GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 3437/2
Permit Holder:	BHP Billiton Iron Ore Pty Ltd
Duration of Permit:	21 February 2010 – 21 February 2020

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 purposes of railway construction and maintenance and associated works, installation and relocation of power lines and installation of fibre optic cables.

2. **Land on which clearing is to be done**
   ML 244SA
   Special Lease 3116/3687
   Marble Bar Road Reserve

3. **Area of Clearing**
   The Permit Holder must not clear more than 230 hectares of native vegetation within the area hatched yellow on attached Plan 3437/2.

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:
   (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.

7. **Soil Management (erosion)**
The Permit Holder shall not clear native vegetation unless commencing activities authorised under this Permit within one month of the clearing being undertaken.

8. **Flora management**
(a) Prior to undertaking any clearing authorised under this Permit, the site shall be inspected by a *flora specialist* for the presence of the following rare flora listed in the *Wildlife Conservation (Rare Flora) Notice 2008*(2):
(i) Lepidium catapycnon

(b) Where rare flora are identified in relation to condition 8(a) of this Permit, the Permit Holder shall ensure that:
(i) all records of rare flora are submitted to the CEO; and
(ii) no clearing occurs within 50 metres of identified rare flora, unless approved by the CEO.

(c) Prior to undertaking any clearing authorised under this Permit, the site shall be inspected by a *flora specialist* for the presence of the following *priority flora taxa*:
(i) *Rhagodia sp Hamersley;*
(ii) *Gymnanthera cunninghamii*; and
(iii) *Goodenia nuda*

(d) Where *priority flora taxa* are identified in relation to condition 8(c) of this Permit, the Permit Holder shall ensure that:
(i) all records of *priority flora taxa* are submitted to the CEO; and
(ii) no clearing occurs with 10 metres of identified *priority flora taxa*, unless approved by the CEO.

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. **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;

(b) Within 12 months following completion of activities authorized under this Permit, the Permit Holder shall *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;
(ii) *ripping* the ground on the contour to remove soil compaction; and
(iii) laying the vegetative material and topsoil retained under condition 10(a).

(c) Within 4 years of laying the vegetative material and topsoil on the cleared area in accordance with condition 10(b) of this Permit:

(i) 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 10(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) If not completed prior, condition 10(c) must be completed 3 months before the expiry of this Permit.

PART III - RECORD KEEPING AND REPORTING

11. Records must be kept

(a) 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:

(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;

(iv) the date the excavation and operation of borrow pits ceased; and

(v) the size of the area cleared (in hectares).

(b) In relation to flora management pursuant to condition 8 of this Permit:

(i) the location of each rare and priority flora species recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; and

(ii) the species name of each rare and priority flora species identified.

(c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 10 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;

(ii) a description of the *revegetation* and *rehabilitation* activities undertaken;

(iii) the size of the area *revegetated* and *rehabilitated* (in hectares); and

(iv) the species composition, structure and density of *revegetation* and *rehabilitation*.

12. 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 11 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 21 November 2019, the Permit Holder must provide to the CEO a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(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;

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

flora specialist means a person with specific training and/or experience in the ecology and taxonomy of Western Australian flora;

local provenance means native vegetation seeds and propagating material from natural sources within 20 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;

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

priority flora taxa means those plant taxa that described as priority flora classes 1, 2, 3 or 4 in the *Department*'s *Declared Rare and Priority Flora List for Western Australia* (as amended);

