



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 3334/1
<b>Permit Holder:</b>	BHP Billiton Iron Ore (Pty) Ltd
<b>Duration of Permit:</b>	3 January 2010 – 3 January 2015

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 road diversions and associated works.

**2. Land on which clearing is to be done**

L 47/114 Miscellaneous Licence

M 274SA Mining Lease S.A

Lot 189 on Deposited Plan 219306 (Great Northern Highway Road Reserve)

**3. Area of Clearing**

The Permit Holder must not clear more than 6.5 hectares of native vegetation within the area hatched yellow on attached Plan 3334/1a and Plan 3334/1b.

**4. 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.

**5. 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

**6. 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:

- 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.

**PART III - RECORD KEEPING AND REPORTING**


**7. Records must be kept**

The Permit Holder must maintain the following records for activities done pursuant to this Permit in relation to the clearing of native vegetation authorised under this Permit:

- (a) the species composition, structure and density of the cleared area;
- (b) 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;
- (c) the date that the area was cleared; and
- (d) the size of the area cleared (in hectares).

**8. Reporting**

- (a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 7 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 3 October 2014, the Permit Holder must provide to the CEO a written report of records required under condition 7 of this Permit where these records have not already been provided under condition 8(a) of this Permit.



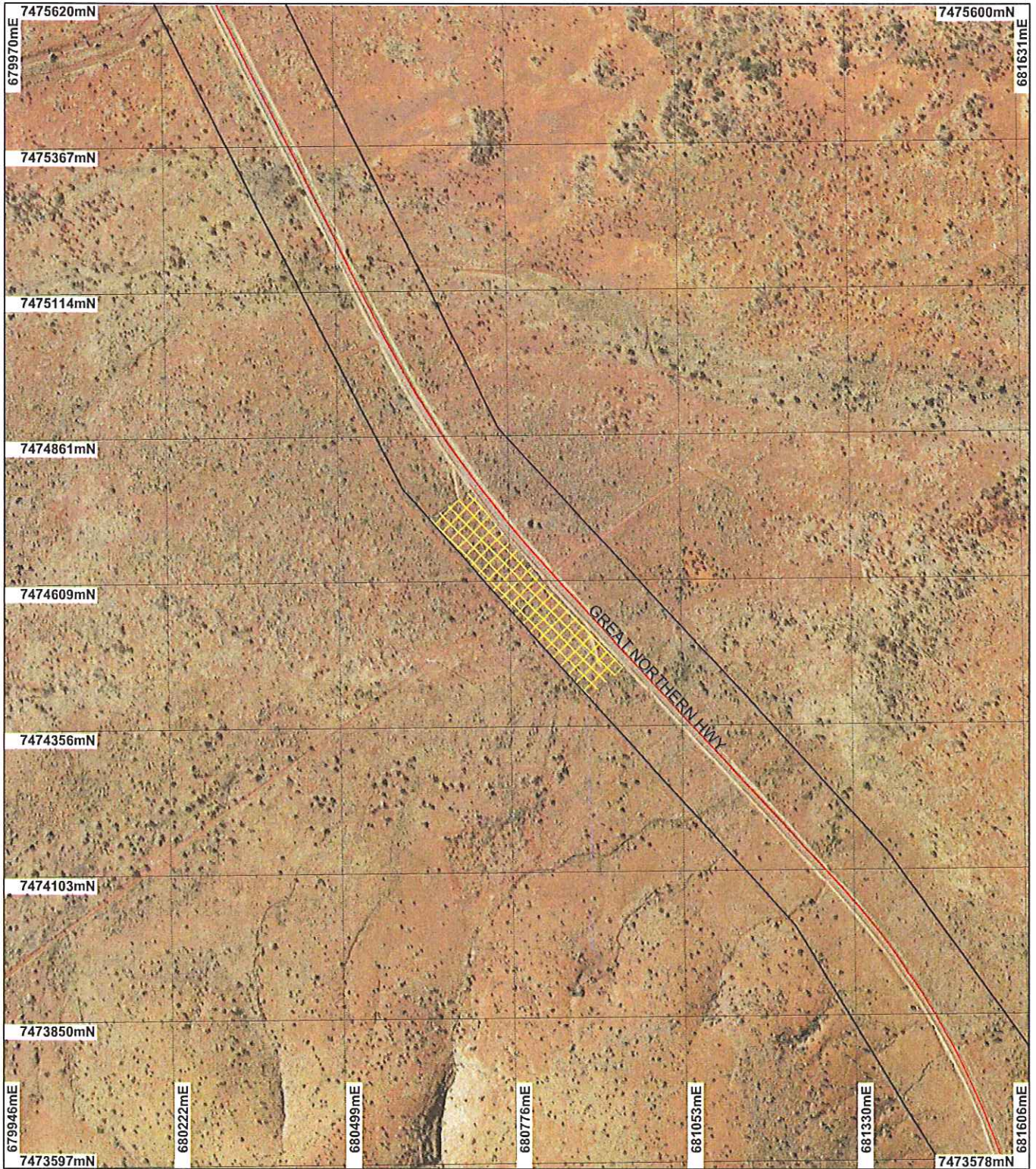
Keith Claymore  
A/ ASSISTANT DIRECTOR  
NATURE CONSERVATION DIVISION

