



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8576/1
Permit Holder:	Fortescue Metals Group Limited
Duration of Permit:	24 October 2019 to 24 October 2029

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 geotechnical investigations.

2. Land on which clearing is to be done

Lot 556 on Deposited Plan 404911, Mount Sheila

Lot 98 on Deposited Plan 243145, Mount Sheila

Lot 40 on Deposited Plan 242287, Mount Sheila

Lot 9 on Deposited Plan 47815, Mount Sheila

Unallocated Crown Land (PINS 1016551 and 1016569), Mt Sheila and Hamersley Range

3. Area of Clearing

The Permit Holder must not clear more than 92 hectares of native vegetation within the area hatched yellow on attached Plan 8576/1.

4. Type of clearing authorised

The Permit Holder shall not clear any native vegetation after 24 October 2024.

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.

PART II – MANAGEMENT CONDITIONS

6. Avoid, minimise and reduce the impacts and extent of 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:

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

7. Weed control

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*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

8. 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 geotechnical investigations by:
 - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land;
 - (ii) laying the vegetative material and topsoil retained under condition 8(a) on the cleared area(s);
 - (iii) 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
 - (iv) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
- (c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 8(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 8(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 8(c)(ii) of this permit, the Permit Holder shall repeat condition 8(c)(i) and 8(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 8(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 8(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 8(c)(ii).

PART III - RECORD KEEPING AND REPORTING

9. 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 *revegetation* and *rehabilitation* of areas pursuant to condition 8 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.

10. Reporting

The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:

- (a) of records required under condition 8 (records to be kept) of this Permit;
- (b) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year;
- (c) if no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year; and
- (d) prior to 24 July 2029, the Permit Holder must provide to the CEO a written report of records required under condition 9 of this Permit where these records have not already been provided under condition 10(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 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, or who is approved by the CEO as a suitable environmental specialist.

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

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion 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 April to May 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 any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Ryan Mincham

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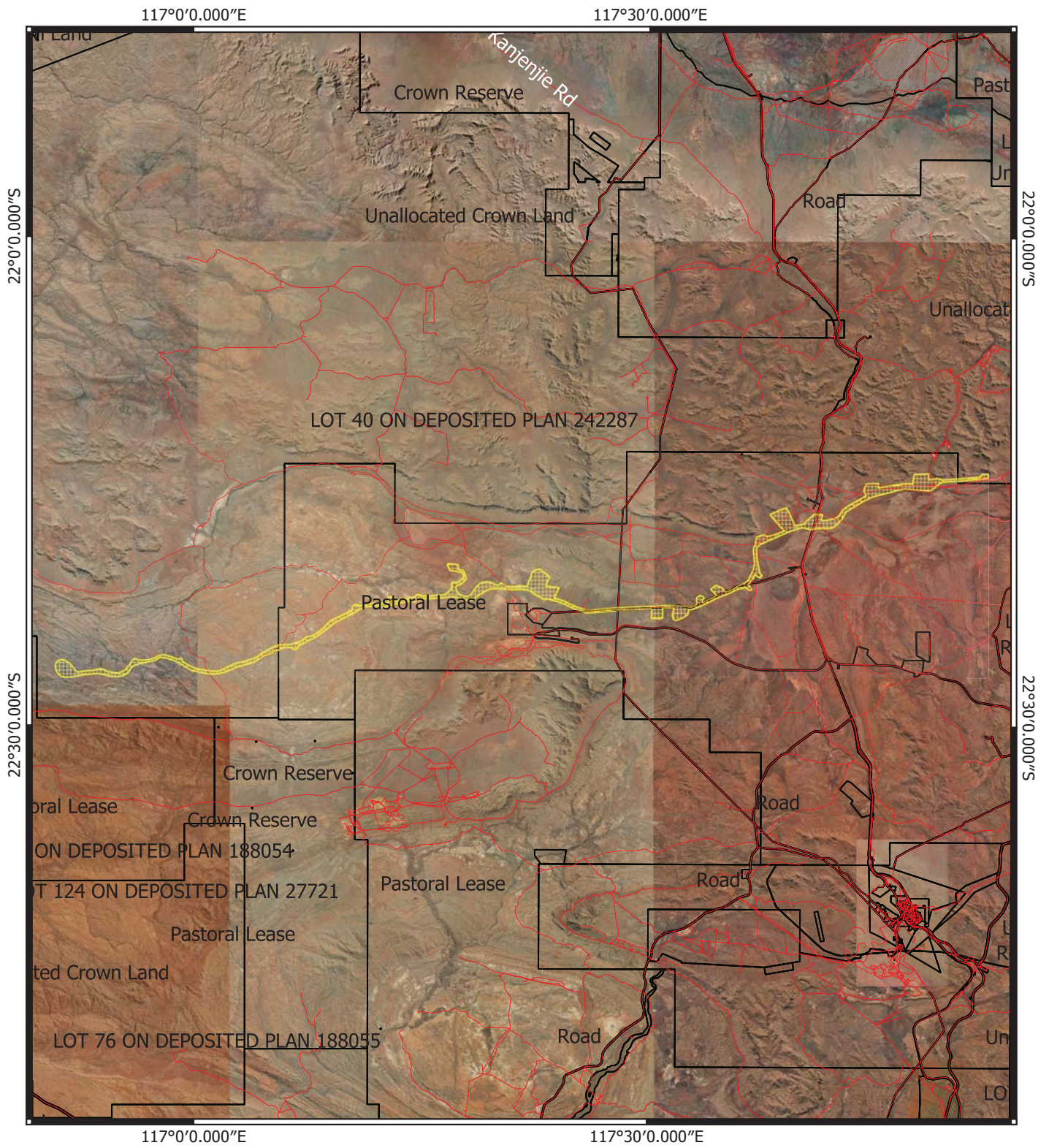
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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

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


24 September 2019

Plan 8576/1




Legend

CPS layers

 CPS areas approved to clear

base layers

 Road Centrelines

 Cadastre - LGATE 218

Local Government Authorities

Image



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Officer delegated under section 20 of the
 Environmental Protection Act 1986



