Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1621/2

Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: State Agreement Act, Mining Lease 244SA (AML 70/244)
State Agreement Act, Mining Lease 266SA (AM 70/266)

Local Government Area: Shire Of East Pilbara

Colloquial name: Jimblebar to Orebody 18 access road

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
31.3		Mechanical Removal	Mineral Production

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The vegetation in the area proposed to be cleared has been broadly mapped at a scale of 1:250000 and consists of two vegetation associations (GIS Database, Shepherd et al. 2001). Beard vegetation association 82 and 216 (GIS Database).

Approximately 5.1 kilometres of the proposed haul road is within Beard Vegetation type 82, and 9.8 kilometres are within Beard vegetation type 216 (GIS Database). The Beard vegetation types are defined as:

Beard vegetation 82: Hummock Grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

Beard vegetation 216: low woodland; mulga (with spinifex on rises).

More detailed vegetation mapping has occurred within both the Ore Body 18 area (ENV Australia 2006) and Jimblebar area (Ecologia 2004a).

ORE BODY 18 AREA:

ENV Australia (2006) mapped five vegetation types at a scale of 1:20000 within the areas proposed to be cleared.

Footslopes:

Triodia basedowii hummock grassland.

Eucalyptus gamophylla, Corymbia hammersleyana low open woodland over *Hakea lorea* subsp *lorea* scattered tall shrubs over *Acacia ancistrocarpa*, *Acacia dictyophleba*, *Acacia adsurgens* shrubland over *Bonamia rosea*, *Scaevola parvifolia* low open shrubland over Triodia *basedowii* hummock grassland.

Flood Plains:

Acacia aneura low woodland over *eremophila forrestii* open shrubland over *Triodia basedowii* hummock grassland over *Eragrostis eriopoda*, *Paraneurachne muelleri* open grassland.

Acacia aneura low woodland over *eremophila forrestii* open shrubland over *Themeda triandra*, *Eragrostis eriopoda, Paraneurachne muelleri* grassland.

Corymbia hammersleyana low open woodland over *Rulingia luteiflora*, *Acacia* spp open shrubland over *Bonamia rosea, Indigifera georgei, Isotropis forrestii, Scaevola parvifolia* subsp *pilbarae* low open shrubland over *Themeda triandria*, *Aristida holathera, Paraneurachne Muelleri, Chrysopogon fallax* closed grassland.

Hill Crest:

Eucalyptus leucophloia scattered low trees over *Eremophila latrobei* subsp *glabra*. *Senna artemisioides* subsp *stricta*, *Senna glutinosa* subsp *pruinosa* open shrubland over *Acacia hilliana*, *Acacia adoxa*, *Dodonea coriacea* low

shrubland over *Triodia basedowii* open hummock grassland.

Hill Slopes:

Acacia aneura, Acacia wanyu, Acacia pruinocarpa low open woodland over *Senna glutinosa subsp glutinosa, Dodonea viscosa. Eremophila forrestii X latrobei* open shrubland over *Sida excedentifolia, Gompholobium karijini* low open shrubland over *Triodia basedowii* open hummock *grassland over Eriachne mucronata* open grassland.

Drainage Lines:

Wide U shaped drainage lines: *Eucalyptus trivalvis* low open woodland over *Acacia binevosa*, *Acacia ancistrocarpa*, *Acacia adsurgens*, *Acacia dictyophleba*, *Acacia tenuissima* shrubland over *Triodia pungens* open hummock grassland.

Narrow, deeply incised drainage lines: *Corymbia hamersleyana*, *Eucalyptus gamophylla* low woodland over *Petalostylis labicheoides*, *Gossypium robinsonii* open scrub over *Acacia monticola*, *Senna glutinosa* subsp *glutinosa* shrubland over *Scaevola parvifolia*, *Isotropis atropurpurpurea* low open shrubland.