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 *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

term means the duration of this Permit, including as amended or renewed; and

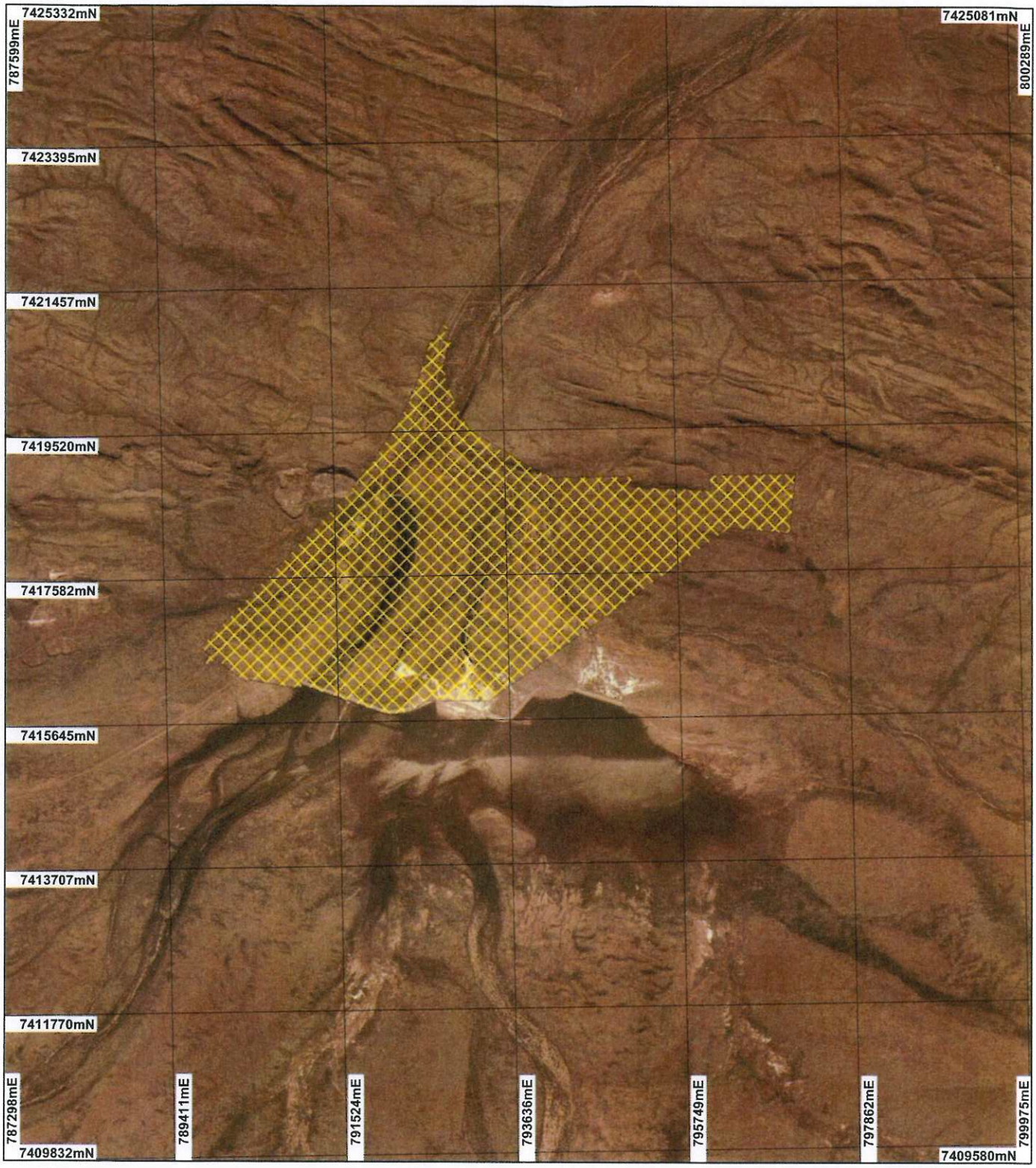
weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

18 February 2010

Plan 3437/2



LEGEND

Clearing Instruments

Areas Approved to Clear

Cadastre

Newman 1.4m Orthomosaic - Landgate 2003

N

0 ~2 km

Scale 1:70651

(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.

Date 18/2/10

Kelly Faulkner

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 acknowleged by the agency acronym in the legend.