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

3 December 2009

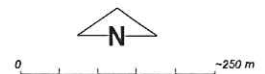


# Plan 3334/1a



## LEGEND

- |                         |   |
|-------------------------|---|
| Clearing Instruments    | Munjin 50cm Orthomosaic - Landgate 2004 |
| Areas Approved to Clear |   |
| Road Centrelines        |   |
| Cadastre                |   |



Scale 1:9236

(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.

*Kirsty Claymore* 3/12/07  
 Date

K Claymore  
 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.



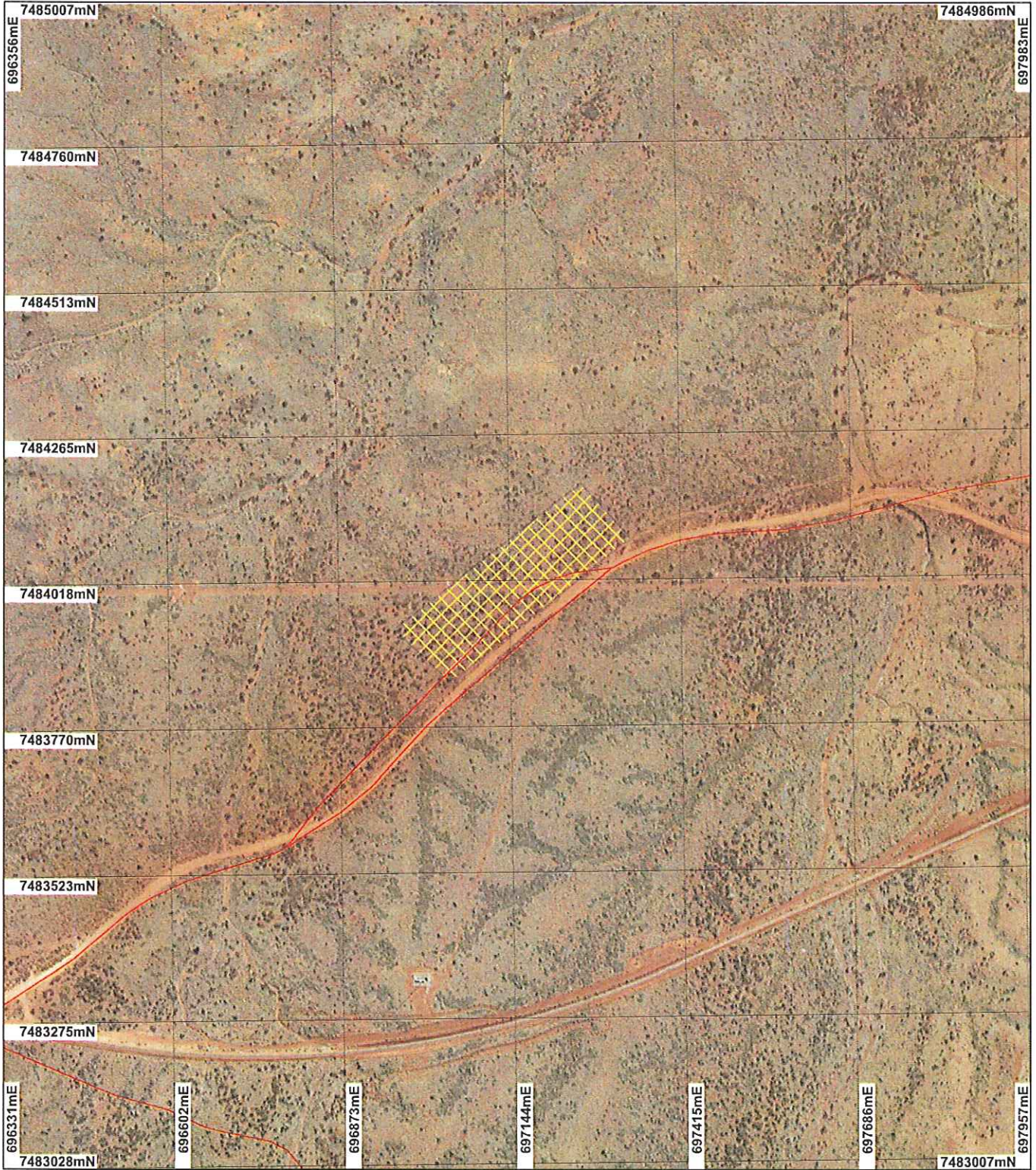
Department of Environment and Conservation