GOVERNMENT OF
 WESTERN AUSTRALIA



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8576/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Fortescue Metals Group Ltd
Application received date: 27 June 2019

1.3. Property details

Property: Lot 556 on Deposited Plan 404911, Mount Sheila
Lot 98 on Deposited Plan 243145, Mount Sheila
Lot 40 on Deposited Plan 242287, Mount Sheila
Lot 9 on Deposited Plan 47815, Mount Sheila
Unallocated Crown Land (PINs 1016551 and 1016569), Mt Sheila and Hamersley Range
Local Government Authority: Shire of Ashburton,
Localities: Mount Sheila and Hamersley Range

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
92		Mechanical Removal	Bore construction

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 24 September 2019
Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance to principle (d) and (f), may be at variance to principle (a) and is not or is not likely to be at variance to the remaining principles.

In determining to grant a clearing permit subject to conditions, the Delegated Officer considered that the environmental impacts of the proposed clearing can be managed through onsite avoidance and mitigation measures.

2. Site Information

Clearing Description

The application is to clear 92 hectares of native vegetation, within a 7,539 hectare envelope, within Lot 556 on Deposited Plan 404911, Unallocated Crown Land (PINs 1016551 and 1016569), Shire of Ashburton for the purpose of geotechnical investigations (Figure 1).

The applicant has advised that the proposed clearing can be broken down into the following activities:

Item	Disturbance (ha)
Trace line (railway centre line access track)	54
Test Pit Access tracks	27.5
Test Pits 5m by 5m (402)	1
Drill Pads 20m by 20m (12)	0.5
Costeans 50m by 30m (26)	4
Rail over Rail Bridge	4
Silvergrass bridge	1
TOTAL	92

Vegetation Description

The application area is mapped as Beard Vegetation Units:

- 18: Low woodland; mulga (*Acacia aneura*);
- 29: Sparse low woodland; mulga, discontinuous in scattered groups;
- 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 & *Triodia basedowii*

The application area is encompassed by the Eliwana study area and more specifically the Rail Study Area (RSA). The application area has been the subject of three flora and vegetation surveys:

- Eliwana and Flying Fish Level 2 Flora and Vegetation Survey (Ecoscape, 2015);
- Western Hub Rail Link Level 2 Flora and Vegetation Survey (Ecoscape, 2014); and
- Eliwana Consolidated Detailed Flora and Vegetation Survey (Biota, 2019; Appendix 2).

A summary of these flora surveys has been provided by the applicant (FMG, 2019). The summary noted 50 vegetation types within the application area (7,539 hectares).

Veg Type Code	Description	Extent in Envelope (ha)
AanAalmCc	<i>Acacia 'aneura'</i> , <i>A. pruinocarpa</i> tall shrubland over <i>A. ancistrocarpa</i> , <i>Eremophila longifolia</i> mid sparse shrubland over <i>Indigofera monophylla</i> , <i>Sida</i> spp. <i>verrucosa</i> glands (F.H. Mollemans 2423) low sparse shrubland over <i>Cenchrus ciliaris</i> tussock grassland	168
AanAprAatTwTe	<i>Acacia 'aneura'</i> , <i>A. pruinocarpa</i> low open woodland over <i>Acacia atkinsiana</i> tall sparse shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> mid hummock grassland	170
AanCHf	<i>Acacia 'aneura'</i> low open woodland over <i>Chrysopogon fallax</i> mid sparse tussock grassland	178
AanEgAbTe	<i>Acacia 'aneura'</i> isolated trees over <i>Eucalyptus gamophylla</i> isolated mallee trees over <i>A. bivenosa</i> isolated tall shrubs over <i>Triodia epactia</i> , <i>T. wiseana</i> mid closed hummock grassland	564
AanExAatAbCHfTe	<i>Acacia 'aneura'</i> , <i>Eucalyptus xerothermica</i> mid open woodland over <i>Acacia atkinsiana</i> , <i>A. bivenosa</i> mid sparse shrubland over <i>Chrysopogon fallax</i> mid sparse tussock grassland over <i>Triodia epactia</i> mid hummock grassland	5
AanTwTe	<i>Acacia 'aneura'</i> low woodland over <i>Triodia wiseana</i> , <i>T. epactia</i> low sparse hummock grassland	16
AanVTHt	<i>Acacia 'aneura'</i> tall sparse shrubland over <i>Vachellia farnesiana</i> mid sparse shrubland over <i>Chrysopogon fallax</i> , <i>Themeda</i> sp. <i>Hammersley Station (M.E. Truogen 11431)</i> tall tussock grassland	8
AbAeTwTeTI	<i>Acacia bivenosa</i> , <i>A. exigua</i> , <i>Stylobasium spathulatum</i> mid sparse shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> , <i>T. longiceps</i> mid hummock grassland	204
AcAanVIBTe	<i>Acacia citrinoviridis</i> , <i>A. 'aneura'</i> mid isolated trees over <i>Vachellia farnesiana</i> mid sparse shrubland over <i>Bothriochloa ewartiana</i> , <i>Themeda</i> sp. <i>Hammersley Station (M.E. Truogen 11431)</i> , <i>Eraichne benthamii</i> tall closed hummock grassland	<1
AiTw/EITa	<i>Acacia inaequilatera</i> tall sparse shrubland over <i>Triodia wiseana</i> low open hummock grassland / <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Triodia angusta</i> , <i>T. longiceps</i> , <i>T. wiseana</i> low open hummock grassland	1390
AmTw	<i>Acacia 'aneura'</i> tall sparse shrubland over <i>Vachellia farnesiana</i> mid sparse shrubland over <i>Chrysopogon fallax</i> , <i>Themeda</i> sp. <i>Hammersley Station (M.E. Truogen 11431)</i> tall tussock grassland	27