Department of Environment and Conservation

Our environment, our future

Department of
Environment and Conservation
Our environment, our future

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3437/2

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **BHP Billiton Iron Ore Pty Ltd**

1.3. Property details

Property:

LOT 49 ON PLAN 217525 (NEWMAN 6753)
LOT 22 ON PLAN 220355 (NEWMAN 6753)
LCT 209 ON PLAN 217525 (NEWMAN 6753)
LOT 99 ON PLAN 220355 (NEWMAN 6753)
ROAD RESERVE (NEWMAN 6753)
LOT 19 ON PLAN 48921 (NEWMAN 6753)
LOT 99 ON PLAN 220355 (NEWMAN 6753)
LOT 16 ON PLAN 194288 (NEWMAN 6753)
LOT 16 ON PLAN 194288 (NEWMAN 6753)
LOT 22 ON PLAN 220355 (NEWMAN 6753)
CROWN RESERVE 9698 (NEWMAN 6753)
LOT 99 ON PLAN 220355 (NEWMAN 6753)
LOT 16 ON PLAN 194288 (NEWMAN 6753)
LOT 118 ON PLAN 217525 (NEWMAN 6753)
LOT 22 ON PLAN 220355 (NEWMAN 6753)
LOT 22 ON PLAN 220355 (CAPRICORN 6642)

Local Government Area:

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
230		Mechanical Removal	Infrastructure Maintenance
230		Mechanical Removal	Infrastructure 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 following Beard vegetation associations are mapped as occurring within the applied area: - 29: Sparse low woodland; mulga, discontinuous in scattered groups - 82: Hummock grasslands, low tree steppe; snappy gum over Triodia wiseana - 216: Low woodland; mulga (with spinifex) on rises (Shepherd, 2007)	A flora survey conducted by Outback Ecology (2009a) of the applied area and surrounds mapped the following vegetation types: 1) Woodland of Eucalyptus camaldulensis var. obtusa over Low Woodland of Acacia citrinoviridis, Acacia coriacea ssp. Pendens and Melaleuca glomerata over Open Shrubland of Acacia pyrifolia, Petalostylis labicheoides and Senna artemisioides ssp. artemisioides. This is the dominant vegetation type within the applied area.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The condition and description of the vegetation under application was determined via the use of aerial imagery and flora and fauna surveys conducted by Outback Ecology (2009a & 2009b).

The condition of this vegetation type is described as good (Keighery, 1994). Prolonged grazing by cattle has reduced the plant diversity and increase surface soil erosion.

2) Low Open Woodland of Eucalyptus xerothermica and Corymbia hamersleyana over Open Shrubland of Acacia bivenosa, Acacia sclerosperma ssp. sclerosperma and Acacia synchronicia over Very Open Hummock Grassland of Triodia pungens.

The condition of this vegetation type ranges from good to very good (Keighery, 1994), with minor impacts resulting from cattle grazing and weed invasion.

3) Low Woodland of Acacia aneura var. pilbarensis, Acacia pruinocarpa and Acacia paraneura over Shrubland of Acacia sclerosperma spp. Sclerosperma, Eremophila longifolia and Rhagodia eremaea over Open Hummock Grassland of Triodia pungens.

The condition of this vegetation type was variable ranging from degraded to very good (Keighery, 1994). However, the vegetation is considered to be in mostly good (Keighery, 1994) condition, with signs of disturbance from cattle being evident.

4) Shrubland of Acacia bivenosa, Acacia sclerosperma spp. Sclerosperma and Acacia synchronicia over Open Hummock Grassland of Triodia sp. Shovelanna Hill (S.van Leeuwen 3835) and Triodia pungens with Low Open Woodland of Eucalyptus leucophloia.

The condition of this vegetation type is considered to be good - degraded (Keighery, 1994), with minor disturbances evident as a result of previous construction and maintenance of existing rail line.