Our environment, our future  
 WA Crown Copyright 2002

\* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.



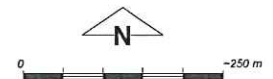
# Plan 3334/1b



## LEGEND

- Clearing Instruments
-  Areas Approved to Clear
  -  Road Centrelines
  -  Cadastre

Munjina 50cm Orthomosaic -  
Landgate 2004



Scale 1:9042

(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.

K Claymore

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

Our environment, our future  
WA Crown Copyright 2002

\* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.





## 1. Application details

### 1.1. Permit application details

Permit application No.: 3334/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore (Pty) Ltd

### 1.3. Property details

Property: L47/114  
 L47/257  
 L47/108  
 AM70/274

Local Government Area:

Colloquial name: Iron Ore (Yandicoogina) Agreement Act 1996, Mining Lease 274SA

### 1.4. Application

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

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The area under application along Great Northern Hwy is mapped as consisting of both Beard vegetation types listed below. The area under application adjacent to Flat Rocks Road consists of Beard vegetation type 18 only.	Three vegetation units were identified within the Flat Rocks Road application area (ENV Australia, 2009) and are described as:	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The condition and description of the vegetation under application was determined via the use of aerial imagery and a flora and vegetation survey conducted by ENV Australia (2009).
Beard 18: Low woodland; mulga ( <i>Acacia aneura</i> ) - majority of clearing occurs within this association	- Open Hummock Grassland of <i>Triodia basedowii</i> , <i>Triodia pungens</i> and <i>Triodia wiseana</i> with Open Shrubland of <i>Acacia atkinsiana</i> , <i>Acacia ancistrocarpa</i> and <i>Codoncarpus contintofolius</i> with Scattered Mallees of <i>Eucalyptus gamophylla</i> .		
Beard 82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i>	- High Shrubland of <i>Acacia aneura</i> var. <i>longicarpa</i> , <i>Acacia siberica</i> and <i>Acacia aneura</i> with Open Tussock Grassland of <i>Triodia pungens</i> and <i>Triodia wiseana</i> with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> .		
(Shepherd, 2007)	- Very Open Tussock Grassland of <i>Aristida holathera</i> var. <i>latifolia</i> and <i>Aristida ingrate</i> with Scattered Shrubs of <i>Acacia ancistrocarpa</i> with Scattered Herb of <i>Ptilotus calosrachyus</i> , <i>Ptilotus wxaltatus</i> and <i>Dysphania rhadinostachya</i> .		

The condition of these vegetation units were considered to range from Very Good to Completely Degraded (Keighery, 1994).

Three vegetation units were identified within the Great Northern Hwy application area and are described as:

- Open Hummock Grassland of *Triodia melvillei* and *Triodia epactia* with Open Shrubland of *Acacia ancistrocarpa*, *Acacia pruinocarpa* and *Acacia aneura* var. *longicarpa* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia deserticola* subsp. *deserticola*

- Closed Tussock Grassland of *Cymbopogon ambiguus* with Open Shrubland of *Acacia cowleana* with Low Open Woodland of *Eucalyptus xerothermica* and *Corymbia deserticola* subsp. *deserticola*.