JIMBLEBAR AREA:

Ecologia Environment (2004a) mapped at a scale of 1:25000 the vegetation proposed to be cleared within the Jimblebar area into two main types:

1) Scattered *Corymbia deserticola/ Eucalyptus gamophylla* and shrubs over moderately dense *Triodia basedowii*;

2) Valley Plains - a broad unit with three sites located within the proposed clearing areas (26, 27, 28).

The description for those three sites is as follows:

26: *Grevillea wickamii* sparse scrub over moderately dense *Triodia basedowii* hummock grass.

27: Scatterred low trees of *Codonocarpus cotinifolius* over tall shrubs of sparse *Acacia bivenosa* and *Eucalyptus gamophylla* over sparse to open medium/ low shrubs and sparse *Triodia basedowii* hummock grassland.

28: (Located within the clearing permit area): *Acacia bivenosa* open shrubland over moderately dense grassland.

A small portion of the proposed track at the junction of the Ore Body 18 and the Jimblebar State Agreement area has not been mapped in detail.

Clearing Description

The proposed clearing will involve the upgrading and widening of an existing station track to a road capable of supporting heavy vehicle traffic. The proposed track upgrade is composed of approximately 15 kilometres of tracks traversing the Ore Body 18 mine site (OB 18) in the north and the Jimblebar mine sites in the south.

The creation of a transport corridor will allow for the movement of heavy vehicles between the two mine sites and also remove some light traffic from the existing public road network. The clearing will involve the widening of an existing pastoral station track to allow for heavy vehicle traffic. One small area will not follow the existing pastoral lease track in order to remain within the Mining lease area. A smaller track is also part of this proposal to facilitate vehicle access to the workshop while avoiding overhead powerlines near the Ore Body 18 Railway loop.

Vegetation Condition

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

to

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

Comment

Two introduced species: Ruby Dock *Acetosa vesicaria* and Buffel Grass *Cenchrus ciliaris* were recorded by ENV Australia (2006) as occurring within the Ore Body 18 area surveyed.

Buffel Grass was recorded by Ecologia (2004a) within the areas surveyed.
Ruby Dock was not recorded by Ecologia (2004a) within the Jimblebar area surveyed in 2004. However that species has previously been recorded along the Jimblebar Rail spur (Ecologia, 2004a). A recommendation was made by Ecologia that monitoring and control measures should be undertaken to limit its spread. Furthermore because Ruby Dock spreads readily from seed and fragments Ecologia (2004a) stated that it should be included in all land management plans in the Pilbara.

The management procedures for weed species including Ruby Dock are listed in the Environmental Management Plan for the Wheelarra Hill Extension Project (BHPBIO 2005). Such procedures include an herbicide spraying program from April to June. Other measures listed are the mapping of known infestations to minimise the potential for spreading weeds or soil from those areas, regular machinery clean down for machinery used within infested areas, treatment of topsoil stripped from areas that are weed infested, regular inspections of disturbed areas for the presence of weeds.

Information supplied by the Ore Body 18 Environmental Officer (BHPBIO 2006) stated that any fill required for road building will be sourced from waste rock resulting from the mining operation which will minimise the risk of spreading weeds through infested topsoil movement.

The vegetation condition is derived from photographs, comments provided by the Ore Body 18 Environmental Officer (BHPBIO 2006) and individual flora quadrat vegetation condition descriptions (Ecologia 2004a).

Clearing Permit CPS 1621/1 was originally granted to BHP Billiton Iron Ore by DoIR on 5 April 2007. BHP Billiton Iron Ore applied for an amendment to this clearing permit on the 30 July 2007. The proposed amendment (CPS 1621/2) is required to allow for the realignment of a light vehicle access track approved under the original permit. The realignment is required to address safety concerns associated with the existing track approval. In one particular section of the existing track, there is less than 10 metres clearance between the rail culvert and powerline infrastructure (a minimum of 15 metres clearance is considered safe according to the proponent's safety requirements). In addition, the light vehicle route currently approved will be prone to inundation during the wet season. Realignment of the light vehicle access track will eliminate the safety hazards associated with clearance and inundation. The proposed amendment will not require an increase to the 31.3 hectare disturbance footprint approved under the grant of the original permit (CPS 1621/1).