	5) Hummock Grassland of Triodia pungens with Low Woodland of Eucalyptus leucophloia and Acacia citrinoviridis and Open Shrubland of Acacia aneura var. aneura, Senna glutinosa ssp. luerssenii and Eremophila latrobei. Vegetation condition was rated as good (Keighery, 1994) with impacts being limited to area of Buffel grass (Cenchrus) 6) Shrubland of Acacia monticola, Petalostylis labicheoides and Acacia melleodora over Themeda triandra Open Tussock Grassland with Low Open Woodland of Corymbia hamersleyana. The vegetation condition was rated as very good (Keighery, 1994). This vegetation is growing is association with a drainage line. 7) Hummock Grassland of Triodia sp. Shovelanna Hill (S.van Leeuwen 3835) with Low Shrubland of Acacia hilliana, Acacia adoxa var. adoxa and Ptilotus rotundifolius and Low Open Woodland of Eucalyptus leucophloia. The condition of this vegetation types is considered to be very good (Keighery, 1994). 8) Hummock Grassland of Triodia basedowii and Triodia pungens with Shrubland of Acacia sclerosperma ssp. sclerosperma and Acacia pachyacra over Low Shrubland of Eremophila margarethae. The condition of this vegetation type was rated as good, with moderate impacts from grazing cattle, weeds and access tracks.	
See above	See above	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)
See above	See above	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (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 is at variance to this Principle

The proposed clearing of 230 hectares of native vegetation is to occur within a 1,553 hectares clearing envelope. The clearing is for the purpose of railway construction and maintenance and associated works, installation and relocation of power lines and the installation of fibre optic cable. BHP is currently implementing projects to expand the capacity of the Newman to Port Hedland railway line. This will include such activities as geotechnical investigations; earthworks and drainage; construction, excavation and operation of borrow pits; temporary water pipelines, turkeys nests and water tanks and temporary office and laydown areas The specifics listed above are required to connect BHPBIO's Newman to Port Hedland mainline to the Jimblebar spur line. This connection, and associated infrastructure, is collectively referred to as the Jimblebar Wye.

The condition of the vegetation across the study area ranged from degraded to excellent (Keighery, 1994) with the majority of the vegetation considered to be in very good (Keighery, 1994) condition (Outback Ecology, 2009a). Disturbance over the area is most prevalent in the form of pastoral activities. Other obvious disturbances include historical exploration activities, existing rail alignment and associated components (Outback Ecology, 2009a).

Priority flora occurring within the local area includes Crotalaria smithiana (P1), Eremophila rigida (P1) and Aristida jerichoensis var. subspinulifera (P1). All the aforementioned species can occur within the same soil and/or vegetation types found within the applied area. Even if clearing was to impact on Crotalaria smithiana (P1), Eremophila rigida (P1) and Aristida jerichoensis var. subspinulifera (P1), it is unlikely that the conservation status of these species would be significantly affected given their distribution and population (DEC, 2009).

A targeted rare and priority flora species search observed only one priority flora species within the applied area, namely Aristida jerichoensis var. subspinulifera (P1) (Outback Ecology, 2009). However, including the data from previous flora surveys, a total of four priority taxa have been found within the survey area. These include Aristida jerichoensis var. subspinulifera (P1), Gymnanthera cunninghamii (P3), Rhagodia sp Hamersley (P3) and Goodenia nuda (P3).

Flora management conditions will be imposed on the permit to ensure Gymnanthera cunninghamii (P3), Rhagodia sp Hamersley (P3) and Goodenia nuda (P3) are not adversely impacted by the proposed clearing. The rare flora species Lepidium catapycnon has also been identified as having the potential to occur within the applied area (DEC, 2009) and flora management conditions will be imposed to protect this species.

Several weed species were observed within the application area and surrounds. All of which are relatively wide spread throughout the Pilbara (Outback Ecology, 2009a). To reduce the spread of weeds, weed control conditions will be imposed on the permit.