Veg Type Code	Description	Extent in Envelope (ha)
Ax	<i>Acacia xiphophylla</i> open shrubland over mixed <i>Poaceae</i> spp. Sparse tussock grassland	63
AxAanAtERcTw	<i>Acacia xiphophylla</i> , <i>A. 'aneura'</i> low woodland over <i>Acacia tetragonophylla</i> tall sparse shrubland over <i>Eremophila cuneifolia</i> , <i>E. forrestii</i> subsp. <i>forrestii</i> , <i>Senna stricta</i> mid sparse shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> mid open hummock grassland	43
AxTI	<i>Acacia xiphophylla</i> low woodland over <i>Triodia longiceps</i> , <i>T. angusta</i> , <i>T. wiseana</i> low sparse hummock grassland	49
CdEgAaTw	<i>Corymbia deserticola</i> subsp. <i>deserticola</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> mid open woodland over <i>Eucalyptus gamophylla</i> open mallee woodland over <i>Acacia ancistrocarpa</i> , <i>A. atkinsiana</i> , <i>A. exigua</i> mid sparse shrubland over <i>Triodia wiseana</i> mid hummock grassland	<1
ChAiTw/EIAbTlo	Mosaic: <i>Corymbia hamersleyana</i> and/ or <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low isolated trees over <i>Acacia inaequilatera</i> and/ or <i>A. bivenosa</i> mid-tall sparse shrubland over <i>Triodia wiseana</i> low hummock grassland / <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> over <i>A. bivenosa</i> mid open shrubland over <i>Triodia longiceps</i> , <i>T. wiseana</i> low open hummock grassland	812
ChApyTHTe	<i>Corymbia hamersleyana</i> low open woodland over <i>Acacia pyrifolia</i> and/ or <i>A. tumida</i> var. <i>pilbarensis</i> mid sparse shrubland occasionally over <i>Gossypium australe</i> low sparse shrubland over <i>Themeda triandra</i> open tussock grassland over <i>Triodia epactia</i> mid open hummock grassland	1
ChApyTw	<i>Corymbia hamersleyana</i> low open woodland over <i>Acacia pyrifolia</i> , <i>A. spp.</i> sparse shrubland over <i>Themeda triandra</i> mid sparse tussock grassland over <i>Triodia wiseana</i> mid sparse hummock grassland	110
ChEgAaTw	<i>Corymbia hamersleyana</i> low open woodland over <i>Eucalyptus gamophylla</i> mid mallee woodland over <i>Acacia atkinsiana</i> , <i>A. kempeana</i> , <i>A. bivenosa</i> mid open shrubland over <i>Triodia wiseana</i> mid hummock grassland	368
EcAcEUaTe	<i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> , <i>E. victrix</i> mid woodland over <i>Acacia citrinoviridis</i> , <i>Melaleuca glomerata</i> tall open shrubland over <i>Eulalia aurea</i> mid sparse tussock grassland over <i>Triodia epactia</i> low sparse hummock grassland	22
EgAaAtuTe	<i>Eucalyptus gamophylla</i> low open mallee woodland over <i>Acacia atkinsiana</i> , <i>A. tumida</i> var. <i>pilbarensis</i> and / or <i>A. bivenosa</i> and <i>Senna artemisioides</i> subsp. <i>oligophylla</i> mid sparse shrubland over <i>Themeda triandra</i> mid sparse tussock grassland over <i>Triodia epactia</i> hummock grassland	21
EIAanAprAbTwTe	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> isolated mid trees over <i>Acacia 'aneura'</i> , <i>A. pruinocarpa</i> , <i>A. bivenosa</i> tall open shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> mid hummock grassland	1432
EIAanTbr	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia hamersleyana</i> scattered tree low sparse woodland over <i>Acacia 'aneura'</i> <i>A. pruinocarpa</i> , <i>A. bivenosa</i> tall open shrubland over <i>Triodia brizoides</i> , <i>T. epactia</i> mid hummock grassland	13
EIAaTbt	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> , tall sparse shrubland over <i>Triodiabasisricha</i> , <i>T. wiseana</i> , <i>T. epactia</i> mid open hummock grassland	32

Veg Type Code	Description	Extent in Envelope (ha)
EIAaTe	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Acacia atkinsiana</i> mid sparse shrubland over <i>Triodia epactia</i> low hummock grassland	85
EIAaTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low isolated trees over <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> , <i>A. inaequilatera</i> mid sparse shrubland over <i>Triodia wiseana</i> or <i>T. brizoides</i> open hummock grassland	107
EIAbCHF	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia hamersleyana</i> , <i>Acacia citrinoviridis</i> low open woodland over <i>Acacia bivenosa</i> , <i>Androcalva luteiflora</i> , <i>Petalostylis labicheoides</i> mid shrubland over <i>Chrysopogon fallax</i> , <i>Eulalia aurea</i> , <i>Themeda triandra</i> mid tussock grassland	16
EIAbTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Acacia bivenosa</i> mid sparse shrubland over <i>Triodia wiseana</i> mid closed hummock grassland	137
EIAeTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low isolated trees over <i>Acacia exigua</i> , <i>A. pruinocarpa</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> mid open shrubland over <i>Triodia wiseana</i> , <i>T. epactia</i> mid open hummock grassland	7
EIAkTe	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Acacia kempeana</i> mid sparse shrubland over <i>Triodia epactia</i> or <i>T. wiseana</i> low hummock grassland	46
EIAmTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and/ or <i>Corymbia hamersleyana</i> mid open woodland over <i>Acacia maitlandii</i> mid sparse shrubland over <i>Triodia wiseana</i> low hummock grassland	45
EIASyAbTwTI	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low isolated trees over <i>Acacia synchronici</i> , <i>A. bivenosa</i> mid isolated shrubs over <i>Triodia wiseana</i> , <i>T. longiceps</i> mid hummock grassland	5
EIChAeTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and/ or <i>Corymbia hamersleyana</i> low open woodland over <i>Acacia exigua</i> , <i>A. bivenosa</i> , <i>A. synchronicia</i> mid open shrubland over <i>Triodia wiseana</i> mid hummock grassland	208
EIEgAatTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Acacia pruinocarpa</i> isolated low trees over <i>E. gamophylla</i> isolated low mallee trees over <i>Acacia atkinsiana</i> , <i>A. bivenosa</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp. <i>pruinosa</i> tall sparse shrubland over <i>Triodia wiseana</i> mid hummock grassland	1
EIEgApTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , low open woodland over <i>E. gamophylla</i> isolated mid open mallee woodland over <i>Acacia pruinocarpa</i> and/or <i>A. pruinosa</i> tall sparse shrubland over <i>Triodia wiseana</i> mid hummock grassland	31
EIHcAhTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> , <i>Corymbia hamersleyana</i> low open woodland over <i>Hakea chordophylla</i> mid sparse shrubland occasionally over <i>Acacia hilliania</i> , <i>Acacia adoxa</i> var. <i>adoxo</i> low sparse shrubland over <i>Triodia wiseana</i> mid hummock grassland	76
EIHIAatPTcTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Hakea lorea</i> subsp. <i>Lorea</i> tall sparse shrubland over <i>Acacia atkinsiana</i> , <i>A. bivenosa</i> , <i>A. maitlandii</i> mid sparse shrubland over <i>Ptilotus calostachyus</i> low sparse shrubland over <i>Triodia wiseana</i>	49
EISENgTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp.	25