- High Shrubland of *Acacia aneura* var. *longicarpa*, *Acacia pruinocarpa* and *Acacia cowleana* with Open Hummock Grassland of *Triodia melvillei* with Low Open Shrubland of *Acacia dictyophleba* and *Acacia ancistrocarpa*.

The condition of these vegetation units was considered to range from Excellent to Very Good (Keighery, 1994).

As above	As above	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	As above
As above	As above	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	As above
As above	As above	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	As above
As above	As above	Completely Degraded: No longer intact; completely/almost completely without	As above



### 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 is not likely to be at variance to this Principle**

The purpose of the proposed clearing is for road diversions and associated activities. There are two separate areas where clearing is to occur. One is within the Shire of Ashburton on Great Northern Hwy; the other is in the Shire of East Pilbara adjacent to Flat Rocks Road.

At the Great Northern Hwy location, 75 taxa (including species, subspecies and varieties) were recorded, while at the Flat Rocks Road location 84 taxa were recorded during a flora and vegetation survey conducted in July 2009 (ENV Australia, 2009). The amount of flora recorded within the two areas under application is no greater than previous surveys undertaken by ENV Australia within the region and is considered to be typical of the local area (ENV Australia, 2009).

No rare or priority flora species were recorded within the applied areas and the vegetation under application is not considered significant habitat for fauna species within the local area (20km radius).

The closest flora species to the application area at the Flat Rocks Road location were *Goodenia* sp. East Pilbara (P1), which was recorded 1.4km east, *Acacia subtiliformis* (P3), recorded 2km east and *Goodenia* sp. Pilbara calcrete (P1), which was recorded 5.7km north east of the applied area.

*Goodenia* sp. East Pilbara and *Acacia subtiliformis* are both found on calcrete or red - brown clay soils which do not occur within the areas under application (ENV Australia, 2009; WA Herbarium, 1998 -)

The local area is well vegetated, with approximately 90-95% of vegetation remaining. The Beard vegetation association types mapped as occurring within the applied areas are also well above the EPA supported threshold level of 30% (EPA, 2000).

Given the above, it is considered unlikely that the vegetation under application is representative of an area high in biodiversity.

**Methodology**

References:

- EPA (2000)

- ENV Australia (2009)

GIS DataBases:

- CALM Managed Lands and Waters - CALM 01/06/05

- Munjina 50cm Orthomosaic - Landgate 2004

- Pre European Vegetation - DA 01/01

- SAC Biodatasets - accessed 5 November 09

- Soils, Statewide DA 11/99

- NLWRA, Current Extent of Native Vegetation 20 Jan 2001

#### (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 is not likely to be at variance to this Principle**

Two habitat types have been identified at the Flat Rocks Road location, Alluvial Plain and Rocky Plain Habitats. Only the Rocky Plain Habitat occurs at the Great Northern Hwy location (ENV Australia, 2009).

There were only a few records of fauna species within the local area (20km radius). The Australian Bustard (*Ardeotis australis*) (P4) was recorded 14km south east and the Western Pebble-mound Mouse, Ngadji (*Pseudomys chapmani*) (P4) was recorded 16km s/south west of the Great Northern Hwy location. There were no fauna recorded within the local area of the Flat Rocks Road location

A level one fauna survey conducted by ENV Australia (2009) identified an additional three species that could possibly occur within both application areas which included the Grey Falcon (*Falco hypoleucos*) (P4), Bush Stone-Curlew (*Burnhinus grallarius*) (P4) and Rainbow Bee-eater (*Merops ornatus*). These species are not likely to be impacted by the proposed clearing due to their ability to avoid the disturbance and to easily relocate to more suitable areas (ENV Australia, 2009), of which the local area has vast amounts due to the large extent of remaining vegetation.

Taking into consideration the small size of the proposed clearing and the habitat types present within the applied areas, only the Western Pebble-mound Mouse has the potential to utilise the areas under application as habitat. However no pebble mounds were recorded during the fauna survey, therefore it is considered unlikely that this species breeds within the boundaries of the applied areas (ENV Australia, 2009).

It is considered unlikely that the vegetation under application is significant habitat for fauna species within the local area.