The riverine habitat is the dominant habitat type within the application area, being comprised of semi permanent waterholes of the Fortescue River. This habitat type is considered to be regionally significant (Outback Ecology, 2009b) and is not found within the surrounding areas.

Given the presence of a regionally significant habitat type and habitat for conservation significant flora and fauna, the proposed clearing is at variance to this principle. To mitigate the impacts clearing will have on potential habitat, revegetation conditions will be placed on the permit to ensure that temporary land use areas and sites will be rehabilitated.

Methodology

References:
- DEC (2009)
- Outback Ecology (2009a)
- Keighery (1994)

GIS Databases:
- Dec tenure (28 October 2009)
- Newman 1.4m Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 16 December 09
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- Clearing Regulations, Environmentally Sensitive Areas 30 May 2005
- Pre European Vegetation - DA 01/01

(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 at variance to this Principle

Within the local area (30km radius) several fauna species of conservation significance have been recorded, which included:

- Western Pebble Mouse (Pseudomys Chapmani) (P4), recorded 3.3km east

- Black-flanked Rock-wallaby (Petrogale lateralis lateralis) (VU), recorded 6.9km north
- Pilbara Olive Python (Liasis olivaceus barroni) (VU), 14.8km north west
- Ramphotyphlops ganei (Unnamed Blind Snake) (P1), 14.5km west
- Ghost Bat (Macroderma gigas) (P4), 18.5km WNW
- Australian Bustard (Ardeotis australis) (P4) and
- the Bush Stonecurlew (Burhinus grallarius) (P4) was recorded 18.4km from the application area.

During a fauna survey of the application area and surrounds the Western Pebble Mound Mouse, Unnamed Blind Snake and the Australian Bustard were recorded. In addition to these species of conservation significance recorded during the fauna survey, the Rainbow bee-eater (Merops ornatus) (Migratory and Marine species under the EPBC Act 1999), Star Finch (Neochmia ruficauda clarescens) (P4) and the Australian Reed Warbler (Acrocephalus australis) (Migratory and Marine species under the EPBC Act 1999) were all observed (Outback Ecology, 2009b).

Given the presence of a regionally significant habitat type (riverine environment) (Outback Ecology, 2009a), local fauna species are likely to be impacted by the proposed clearing. To mitigate the impacts of clearing on potential habitat, revegetation conditions will be placed on the permit to ensure that temporary land use areas and sites will be rehabilitated.

Methodology

References:
- Outback Ecology (2009b)

GIS Databases:
- Newman 1.4m Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 16 December 09
- Soils, Statewide DA 11/99
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- Pre European Vegetation - DA 01/01

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

Comments

Proposal may be at variance to this Principle

During a flora survey conducted by Outback Ecology (2009a) during the months of October 2008 and March 2009, no rare flora were recorded within the area under application. Only one rare flora species was mapped as occurring within the local area (20km radius); Lepidium catapycnon (R) and this was recorded at a distance greater than 15km from the applied area. As the flora survey does not address the potential for Lepidium catapycnon to occur within the applied area (DEC, 2009), to ensure the protection of rare flora, flora management conditions will be imposed on the permit.

Methodology

References:
DEC (2009)
Outback Ecology (2009a)

GIS Databases:
- Newman 1.4m Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 16 December 09
- Soils, Statewide DA 11/99
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- Pre European Vegetation - DA 01/01

(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 may be at variance to this Principle

None of the vegetation types mapped within the applied area are listed as Threatened Ecological Communities (TECs) (Outback Ecology, 2009a). However, this survey did not identify the mapped TEC mentioned below which occurs 50m west of the applied area.

Clearing is to occur within the 500m buffer to TEC 'Ethel Gorge aquifer stygobiont'. This TEC is groundwater dependent and is likely to be adversely impacted by alterations to groundwater and surface water quality (DEC, 2009b), however the applicant has advised that water will be sourced from the existing water supply network that supplies the Newman townsite and surplus mine dewatering water will be used from nearby mining operations (Trim Ref: DOC114617). Disturbances to surface water will be minimised given that the clearing of 230ha is to occur within a 1553ha area bridges are to be built over watercourses, major drainage lines and watercourses will be avoided by a buffer to ensure that the natural flow of water is not impeded and disturbed areas will be rehabilitated following construction (BHPBIO, 2009b), however there is insufficient information to determine the potential impacts of clearing on surface water flows.