Veg Type Code	Description	Extent in Envelope (ha)
	<i>pruinosa</i> , <i>Acacia marramamba</i> mid isolated shrubs over <i>Triodia wiseana</i> , <i>T. epactia</i> mid hummock grassland	
EITa	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Triodia angusta</i> , <i>T. longiceps</i> , <i>T. wiseana</i> low open hummock grassland	1390
ERma	<i>Eremophila maculata</i> subsp. <i>Brevifolia</i> , <i>Sida fibulifera</i> low sparse shrubland over <i>Eragrostis xerophila</i> low sparse tussock grassland	1
EsMeTI	<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> , <i>E. leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Melaleuca eleuterostachya</i> , <i>Acacia exigua</i> mid sparse shrubland over <i>Triodia longiceps</i> , <i>T. wiseana</i> mid hummock grassland	169
EvAcCcERit	<i>Eucalyptus victrix</i> low-mid open woodland over <i>Acacia citrinoviridis</i> and/ or <i>Melaleuca glomerata</i> tall open shrubland over <i>Cenchrus ciliaris</i> , <i>Eriachne tenuiculmis</i> mid open tussock grassland	41
EvAcMgERit	<i>Eucalyptus victrix</i> low-mid open woodland over <i>Acacia citrinoviridis</i> , <i>Melaleuca glomerata</i> tall sparse shrubland over <i>Eriachne tenuiculmis</i> mid sparse tussock grassland	20
EvExAcTHt	<i>Eucalyptus victrix</i> , <i>E. xerothermica</i> open woodland over <i>Acacia citrinoviridis</i> , <i>Gossypium robinsonii</i> tall shrubland over <i>Themeda triandra</i> mid sparse tussock grassland	4
ExAanERloTHt	<i>Eucalyptus xerothermica</i> , <i>Acacia aptaneura</i> <i>A. citrinoviridis</i> , low open woodland over <i>Eremophila longifolia</i> , <i>A. bivenosa</i> , <i>A. ancistocarpa</i> tall sparse shrubland over <i>Themeda triandra</i> , <i>Chrysopogon fallax</i> , <i>Dichanthium fecundum</i> mid closed tussock grassland	3
ExApCHftw	<i>Eucalyptus xerothermica</i> low open woodland over <i>Acacia pruinocarpa</i> tall sparse shrubland over <i>Triodia wiseana</i> mid hummock grassland over <i>Chrysopogon fallax</i> mid tussock grassland	325
TEdTI	<i>Acacia tetragonophylla</i> , <i>A. cowleana</i> , <i>A. coleii</i> tall isolated shrubs over <i>Tecticornia disarticulate</i> low sparse shrubland over <i>Triodia longiceps</i> , <i>T. angusta</i> low sparse hummock grassland.	48
THsERib	<i>Themeda</i> sp. <i>Hamersley Station</i> (M.E. Trugen 11431) and <i>Eriachne benthamii</i> tall closed tussock grassland over <i>Cullen cinereum</i> low isolated shrubs	171
VfARI	<i>Vachellia farnesiana</i> mid sparse shrubland over <i>Aristida latifolia</i> , <i>Chrysopogon fallax</i> , <i>Dichanthium ser</i> mid sparse tussock grassland	6
VfERib	<i>Vachellia farnesiana</i> sparse shrubland over <i>Eriachne benthamii</i> , <i>Dichanthium sericeum</i> , <i>Themeda</i> sp. <i>Hamersley Station</i> (M.E. Trugen 11431) tussock grassland	155

Eighteen hectares of the permit envelope has been classified as disturbed (FMG, 2019).

Vegetation Condition

A summary of flora and vegetation surveys undertaken within the application area noted that;

The vegetation condition of the permit envelope has been assessed using the adapted Keighery (1994) Vegetation Condition Scale for the Eremaean and Northern Botanical Provinces. Within the permit envelope, 36%, is considered to be in 'Excellent' condition, 45% is in 'Very Good' condition, 16.5% is in 'Good' condition 1.5% is in 'Poor' condition and 0.25% is in 'Degraded' condition. Vegetation condition has not been recorded over approximately 0.6% of the permit envelope, but is assumed to be in very good to excellent condition. (FMG, 2019).

Local Area

The local area is defined as 20 kilometres from the edge of the application area.

