas
- RIWI Act, Surface water areas
- Native Title Claims Registered with the NNTT - Landgate 07/11

4. References

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- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/> (Accessed 14/12/2011).

5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)