This being considered, the proposed clearing may be at variance to this principle.

Methodology References:
DEC (2009b)
Outback Ecology (2009a)
GIS Databases:
- SAC Biodatasets - accessed 16 December 09
- Soils, Statewide DA 11/99
- NLWRA, Current Extent of Native Vegetation 20 Jan 2001
- Pre European Vegetation - DA 01/01

(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 likely to be at variance to this Principle**

As the below table indicates, all of the vegetation types mapped as occurring within the applied area are well above the Environmental Protection Authority's (EPAs) supported 30% threshold level for the retention of native vegetation as recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). Additionally the local area retains approximately 90% of native vegetation local area (30km radius).

This being considered, the proposed clearing is not likely to be at variance to this principle.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	% In reserves DEC Managed Land
IBRA Bioregions				
Pilbara	17,804,187.89	17,794,646.75	99.94	8.34
Gascoyne	18,075,218.23	18,075,218.23	100.00	10.30
Shire				
East Pilbara	37,183,378.80	37,182,780.99	100.00	4.04
Beard Vegetation Association within Shire				
29	906,242.05	906,242.05	100.00	0.00
82	927,707.83	927,707.83	100.00	0.00
216	45,068.80	45,068.80	100.00	0.00
Beard Vegetation Association with Gascoyne Bioregion				
29	3,802,459.28	3,802,459.28	100.00	7.81
82	2,317.95	2,317.95	100.00	0.00
Beard Vegetation Association with Pilbara Bioregion				
82	2,563,583.33	2,563,583.33	100.00	10.50
216	26,669.70	26,669.70	100.00	0.00

(Shepherd et al. 2007)

Methodology References:
EPA (2000)
Shepherd (2007)
GIS Databases:
- Newman 1.4m Orthomosaic - Landgate 2003
- 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 is at variance to this Principle**

The Fortescue River, Homestead Creek and Shovelanna Creek occur within the application area. There are also ~ 10 minor non-perennial watercourses scattered throughout the applied area. These watercourse have been heavily disturbed previously from cattle and existing infrastructure, which includes the Ophthalmia Dam,

Jimblebar Rail Spur, Newman-Marble Bar public road and associated utilities (BHPBIO, 2009a; Outback Ecology, 2009a).

The clearing within areas of riparian will be required in order to construct drainage control (such as culverts and bridges). Management practices will be implemented to reduce the impacts of clearing on these systems, these are outlined in BHPBIO management plan (BHPBIO, 2009b). Within this document the applicant has advised that the clearing of vegetation will be minimised, particularly in the vicinity of watercourses, and following construction disturbed areas no longer required will be progressively rehabilitated.

As the clearing of 230ha is to occur within a 1553ha area, bridges are to be built over watercourses, major drainage lines and watercourses will be avoided by a buffer to ensure that the natural flow of water is not impeded and disturbed areas will be rehabilitated following construction, impacts to the riverine environment will be kept to a minimum (BHPBIO, 2009b).

Revegetation conditions will be placed on the permit so that temporary land use areas and sites will be rehabilitated.

Methodology

References:
BHPBIO (2009a)
BHPBIO (2009b)
Outback Ecology (2009a)
GIS Databases:
- 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 may be at variance to this Principle

As the majority of the area under application is described as a river land system, land degradation is a potential issue. Increased sedimentation, erosion and altered hydrology may result. DAFWA has advised that disturbance to stony mantles and fringing vegetation along narrow drainage floors is liable to cause accelerated soil erosion, and that the proposed clearing may cause appreciable land degradation. DAFWA recommends that precautions be taken to ensure these risks are reduced (DAFWA, 2009a).