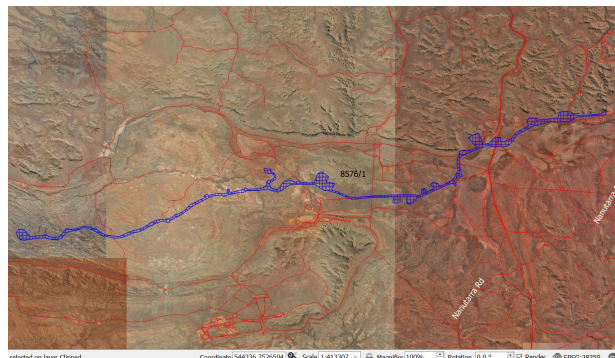


Figure 1: CPS 8576/1 Application area



Figure 2: CPS 8576/1 Context map

3. Minimisation and mitigation measures

The applicant has advised that:

There has been considerable effort expended to ensure the geotechnical works disturbance footprint and activities will have the minimum impact on the environment. The activities have been designed with the principles that the clearing

does not have a significant impact on the environment and is reversible through rehabilitation. Using these principles, areas of environmental significance has been avoided as much as possible (FMG, 2019).

4. Assessment of application against clearing principles

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

Proposed clearing may be at variance to this Principle

As assessed within Principle (e), the local area is highly vegetated retaining approximately 99 per cent native vegetation. A summary of flora and vegetation surveys within the application area identified 651 flora taxa from 204 genera as occurring within the application area (7,539 hectares) (FMG, 2019).

The results of these surveys indicates that the application area has a higher level of species richness than other study areas in the local area. The long linear nature of the application area, and the survey effort within the survey area when compared to other areas locally may contribute to the observed higher species richness (FMG, 2019).

Seven priority flora have been recorded within the clearing envelope:

Table 7: Priority Flora within the permit envelope

Species	Conservation Status
<i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>	Priority 1
<i>Euphorbia australis</i> var. <i>glabra</i>	Priority 2
<i>Astrebla lappacea</i>	Priority 3
<i>Glycine falcata</i>	Priority 3
<i>Grevillea saxicola</i>	Priority 3
<i>Indigofera</i> sp. Bungaroo Creek	Priority 3
<i>Ptilotus subspinescens</i>	Priority 3
<i>Rhagodia</i> sp. Hamersley	Priority 3
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	Priority 3

The applicant advised that one Priority species (*Ptilotus subspinescens*) will be impacted by the proposed clearing. The applicant notes that *P. subspinescens* is known from 8,935 individuals from 40 locations within their database and therefore considers the impact of the proposed clearing on this species to be low (FMG, 2019)

The Brockman Iron cracking clay communities of the Hamersley Range (Priority 1 - PEC) are located immediately adjacent to the indicative disturbance footprint for the proposed infrastructure (in the eastern portion of the permit envelope; Figure 5). This PEC consists of a rare tussock grassland dominated by *Astrebla lappacea* in the Hamersley Range, on the Brockman land system. No impact to this PEC is planned thus it is unlikely there would be any significant impacts. The proposed clearing is limited to buffer zones of the PEC (FMG, 2019).

Given the above the proposed clearing may be at variance to this principle as the vegetation may represent higher biodiversity than other areas locally and includes occurrences of *P. subspinescens* which are proposed to be cleared.

The applicant has agreed to conduct progressive rehabilitation of disturbed areas reducing any potential impacts associated with clearing vegetation with high biodiversity (FMG, 2019).

(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.

Proposed clearing is not likely to be at variance to this Principle

A total of 17 conservation significant fauna species have been recorded within 20 kilometres of the application area;

- Northern Quoll (*Dasyurus hallucatus*; Threatened);
- Grey Falcon (*Falco hypoleucos*; Threatened);
- Pilbara Olive Python (*Liasis olivaceus* subsp. *barroni*; Threatened);
- Ghost Bat (*Macroderma gigas*; Threatened);
- Bilby, Dalgyte, Ninu (*Macrotis lagotis*; Threatened);
- northern brushtail possum (Kimberley) (*Trichosurus vulpecula* subsp. *arnhemensis*; Threatened);
- Fork-tailed Swift, Pacific Swift (*Apus pacificus*; Protected under International Agreement);
- Peregrine Falcon (*Falco peregrinus*; Other Specially Protected Fauna);
- Australian Peregrine Falcon (*Falco peregrinus* subsp. *macropus*; Other Specially Protected Fauna);
- Pilbara Barking Gecko (*Underwoodisaurus seorsus*; P2);
- Spectacled Hare-wallaby (mainland) (*Lagorchestes conspicillatus* subsp. *leichardti*; P4);
- Northern Short-tailed Mouse, Lakeland Downs Mouse, Kerakenga (*Leggadina lakedownensis*; P4)
- Fortescue Grunter (*Leiopotherapon aheneus*; P4);
- lined soil-crevice skink (Dampier) (*Notoscincus butleri*; P4);
- Western Pebble-mound Mouse, Ngadji (*Pseudomys chapmani*; P4);

- Orange Leaf-nosed bat (*Rhinonictis aurantia*; P4);
- Long-tailed Dunnart (*Sminthopsis longicaudata*; P4).

Previous fauna surveys of the application area noted nine broad fauna habitat types as occurring within the application area, with 401 hectares being unsurveyed (FMG, 2019). These broad fauna habitats are described as:

Habitat Type	Description	Significant Fauna	Area within envelope area (ha)
Drainage Line/River/Creek (Minor)	Dense, variable shrub layer, sometimes with occasional Eucalypt overstorey. Shrub layer of <i>Acacia</i> , <i>Grevillea</i> over <i>Themeda</i> tussock grasses.	Peregrine Falcon (foraging) Grey Falcon (foraging)	12
Drainage Line/River/Creek (Major)	Large <i>Eucalyptus victrix</i> over a shrub layer of <i>Acacia</i> , <i>Gossypium</i> and grasses including <i>Triodia</i> hummock grasses and <i>Themeda</i> , <i>Eriachne</i> tussock grasses. Buffel grass * <i>Cenchrus ciliaris</i>) often encountered. Soils often clay with alluvial pebbles in the creek bed.	Northern Quoll (denning, foraging) Pilbara Olive Python (shelter and foraging) Pilbara Leaf-nosed Bat (roosting and foraging) Ghost Bat (roosting and foraging)	145
Gorges/Gullies	Moderately dense vegetation layer consisting of <i>Corymbia hamersleyana</i> over <i>Acacia pruinocarpa</i> , <i>A. maitlandii</i> , <i>A. pyrifolia</i> var. <i>pyrifolia</i> and <i>Gossypium robinsonii</i> which produce a large amount of leaf litter which preserves moisture and attracts insects	Northern Quoll (foraging) Pilbara Olive Python (shelter and foraging) Pilbara Leaf-nosed Bat (roosting and foraging) Ghost Bat (roosting and foraging)	3
Hills/Ranges/Plateaux	Elevated areas dominated by sparse vegetation of scattered small shrubs and spinifex clumps on a rocky surface	Northern Quoll (foraging) Pilbara Olive Python (shelter and foraging) Pilbara Leaf-nosed Bat (roosting and foraging) Ghost Bat (roosting and foraging)	19.75
Lower Slopes/Hillslopes	Rolling hills, footslopes of hills with a hard rocky substrate. Tree strata of <i>Eucalyptus leucophloia</i> , <i>Acacia</i> , over a shrub layer of <i>Senna</i> and a spinifex hummock grassland.	Western Pebble-mound Mouse Pilbara Leaf-nosed Bat (roosting and foraging)	1277
Plain (alluvial plain)	Distinct lack of trees and a reduction in shrubs. It is dominated by a lower shrub layer and soft grasses on clay to loamy soil. The vegetation is dominated by isolated <i>Acacia citrinoviridis</i> , <i>Vachellia farnesiana</i> and/or <i>Sida spinosa</i> over sparse <i>Chrysopogon fallax</i> and <i>Eragrostis</i> spp. tussock grassland and/or very open hummock grassland	Peregrine Falcon (foraging) Grey Falcon (foraging)	292
Plain (Cracking Clay)	Little to no overstorey and dominated by one or two tussock grass species (<i>Chrysopogon fallax</i> , <i>Themeda</i> sp. <i>Hamersley Station</i> (P3) and/or <i>Astrelba pectinate</i>). The soils comprised firm cracking clays	Peregrine Falcon (foraging) Grey Falcon (foraging)	48

	containing abundant cracks and crevices		
Plain (Shrubland)	Mixed <i>Acacia</i> (mulga) woodland over spinifex hummock grassland.	Nil.	226
Plain (Stony/Gibber)	Relatively flat, slightly undulating plain with open shrubland of <i>Acacia</i> 's and <i>Senna</i> over a spinifex hummock grassland. Substrate of bedrock with scattered pebbles and stones.	Western Pebble-mound Mouse Peregrine Falcon (foraging) Grey Falcon (foraging)	5543

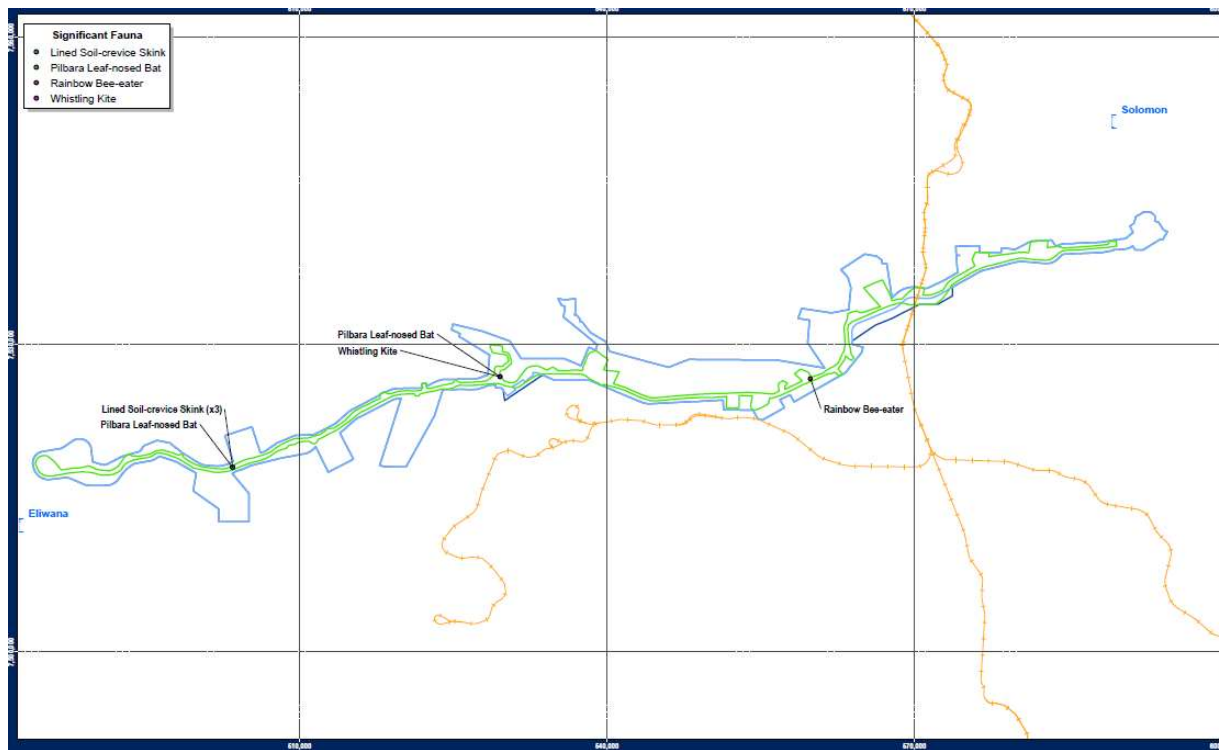
Targeted searches for significant roost caves supporting the Pilbara Leaf-nosed Bat or Ghost Bat within the broader Eliwana Rail Project survey area were undertaken, however, no significant roost caves were identified (FMG, 2019).