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 clearing permit application is located within the Fortescue IBRA (Interim Biogeographic Regionalisation of Australia) subregion (GIS Database), for which the biodiversity values have been described by Kendrick (2001). The areas of outstanding biodiversity values within that subregion are mostly associated with the Fortescue River (Millstream wetlands, aquifer and Fortescue Marsh), which are located more than 100 kilometres from this proposal. None of the Threatened Ecological Communities (TECs), ecosystems at risk or refugia listed in Kendrick (2001) are located within or near the proposed clearing areas.

A number of biological surveys have been conducted over recent years within the local area, including those areas proposed to be cleared (Ecologia 2004a & 2004b; ENV Australia 2006). There is no indication in the reports provided by the proponent that the areas proposed to be cleared represent areas with outstanding biological diversity, or areas that have a higher diversity of fauna or flora species than other areas of native vegetation within the local area.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology

Ecologia Environment (2004a)
Ecologia Environment (2004b)
ENV Australia (2006)
Kendrick (2001)
GIS Database:
IBRA (subregions) EA 18/10/00
Threatened Ecological Communities CALM 12/4/2005

(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

The areas encompassing the Ore Body 18 and Jimblebar mine sites and adjoining areas have been the subject of numerous fauna surveys conducted as part of required environmental approvals for existing or proposed iron ore operations. Consequently, a number of fauna species listed on either the Wildlife Conservation (Specially Protected Fauna) Notice 2006(2) or listed on the Department of Environment and Conservation (DEC) own priority list are known to occur in the vicinity of the areas proposed to be cleared. A number of records for the Priority 4 listed Western Pebble Mound Mouse *Pseudomys chapmani* are located in the Jimblebar area, with the closest record located approximately 800 metres north of the proposed haul road route (GIS Database).

Rock wallabies *Petrogale sp* were sighted twice in the Jimblebar area by Ecologia Environment in their biological survey of that area (Ecologia 2004a). Because the two species of rock wallabies that are known to occur in the area cannot be reliably identified on field characters alone, those sightings may be of either *P. rothschildi* (not listed as being of conservation significance) or *P. lateralis* (Schedule 1, Fauna that is rare or is likely to become extinct).

The Western Pebble Mound Mouse constructs very distinctive pebble mounds and tends to be most common on the foothills and lower slopes with gravel stone mulches. The mounds are less common on ridges. There are numerous records of that species throughout both the Newman and Pilbara areas and it is unlikely that the proposed clearing activities would impact on this species. Ecologia Environment has indicated that where possible, access and haul road should be located away from active pebble mounds (Ecologia 2004a).

Rock Wallaby species tend to be confined to areas such as gorges and steep scree slopes. The area considered to provide the most suitable habitat for Rock Wallabies is located approximately 1.25 kilometres to the north of the proposed haul road (Ecologia 2004a). Due to the lack of gorges or steep gullies features within the proposed clearing areas (Ecologia 2004a; GIS Database), it is unlikely that the proposal will directly impact on Rock Wallaby habitat.

Whilst not recorded during the Ecologia 2004 surveys of the Jimblebar area or East Ophthalmia Ranges (Ecologia 2004a & 2004b), it is considered that the Pilbara Olive Python *Liasis olivaceus barroni* (Schedule1) may occur within the project area. This species tends to be associated with riparian vegetation, permanent

waterholes and associated gorges in the Pilbara. Considering the lack of such habitat within or near the areas proposed to be cleared, it is unlikely that the proposed clearing will impact on habitat significant to that species. Kendrick (2001) in his assessment of the status of the Pilbara Olive Python states that it is common, widespread, not declining or threatened.

Whilst the proposal will not impact on significant habitat for Rock Wallabies, the increased traffic volumes and vehicle speed as a result of the upgraded road may result in increased mortality to animals crossing the road. Such animals may include Rock Wallabies and Pilbara Olive Pythons.