Due to the existing disturbances such as the Ophthalmia Dam and Jimblebar Rail Spur and the management practices to be implemented by the applicant such as erosion control measures which include gabions, rip rap rock protection and/or reno mattresses (BHPBIO, 2009a; BHPBIO, 2009b), the risk of land degradation is reduced. DAFWA advice indicated that, if the project is implemented in accordance with proposed soil erosion risks and management measures, that serious land degradation is unlikely (DAFWA, 2009b). In addition to this, soil management conditions will be imposed on the permit.

The applicant has also committed to progressively rehabilitating areas no longer required for the project. Revegetation conditions will be placed on the permit so that temporary land use areas and sites will be rehabilitated.

Methodology

BHPBIO (2009a)
BHPBIO (2009b)
DAFWA (2009a)
DAFWA (2009b)
GIS Databases:
- Hydrogeology, statewide - DOW 13/07/06
- Hydrographic catchments, catchments - DoW 01/06/07
- Hydrographic catchments, subcatchments - DoW 01/06/07
- Hydrography, linear - DOW 13/7/06
- Mean Annual Rainfall (30-09-2001)
- Salinity Risk LM 25m - DOLA 00
- Soils, Statewide DA 11/99
- Topographic contours statewide - DOLA and ARMY 12/09/02
- Hydrogeology, Statewide 05 Feb 2002

(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 Karijini National Park, is located approximately 130km west of the application area. An area registered on the Register of National Estate, 'Ethel Gorge Rockshelter Area,' is located within the clearing envelope. This area is classed as indigenous. The applicant has advised that no clearing will occur within this area (Trim Ref: DOC114618).

Therefore the proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
- Dec tenure (28 October 2009)

(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 Fortescue River, Homestead Creek and Shovelanna Creek occur within the application area. There are also ~ 10 minor non-perennial watercourses scattered throughout the applied area. These watercourse have been heavily disturbed previously from cattle and existing infrastructure, which includes the Ophthalmia Dam, Jimblebar Rail Spur, Newman-Marble Bar public road and associated utilities (BHPBIO, 2009a; BHPBIO, 2009b; Outback Ecology, 2009a).

Groundwater salinity has been recorded as 500-1000mg/L and may be adversely impacted by the removal of 230ha of native vegetation; however, any impacts to groundwater quality will be detected via meter readings conducted as part of the applicant's management plan. The Department of Water is satisfied that the proposed clearing is unlikely to have a significant impact on the quality or quantity of groundwater (Dow, 2010).

Clearing within riparian areas will be required in order to construct drainage control (such as culverts and bridges). Management practices will be implemented to reduce the impacts of clearing on these systems, these are outlined in BHPBIO management plan and supporting information and include erosion control measures such as gabions, rip rap rock protection and/or reno mattresses (BHPBIO, 2009a; BHPBIO, 2009b). The applicant has also stated that the clearing of vegetation will be minimised, particularly in the vicinity of watercourses, and following construction disturbed areas no longer required will be progressively rehabilitated (BHPBIO, 2009a; BHPBIO, 2009b).

Revegetation conditions will be placed on the permit so that temporary land use areas and sites will be rehabilitated.

Methodology References:
BHPBIO (2009a)
BHPBIO (2009b)
DoW (2010)
Outback Ecology (2009a)
GIS database:
- Evapotransporation Isopleths - WRC 29/09/98
- Groundwater Salinity Statewide DoW 13/07/06
- Hydrographic catchments, catchments - DoW 01/06/07
- Hydrographic catchments, subcatchments - DoW 01/06/07
- Hydrography, linear - DOW 13/7/06
- Salinity Risk LM 25m - DOLA 00
- Topographic Contours, Statewide - DOLA 12/09/02

(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

The application area is situated within the Fortescue river Upper Catchment, this catchment is 297,519,215 ha in size (BHPBIO, 2009a).The clearing of 230ha of native vegetation for the purpose of rail alignment, and associated infrastructure is unlikely to cause or exacerbate flooding intensity or duration given that the proposed works will occur adjacent to an existing rail embankment and culverts are to be installed.