The Northern Quoll (Endangered) has been recorded in the Eliwana Railway Survey area and is most common in the Hills/Ranges/Plateaux; this habitat type occurs around Railway camp 95k. Infrastructure and clearing have been designed to avoid this habitat type and no disturbance is planned to this habitat type (FMG, 2019).

The Short Tailed Mouse (Priority 4) has been recorded from the Rail Survey area (eastern end Plain (Cracking Clay) habitat), outside the clearing permit envelope. The Western Pebble-mound Mouse (Priority 4) has been recorded within the application area for breeding purposes. In addition, the Gane's Blind Snake (Priority 1) has also been recorded in the Lower Slopes/Hillslopes habitat area within the application area. The Whistling Kite has been recorded within the application area (FMG, 2019).

The Olive Python (Vulnerable) has suitable habitat within the application area. The Olive Python (Pilbara subspecies) is known only from ranges within the Pilbara region, north-western Western Australia, such as the Hamersley Range and islands of the Dampier Archipelago. It is known to occur at 21 locations within the Pilbara including populations at Pannawonica, Millstream, Tom Price and Burrup Peninsula. The Olive Python (Pilbara subspecies) prefers deep gorges and water holes in the ranges of the Pilbara region. The subspecies is adept at swimming, utilising water holes to hunt and its diet includes Rock wallabies, Fruit Bats, ducks, Spinifex Pigeons and Coucals. The conservation advice for this species identified conservation of known populations as the highest priority for conservation. As no known populations of Olive Pythons occur within the application area the proposed clearing is not likely to impact on the conservation status of this species (DotEE, 2008).

The table above identifies suitable habitat for a number of conservation significant avian fauna including the Peregrine Falcon and Grey Falcon. These species hunt over large areas however nesting habitat for these species is not known to occur within the application area. Given the diversity of habitats within which these species forage it is unlikely that clearing the vegetation within the application will significant impact on the available foraging habitat for this species or any local populations.



As assessed within Principle (e), the local area is highly vegetated retaining approximately 99 per cent native vegetation.

Given the above, the proposed clearing is not likely to be significant habitat for fauna indigenous to Western Australia and therefore is not likely to be at variance to this principle.

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

Proposed clearing is not likely to be at variance to this Principle

No known threatened flora have been mapped within the local area of the application area.

Previous flora surveys of the application area did not identify any threatened flora (FMG, 2019).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(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.

Proposed clearing is at variance to this Principle

One known threatened ecological community (TEC) is mapped within the application area; Themeda grasslands on cracking clays (Hamersley Station, Pilbara). Approximately 160 hectares of the 7,539 hectare application area is mapped within the Themeda grasslands TEC.

The applicant has advised that geotechnical works will occur within the TEC however existing disturbance will be utilised where possible to minimise impacts to the TEC (FMG, 2019). The proposed clearing is expected to impact on up to 0.069 hectares of Themeda grasslands TEC.

Given the native vegetation to be cleared includes up to 0.069 hectares a known threatened ecological community it is at variance to this clearing principle. The impacts to this TEC are expected to be minimal and no significant residual impact resulting from clearing is likely. No mitigation measures are necessary to manage the expected impact to this TEC.

(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.

Proposed clearing is not at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The mapped Interim Biogeographic Region of Australia (IBRA) bioregion, Pilbara, retains 99.89 per cent native vegetation. All mapped Beard vegetation associations retain above 99 per cent native vegetation within the Pilbara IBRA Bioregion. The local area retains approximately 99.9 per cent native vegetation. As the mapped vegetation associations and the local area occur significantly above the 30 per cent threshold, the proposed clearing does not occur within a highly cleared landscape.

Given the above, the proposed clearing is not at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DBCA Managed Lands (%)
IBRA Bioregion*				
Pilbara	17804193.01	17,785,000.81	99.89	8.3
Beard vegetation association in Bioregion*				
18	676,556.72	672,424.32	99.39	25.17
29	1,133,219.76	1,132,939.20	99.97	9.38
82	2,563,583.23	2,550,898.98	99.50	11.53
175	507,860.16	507,466.80	99.92	7.93
567	776,823.96	774,213.02	99.66	25.40
Local Area				
20 kilometre radius	602,635.30	602,049.68	99.90	-

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

Proposed clearing is at variance to this Principle

The application area includes native vegetation growing in, and in association with several watercourses and is therefore at variance to this principle.

The application area intersects Duck Creek, Caves Creek Wackalina Creek as well as several tributaries to the Fortescue River and numerous minor non-perennial watercourses.

One vegetation unit has been identified within the application area that is considered to be groundwater dependant vegetation:

- EcAcEUaTe: *Eucalyptus camaldulensis* subsp. *refulgens*, *E. victrix* mid woodland over *Acacia citrinoviridis*, *Melaleuca glomerata* tall open shrubland over *Eulalia aurea* mid sparse tussock grassland over *Triodia epactia* low sparse hummock grassland.

Less than 0.1 ha of this vegetation type will be disturbed by vegetation clearing. (FMG, 2019).

Given the above, the proposed clearing is at variance to this principle. The proposed clearing is for geotechnical investigations and therefore the clearing will be spread over a large area (92 hectares within a 7,539 hectare envelope), minimising the impact at any one location. The impact of clearing riparian vegetation is not likely to be significant.

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

Proposed clearing is not likely to be at variance to this Principle

The application area is mapped as eight different land systems, with the Boolgeeda land system comprising the majority of the area, followed by the Rocklea land systems, with smaller representation of the other land systems. These extents are described below. Six percent of the application area is unmapped (FMG, 2019). None of the listed land systems are highly susceptible to wind or water erosion, however, some may become seasonally waterlogged if left uncleared.