One species of conservation significance, an unnamed blind snake *Ramphotyphlops ganei* (Priority 1) was recorded by ENV Australia during the Ore Body 18 Biological Survey (BHPBIO 2006). Blind snakes are not readily caught in traps during fauna surveys because they seldom seem to come to the surface. Like other blind snake species, very little is known of the specific ecological requirements of this species which was only described in 1998 (Ecologia 2004a). *R ganei* has also been recorded near Port Hedland. Based on the records available to date, the species may be widespread and it is unlikely that the localised nature of this proposal would impact on the conservation status of this species.

Caves that may be suitable for the Ghost Bat *Macroderma Gigas* (Priority 4) may occur within the Eastern Ophthalmia Ranges, located approximately 5.5 kilometres east of the proposed clearing areas (Ecologia 2006b). Based on the site description and maps provided by ENV Australia (2006) and Ecologia (2004a), it is unlikely that the proposed clearing areas contains areas suitable for caves or roosts for this species or other bat species of conservation significance.

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

Methodology
Ecologia Environment (2004a)
Ecologia Environment (2004b)
ENV Australia (2006)
Kendrick (2001)
GIS Database:
Threatened Fauna CALM 30/9/05

(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

The areas proposed to be cleared have been the subject of a number of biological surveys (Ecologia 2004a & 2004b; ENV Australia 2006).

The areas proposed to be cleared located within the Jimblebar area were surveyed in February 2004 (Ecologia 2004a). The majority of the areas proposed to be cleared located within the Ore Body 18 lease area were surveyed in July and August 2006 by ENV Australia Pty Ltd (ENV 2006). Areas immediately to the west of Ore Body 18 were surveyed in March and April 2004 by Ecologia (Ecologia 2004b).

No Declared Rare Flora (DRF) species or priority listed flora species were located during the surveys conducted within, and adjacent to the Ore Body 18 area.

No DRF species were located within the Jimblebar area as a result of the Ecologia (2004a) survey. Two flora species listed at the time on the DEC's own priority list were recorded by Ecologia in 2004, with the Priority 4 taxon *Goodenia hartiana* recorded at 12 sites and the Priority 3 taxon *Sida* sp *Wittenoom* recorded at one site.

Sida sp *Wittenoom* was recorded at one site within range crest vegetation type which is not impacted by the proposed haul road construction.

None of the locations where *Goodenia hartianna* were recorded by Ecologia (2004a) are located within the proposed clearing permit area. Based on their location on the slopes of Wheelarra Hill it appears unlikely that any *Goodenia hartiana* would occur within the clearing permit area as it does not include the type of landform where *Goodenia hartianna* was located by Ecologia in 2004.

ENV Australia (2006) recorded an undescribed species of *Aenictophyton* sp at seven locations in the vicinity of Ore Body 18 and stated that based on the small number of collections and relatively small areas of known occurrence, it should be considered to be of conservation significance. ENV Australia (2006) recommended that "any efforts directed in the preservation of flora habitat and undisturbed vegetation should be focused on the good quality habitat that supports the *Aenictophyton* sp" (ENV Australia 2006). None of the seven records are located in the vicinity of the proposed clearing area.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology
Ecologia Environment (2004a)
Ecologia Environment (2004b)
ENV Australia (2006)
GIS Database:

Clearing Instruments
Declared Rare and Priority Flora List CALM 01/07/2005

(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 listed Threatened Ecological Communities (TECs) located within the clearing permit application area (GIS Database). The nearest TEC is the Ethel Gorge Stygobiont community located approximately 18 kilometres west of the areas proposed to be cleared (GIS Database). None of the ecosystems at risk mentioned in the assessment of the biodiversity values of the Fortescue IBRA subregion by Kendrick (2001) are located within, or in the vicinity of the proposed clearing areas. Similarly, none of the various biological surveys carried out within the local area, including the areas proposed to be cleared, have identified areas that may contain significant ecological communities (Ecologia 2004a & 2004b; ENV Australia 2006).