Methodology References:
- BHPBIO (2009a)
GIS Databases:
- Hydrographic catchments, catchments - DoW 01/06/07
- Hydrographic catchments, subcatchments - DoW 01/06/07
- Hydrography, linear - DoW 13/7/06
- Mean Annual Rainfall Isohytes (1975 - 2003) - DEC 02/08/05
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

There are a number of Aboriginal sites of significance throughout the application area. BHPBIO manages and protects Aboriginal heritage in compliance with the AH Act. Before any ground disturbing activities proceed, an internal Project Environmental and Aboriginal Heritage Review (PEAHR) is undertaken to ensure heritage sites

are identified and either avoided or approval is sought via the Minister for Indigenous Affairs (BHPBIO, 2009a).

The application area is located on State Agreement Act Lease ML 244SA, Special Lease 3116/3687 and Marble Bar road reserves. This application was referred to the DEC's Native Vegetation Conservation Branch as some clearing activities are proposed on non-Mining Act tenure.

Main Roads has given the applicant in principle support to the clearing of native vegetation within the Marble Bar Road reserve (Trim Ref: DOC106282).

The applicant has supplied a letter from the Department of Water Pilbara Region which states " Under section 17 of the Rights in Water and Irrigation Act, 1914, a person can interfere with the bed and banks of a watercourse if granted a permit, or if authorised under another Act. A mining lease granted under the Mining Act, 1978, or under a State Agreement Act grants the right to undertake activities related to mining, including interfering with the bed and banks of watercourses within the mining lease, as long as those activities are not related to the taking of water" (Trim Ref: DOC112502).

The application area is within a proclaimed area and the Pilbara Groundwater Area under the Rights in Water and Irrigation Act 1914. Advice from the Department of Water (DoW) Pilbara region states that any taking or diversion of surface water in a proclaimed area for the purpose other than domestic and/or stock watering is subject to licence by the DoW. In addition, any abstraction of groundwater is also subject to licence by DoW (DoW, 2009).

The applicant has advised that all appropriate Licences will be held under the Rights in Water and Irrigation Act 1914 (RIWI Act) prior to construction of any new bores or abstraction of groundwater, and will comply with all Licence conditions (BHPBIO, 2009a).

An administrative error was found on Permit CPS3437/1. Condition 12(b) has been amended to match the end date of the clearing permit.

Methodology

4. Assessor's comments

Comment

The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986 and the assessment recommendation is that:

- Principle (e), (h) & (j) are not likely to be at variance
- Principles (c), (d), (g) & (i) may be at variance
- Principles (a), (b) & (f) are at variance

5. References

BHPBIO (2009a) Rail Operations, Jimlebar Wye Rail Project, Supporting Information for Application to Clear Native Vegetation, November 2009. Trim Ref: DOC106328

BHPBIO (2009b) Rail Operations, Jimblebar Wye Rail Project, Environmental Management Plan (PP-13-100). Trim Ref: DOC106328

DAFWA (2009a) Advice, Department of Agriculture and Food, Western Australia. Trim Ref: DOC115099

DAFWA (2009b) Advice, Department of Agriculture and Food, Western Australia. Trim Ref: DOC115457.

DEC (2009a) Flora advice, Strategic Projects Section, Department of Environment and Conservation. Trim Ref: DOC114492

DEC (2009b) TEC advice, Species and Communities Branch, Department of Environment and Conservation. Trim Ref: DOC114615

DoW (2010) Advice, Department of Water, Pilbara Region. Trim Ref: DOC114026

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.

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.

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 (now DEC)
DMP	Department of Mines and Petroleum (ex DoIR)
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)