- Methodology** References:  
 - ENV Australia (2009)  
 GIS DataBases:  
 - Pre European Vegetation - DA 01/01  
 - SAC Biodatasets - accessed 5 November 09  
 - NLWRA, Current Extent of Native Vegetation 20 Jan 2001

**(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 rare flora in the local area (20km radius).

In a flora survey conducted by ENV, Australia (2009) during July, found no rare or priority listed flora species were located in the areas under application. However some species typically associated with the summer season may not have been recorded.

Given the large amount of suitable habitat remaining in the local area, it is unlikely that the vegetation under application is necessary for the continued existence of rare flora.

- Methodology** References:  
 - ENV Australia (2009)  
 - WA Herbarium (1998 -)  
 GIS DataBases:  
 - NLWRA, Current Extent of Native Vegetation 20 Jan 2001  
 - Pre European Vegetation - DA 01/01  
 - SAC Biodatasets - accessed 5 November 09  
 - Soils, Statewide DA 11/99

**(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 Threatened Ecological Communities (TECs) recorded within the local area (20km radius), nor were any recorded within the project areas during a flora and vegetation survey conducted by ENV Australia (2009).

Due to the absence of TECs within the application areas and given that there are no records of TECs within the local area, the proposed clearing is unlikely to be at variance to this principle.

- Methodology** References:  
 - ENV Australia (2009)  
 GIS DataBases:  
 - Pre European Vegetation - DA 01/01  
 - SAC Biodatasets - accessed 5 November 09  
 - Soils, Statewide DA 11/99

**(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 is not at variance to this Principle**  
 As the below table illustrates, none of the Beard vegetation types present within the areas under application are below the EPA supported threshold level (30%) recommended in the National Objectives Targets for Biodiversity Conservation; below which species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). Further to this, the local area (20km radius) is highly vegetated with approximately 90-95% remaining. Therefore the proposed clearing is not considered to be at variance to this principle.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	% In reserves DEC Managed Land
IBRA Bioregions*				
Pilbara	17,804,187	17,794,646	99.95	8.34
Shire*				



Ashburton	10,086,655	10,072,450	99.86	15.73
East Pilbara	37,183,378	37,182,780	100	4.04

Beard Association\*  
within Bioregion

18	76,556	676,556	100	17.18
82	2,563,583	2,563,583	100	10.50

Beard Association \*  
within shire of Ashburton

18	342,472	342,472	100	33.92
82	1,537,077	1,537,077	100	17.52

Beard Association\*  
within shire of East Pilbara

18	359,372	359,372	100	0.01
----	---------	---------	-----	------

(Shepherd et al. 2007)\*

- Methodology** References:
- EPA (2000)
  - Shepherd (2007)
  - GIS DataBases:
  - Munjina 50cm Orthomosaic - Landgate 2004
  - NLWRA, Current Extent of Native Vegetation 20 Jan 2001
  - 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**

The local area is scattered with minor non-perennial watercourses. A minor non-perennial watercourse intersects the south west corner of the application area at the Great Northern Hwy location.

There are two minor non-perennial watercourses that intersect the application area adjacent to Flat Rocks Road. One crosses through the applied area in the south west, the other in the north east. There is also a minor non-perennial watercourse that ends just before entering the application area.

The areas under application are adjacent to already disturbed areas (existing roads) and the impacts of clearing on the minor non-perennial watercourses (and any associated vegetation) is not expected to be significant, although some minor alteration to hydrology dynamics may result.

The proposed clearing may be at variance to this principle.

- Methodology** GIS DataBases:
- CALM Managed Lands and Waters - CALM 01/06/05
  - Clearing Regulations, Environmentally Sensitive Areas 30 May 2005
  - EPP Lakes Policy Area - DEP 14/05/97
  - EPP, Wetlands 2004 (DRAFT) - EPA 21/7/04
  - Hydrography linear - DOW 13/7/06
  - Hydrography linear (hierarchy) - DoW 13/7/06

**(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**

Rainfall is 500mm at the Great Northern Hwy location and 400mm at the Flat Rocks location and the elevation is fairly consistent at both locations, with very gradual sloping topography. The application area at the Great Northern Hwy location consists of two soil types, Fa13 and Fb3. Soil type Fa13 is chiefly composed of shallow stony earthy loams, while soil type Fb3 consists of predominately deep earthy loams (Northcote et al. 1960 - 68). The soil type present at the Flat Rocks Road location is Fb3.