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology

Ecologia Environment (2004a)
Ecologia Environment (2004b)
ENV Australia (2006)
Kendrick (2001)
GIS Database:
IBRA (subregions) EA 18/10/00
Threatened Ecological Communities CALM 12/4/2005

(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

Approximately 100 % of the Pre European vegetation remains in the IBRA Fortescue Subregion within which this proposal is located (Shepherd 2001a). Available satellite imagery (GIS Database) and information from various biological surveys conducted within the local area indicate that the areas surrounding this clearing permit application have not been cleared extensively (Ecologia 2004a & 2004b; ENV Australia 2006). Due to the limited amount of clearing conducted, the proposed clearing area cannot be considered to be a remnant of native vegetation within an extensively cleared area.

Based on the above, the proposal is not a variance to this Principle.

Methodology

Shepherd (2001a)
Ecologia Environment (2004a)
Ecologia Environment (2004b)
ENV Australia (2006)
GIS Database:
Sattelite Imagery: Western Australia ETM25m 543-AGO 04

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

Comments

Proposal may be at variance to this Principle

A number of minor non perennial watercourses intersect the proposed clearing area, as do the upper reaches of three indefinite watercourses (GIS Database).

The vegetation types identified by ENV Australia within the Ore Body 18 area that are associated with drainage lines mapped within the areas proposed to be cleared, have been mapped as DL1 (*Acacia monticola*, *Senna glutinosa* subsp *gutinosa* shrubland). These vegetation types occur within the narrow, deeply incised drainage lines that dissect the gently sloping plains south of Ore Body 18. The watercourses and their associated vegetation have not been identified as having significant environmental values by ENV Australia (2006).

The vegetation type mapped by Ecologia (2004a) as occurring in the vicinity of the minor drainage lines within the Jimblebar area has been defined as Minor Creekline (*Eucalyptus victrix* over mixed *Acacia* and *Corymbia hamersleyana*). Ecologia Environment (2004a) lists *Grevillea wickhamii* as occurring at flora site 26 within the Valley plains vegetation association that is mapped within the proposed clearing permit areas. This species is typically associated with drainage lines in the Newman area. The vegetation type located in the broad valley between Ore Body 18 and Jimblebar was not mapped but is likely to be composed of Mulga *Acacia aneura* woodlands.

Whilst widespread, both Mulga woodlands and the trees associated with the minor drainage line vegetation types are likely to have some environmental significance to the local fauna in the area that depend on such vegetation types. While it is unavoidable that the proposal will result in the removal of some riparian vegetation, the proponent should aim to minimise impacts to that vegetation type.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Ecologia (2004a)
ENV Australia 2006
GIS Database:
Hydrography Linear DoE 07/02/06

(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

The proposed clearing is for an access track approximately 13.4 kilometres long. Four Land Systems occur along the proposed clearing areas. These include Newman Land System (approximately 0.2 kilometres), Jamindie Land System (approximately 0.2 kilometres), McKay Land System (approximately 3 kilometres) and the Boolgeeda Land System (approximately 10 kilometres) (GIS Database).

The MaKay Land System is described as level plains to undulating plains comprised of Hummock grassland species with isolated to very scattered Acacia shrubs and occasional Eucalypt trees (Vreeswyck et al 2004). The application area falls within the stony plains land unit of the McKay Land System and the solis are likely to be red deep loamy duplex soils and minor red shallow loams. The erosion potential for this land unit is low because the stony mantle on its surface provides protection from accelerated water flows (Vreeswyck et al 2004).

The Boolgeeda Land System is described as dendritic and parallel flow zones, and creeklines on slopes and plains, containing scattered close tall shrublands or woodlands with sparse low shrubs and hummock and tussock grasses (Vreeswyck et al 2004). The soils within that land system are likely to be red loamy earths and minor self-mulching cracking clays. Disturbance to the flow regime on these soils may cause significant erosion as well as starving of native vegetation downstream from water, which they depend on (Vreeswyck et al 2004).

Given that the proposed clearing for the haul road has the potential to alter the flow regime and cause land degradation, it may be at variance to this principle.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology DAFWA (2004)
GIS Database:
Rangelands Land System Mapping DA.