Land Systems	Description	WA Soil Group	% of Envelope
Boolgeeda	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	Red loamy earth soils (544) Red/brown non-cracking clay (622)	43
Brockman	Gilgai alluvial plains with cracking clay soils supporting tussock grasslands and low woodlands.	Red loamy earth soils (544) Self-mulching cracking clays (602) Red/brown non-cracking clay (622)	7
Calcrete	Low calcrete platforms and plains supporting	Red deep sands (445) Red Sandy earths (463)	1
	shrubby hard spinifex grasslands.	Calcareous shallow loam soils (521) Red shallow loam soils (522) Calcareous loamy earths (542) Red loamy earth soils (544) Red deep sands (445) Self-mulching cracking clays (602) Red/brown non-cracking clay (622) River bed soils (705)	
Hooley	Alluvial clay plains supporting a mosaic of snakewood shrublands and tussock grasslands	Red loamy earth soils (544) Red deep sands (445) Self-mulching cracking clays (602) Red/brown non-cracking clay (622)	1
Jurravarrina	Hardpan plains and alluvial tracts supporting mulga shrublands and tussock and spinifex grasses	Red shallow sandy duplex soils (406) Red shallow loams (522)	1
Newman	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.	Stony soils (203) Red shallow loam soils (522)	6
Robe	Low plateaus, mesas and buttes of limonites supporting soft spinifex (and occasionally hard spinifex) grasslands	Stony soils (203) Shallow gravel soils (304)	4
Rocklea	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs.	Calcareous shallow loam soils (521) Red shallow loam soils (522)	33

As assessed under Principle (f) above, major and minor watercourses are mapped within the application area. Rainfall is mapped as 400-500 millimetres per year with an evapotranspiration rate of 400 millimetres per year.

The proposed clearing is for geotechnical investigations and therefore it is unlikely that the clearing will leave large areas of exposed soils. Given the above, the proposed clearing is not likely to be at variance to this Principle.

Further, the applicant has agreed to conduct progressive rehabilitation of disturbed areas reducing any potential impacts associated with land degradation from the exposure of soils through vegetation clearing (FMG, 2019)

(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.

Proposed clearing is not likely to be at variance to this Principle

One Department of Biodiversity Conservation and Attractions managed reserve has been recorded within the local area, that being Karijini National Park located 9km east.

Given this and the extent of vegetation within the local area and the distance between the application area and the closest conservation area, the proposed clearing is not likely to be at variance to this Principle.

(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.

Proposed clearing is not likely to be at variance to this Principle

The majority of the application area occurs within the Duck Creek sub catchment (Figure 10), a tributary of the Ashburton River. The only exception to this is the north-eastern smaller portion of the application area which is part of the Weelumurra sub-catchment, a tributary of the Lower Fortescue River (FMG, 2019).

Groundwater within the broader Eliwana area occurs within both deep, fractured rock aquifers and near the surface along dissected creeks and within gorges. The main aquifers relevant to the permit envelope are likely to be fractured rock aquifers or minor alluvial aquifers in surface creeks (FMG, 2019).

As assessed under principle (f), the application area intersects Duck Creek, Caves Creek Wackalina Creek as well as several tributaries to the Fortescue River and numerous minor non-perennial watercourses. As assessed under principle (g), none of the listed land systems are highly susceptible to wind or water erosion, however, some may become seasonally waterlogged if left uncleared.

The proposed clearing is for geotechnical investigations and therefore it is unlikely that the clearing will leave large areas of exposed soils. Given the above, the proposed clearing is not likely to be at variance to this Principle.

Further, the applicant has agreed to conduct progressive rehabilitation of disturbed areas reducing any potential impacts associated with land degradation from the exposure of soils through vegetation clearing (FMG, 2019)

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

Proposed clearing is not likely to be at variance to this Principle

As assessed within Principles (e), (f) and (g), the local area is extensively vegetated retaining approximately 99 per cent native vegetation, major rivers and tributaries manage the flow of significant rainfall and rainfall within the region is low at 400-500 millimetres per year.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Planning instruments and other relevant matters.

The clearing permit application was advertised on the DWER website on 14 August 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

A total of 31 Aboriginal sites of significance have been mapped within the application area. The application area is located within the Eastern Guruma Native Title Determination area and Puutu Kunti Kurrama People (PKKP) and Pinikura #1 and #2 Native Title Determination area. Fortescue entered into Land Access Agreements (LAA) with the Wintawari Guruma Aboriginal Corporation (WGAC) which is the Prescribed Body Corporate for the determined Eastern Guruma native title claim (WD6208/98), on 15 December 2009 and with the PKKP Aboriginal Corporation (PKKPAC) for the determined Puutu Kunti Kurrama People and Pinikura People #1 and #2 native title claims, on 28 May 2010. The applicant is aware of their Heritage responsibilities and has engaged with local indigenous peoples accordingly.

In applying for this clearing permit the applicant advised that:

- There has been considerable effort expended to ensure the geotechnical works disturbance footprint and activities will have the minimum impact on the environment. The activities have been designed with the principles that the clearing does not have a significant impact on the environment and is reversible through rehabilitation. Using these principles, areas of environmental significance has been avoided as much as possible;
- The proposed clearing for geotechnical works is associated with the implementation of the TPI State Agreement - Eliwana Railway Proposal.

In April 2019, the Environmental Protection Authority (EPA) published the "Report and Recommendations of the Environmental Protection Authority; Eliwana Railway Project; Fortescue Metals Group Limited – Report 1633, April 2019". On 14 August

2019, the Minister for Environment issued statement 1108 under the *Environmental Protection Act 1986* that the proposal for the Eliwana Railway Project may be implemented subject to certain terms and conditions.

5. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

DotEE (2008) Formerly Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Liasis olivaceus barroni (Olive Python - Pilbara subspecies)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/66699-conservation-advice.pdf>. In effect under the EPBC Act from 03-Jul-2008.

FMG (2019) Fortescue Metals Group Limited - Clearing permit application form and supporting documentation for CPS 8576/1 DWERDT172289.

Government of Western Australia (2018) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of February 2018. WA Department of Parks and Wildlife, Perth.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

GIS Database List

- SAC Bio datasets (September 2019)
- Hydrography, linear
- Aboriginal Sites of Significance
- RIWI Areas
- Hydrography, linear
- Groundwater Salinity
- Pre-European vegetation
- DBCA Estate
- Systems, statewide
- Salinity Risk