Due to the small size of the proposed clearing areas, their position alongside already disturbed areas and given that the area is well vegetated (approximately 90-95% remaining), it is considered unlikely that any appreciable land degradation will result.

- Methodology** References:
- Northcote et al. (1960 - 68)



GIS DataBases:

- Groundwater Salinity Statewide DoW 13/07/06
- Hydrogeology, statewide - DOW 13/07/06
- Hydrographic catchments, catchments - DoW 01/06/07
- Hydrography, linear - DOW 13/7/06
- Mean Annual Rainfall (30-09-2001)
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- Salinity Risk LM 25m - DOLA 00
- Soils, Statewide DA 11/99
- Topographic contours statewide - DOLA and ARMY 12/09/02

**(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 likely to be at variance to this Principle**

The closest conservation area, Karijini National Park, is located 17.5km south west of the Great Northern Hwy location.

Due to the small size (6.5 ha) of the proposed clearing areas, their position alongside already disturbed areas and given that the area is well vegetated (approximately 90-95% remaining), it is considered unlikely that the proposed clearing will impact on the environmental values of any conservation areas.

**Methodology GIS DataBases:**

- CALM Managed Lands and Waters - CALM 01/06/05
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- System 1 to 5 and 7 to 12 areas - DEC 11/7/06

**(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 may be at variance to this Principle**

The application area is situated within the Fortescue River Catchment, where groundwater salinity is recorded as being 500 - 1000 mg/L. The proposed clearing of 5.6 hectares of vegetation is unlikely to cause a deterioration in the quality of groundwater, given that the local area is well vegetated (approximately 90-95% remaining).

The local area is scattered with minor non-perennial watercourses. A minor non-perennial watercourse intersects the south west corner of the application area at the Great Northern Hwy location.

There are two minor non-perennial watercourses that intersect the application area adjacent to Flat Rocks Road. One crosses through the applied area in the south west, the other in the north east. There is also a minor non-perennial watercourse that ends just before entering the application area.

The areas under application are adjacent to already disturbed areas (existing roads) and the impacts of clearing on the minor non-perennial watercourses is not expected to be significant, although some minor alteration to hydrology dynamics may result. Therefore the proposed clearing may be at variance to this principle.

**Methodology GIS DataBases:**

- Groundwater Salinity Statewide DoW 13/07/06
- Hydrographic catchments, catchments - DoW 01/06/07
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06

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

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

A minor non-perennial watercourse intersects the south west corner of the application area at the Great Northern Hwy location and there are two minor non-perennial watercourses that intersect the application area adjacent to Flat Rocks Road.

While some minor alteration to hydrology dynamics may result, given the size of the proposed clearing and the large amount of vegetation remaining in the local area (approximately 90-95%), it is considered unlikely that there will be an increase in the intensity or duration of flooding.

**Methodology GIS DataBases:**

- Mean Annual Rainfall (30-09-2001)
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- Soils, Statewide DA 11/99



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

### Comments

Main Roads have provided in principle support to the proposed clearing (Trim Re: DOC98518).

Rio Tinto have also granted the applicant permission for BHP Billiton Iron Ore Pty Ltd to access land on Lot 95 over which they hold miscellaneous leases L47/108 and L47114 and mining lease AM70/274 in order to allow for the proposed clearing activities (Trim Ref: DOC98518).

Lot 189 (Great Northern Hwy road reserve) is vested with Main Roads. BHP holds a miscellaneous lease L47/257 on this Lot.

The road works are required in order to allow safe passage of oversized modules, with the road improvements providing adequate transport height and safety clearance below power lines that cross Great Northern Hwy and Flat Rocks Road.

No comment was received from native title claimants within the notification period.

### Methodology

## 4. Assessor's comments

### Comment

The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s510 of the Environmental Protection Act 1986 and has found:

- Principles (f) & (i) may be at variance
- Principle (e) is not at variance
- All other Principles are not likely to be at variance

## 5. References

- ENV Australia (2009) Flat Rocks road Bypass and Great Northern Highway Bypass Flora and fauna Assessment, prepared for Worley Parsons, Report No 09/016. Trim Ref: DOC98518
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2007). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/> Accessed on Wednesday, 11 November 2009.

## 6. 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