(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 nearest conservation area to this proposal is the Collier Range National Park located approximately 130 kilometres to the south of the proposed clearing (GIS Database).

Due to the distance between the National Park and the proposed clearing, it is unlikely that the proposed clearing will affect the environmental values of the National Park.

Approximately 10.5% of Beard vegetation type 82 is located within conservation reserves (Shepherd 2001a). Beard vegetation association 216 has a medium ranking in the reservation priorities for ecosystems listed by Kendrick (2001) for the Fortescue IBRA subregion. No areas of Beard vegetation type 216 are recorded as occurring within conservation reserves (Shepherd 2001a). However approximately 19,066 hectares of Beard vegetation association 216 remains within the Fortescue IBRA subregion alone (Shepherd 2001a), and the proposed clearing of approximately 10 hectares of that vegetation association is not likely to be significant when compared to the extent of this vegetation type which remains.

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

Methodology Kendrick (2001)
Shepherd (2001a)
GIS Database:
CALM managed Land and Waters CALM 1/7/05

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

Comments

Proposal is not likely to be at variance to this Principle

The proposed clearing areas are not located within a Public Drinking Water Source Area (GIS Database). The soil types listed as occurring within the stony slopes, upper plains and drainage floors for the McKay and Boolgeeda Land System (Red Loamy Earth 544, Red Shallow loams 522) are listed as having a low (due to stony mantle) to moderate (dependent on slope) water erosion hazard (Vreeswyk et al 2004). The main impact

on water quality is likely to be a temporary increase in sedimentation resulting from clearing in the drainage lines. The development in and around the drainage lines intersected by the proposed clearing should be carefully managed to avoid erosion in the wet season. The Wheelarra Hill Environmental Management Plan (BHPBIO 2005) outlines the management practices that will be used to minimise impacts on local surface water resources. That document states that: sediment reduction control measures will be designed and implemented as required, within drainage lines downstream of active mine areas, OSAs (Overburden Stockpile Areas) and other disturbance areas (BHPBIO 2005). The proponent has stated in the clearing permit application that regular inspections will be undertaken to assess erosion sediment migration and that erosion control and appropriate drainage control will be installed where necessary (BHPBIO 2006).

Provided that such measures are adhered to, the proposed clearing is unlikely to lead to a decrease in surface or underground water quality.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology BHPIO (2006)
GIS Database:
Public Drinking Water Supply Areas (PDWSA) DoE 07/02/06

(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

The area has an average annual rainfall of ~500mm, which falls predominantly over December to March with rainfall events often resulting in localised flooding (BHPBIO 2006). The proposal represents a relatively small amount of clearing, within two separate catchment areas, and would be unlikely to exacerbate natural flood regimes. The soil types listed as occurring within the stony slopes, upper plains and drainage floors for the McKay and Boolgeeda Land System (Red Loamy Earth 544, Red Shallow loams 522) are listed as having a low or nil flooding risk unless present on some low lying plains where the risk is considered moderate (Vreeswyk et al 2004). The proposal is not located within a low lying plain.

Based on the above, the proposal is not likely to be at variance to this Principle.

Methodology BHPIO (2006)
Vreeswyk et al (2004)

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

Comments

The proposal was referred by the Department of Industry and Resources (DoIR), under section 38 Part IV of the *Environmental Protection Act 1986*, to the Environmental Protection Authority (EPA) to set a level of assessment. On 22 January 2007 the EPA set the level of assessment as: Not Assessed-No Advice Given-Managed under part V of the EP Act (Clearing). The EPA will not formally assess this project but expects the proponent and relevant agencies to ensure that it is environmentally acceptable.

The proposed clearing is located over one site of Aboriginal Significance (Shovelanna Hill 09, 6773) registered on the interim register of sites of Aboriginal Significance (GIS Database). It is the proponent's responsibility to ensure compliance with the *Aboriginal Heritage Act 1972* and to ensure that no Aboriginal Sites of Significance are disturbed as a result of the clearing process.

There is a Native Title Claim (WC99_004) over the area under application (GIS Database). However, the mining lease has been granted, and the clearing is for a purpose consistent with the lease, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Mining activities in the area are managed under two separate State Agreement Acts that are administered by the Department of Industry and Resources (DoIR). Significant proposals are approved by the Minister for Resources following submission under clauses of the relevant State Agreement Acts. However in this instance the proposal was not considered so significant by DoIR as to warrant a submission as a formal proposal under the *Iron Ore (Mt Newman) Agreement Act 1964* or the *Iron Ore (Mc Cameys Monster) Agreement Act 1972* (DoIR 2006).

Clearing Permit CPS 1621/1 was originally granted to BHP Billiton Iron Ore (BHP) by DoIR on 5 April 2007. BHP applied for an amendment to this clearing permit on the 30 July 2007. The proposed amendment (CPS 1621/2) is required to allow for the realignment of a light vehicle access track approved under the original permit. The alignment is required to address safety concerns associated with the existing track approval. In one particular section of the existing track, there is less than 10 metres clearance between the rail culvert and powerline infrastructure (a minimum of 15 metres clearance is considered safe according to the proponent's safety requirements). In addition, the light vehicle route currently approved will be prone to inundation during the

wet season. Realignment of the light vehicle access track will eliminate the safety hazards associated with clearance and inundation. The proposed amendment will not require an increase to the 31.3 hectare disturbance footprint approved under the grant of the original permit (CPS 1621/1).

Methodology DoIR (2006)
GIS Database:
Aboriginal Sites of Significance DIA.
Native Title Claims DLI 7/11/05

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comments
Mineral Production	Mechanical Removal	31.3	The amended clearing proposal has been assessed against the clearing Principles. It was not at variance with Principle e and not likely to be at variance with Principles a, b, c, d, h, i and j. The proposed clearing may be at variance with Principles f and g, as there is a possibility that once the haul road is constructed there will be a change in the flow regime of creeklines that will be intersected by the proposed haul road, resulting in a loss of native vegetation downstream and an increase in erosion. It is recommended that the amended permit be granted subject to the following conditions: 1. The Permit Holder shall provide a report to the Director, Environment, Department of Industry and Resources by 30 September of each year setting out the records required under Condition 2 of this Permit in relation to clearing carried out in the previous year. This report can be included as an addendum to an Annual Environmental Report 2. The Permit Holder shall record the following for each instance of clearing: a) the location where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system; b) the size of the area cleared in hectares; c) the method of clearing; d) the purpose of clearing; e) the area rehabilitated in hectares and f) the dates on which the area was cleared 3. The Permit Holder shall ensure that the clearing is undertaken in accordance with the following procedures: a) culverts are to be designed and constructed to minimise the amount of upstream ponding and the need for outlet drains; b) culvert size is to be capable of withstanding seasonal flows; c) where the potential for erosion is high, appropriate methods for erosion control are to be used (such as rip rap rock protection and reno mattresses); d) erosion on access tracks to be prevented by careful and erosion-proof construction; e) cleared vegetation and topsoil is to be stockpiled away from water courses, with appropriate bunding; f) erosion around infrastructure is to be minimised by reduced clearing and constructing adequate drainage and bunding; g) regular inspections of drainage structures and erosion control measures are to be carried out as soon as possible after periods of heavy rainfall to ensure they are maintained and remain effective.

5. References

BHP Billiton Iron Ore (2006) Application for a clearing permit (purpose permit), letter to the Native Vegetation Assessment Branch of the Department of Industry and Resources adressing the clearing principles dated 9 November 2006.

DAFWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia.

Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.

DoiR (2006) Email from the Investment Facilitation Branch of the Department of industry and Resources sent to the DoIR Native Vegetation Assessor, dated 20 December 2006.

Ecologia Environment (2004a) Jimblebar-Wheelarra Hill Expansion Biological Survey, April 2004. Unpublished report by Ecologia Environment for BHP Billiton Iron Ore.

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6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1	**Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	**Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3	**Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
P4	**Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
R	**Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
X	**Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1	**Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
Schedule 2	**Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.