



1. Application details

1.1. Permit application details

Permit application No.: 1716/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

1.3. Property details

Property: LOT 65 ON PLAN 241430 (MARBLE BAR 6760)
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Local Government Area: Shire Of East Pilbara & Town Of Port Hedland
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
20		Mechanical Removal	Railway 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 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).	The proposed clearing of 20 hectares of native vegetation within a larger area of 24 hectares is for the replacement of the existing BHPBilliton Iron Ore (BHPBIO) railway Turner Bridge and associated infrastructure across the Turner River in the Pilbara. BHPBIO (2007) have stated that a maximum of ten hectares is likely to be cleared as a result of the proposed works. Following rehabilitation of the site approximately five hectares of permanent disturbance will remain. The permanent disturbance will be composed of the new railway line, sides of embankments and cuttings (BHPBIO 2007).	Pristine: No obvious signs of disturbance (Keighery 1994) To Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation condition is derived from the vegetation descriptions provided by Ecologia Environment (2006) and ENV Australia (2007a). None of the three weed species recorded within the areas proposed to be cleared are Declared Plants under the <i>Agriculture and Related Resources Protection Act 1976</i> (ENV Australia 2007a).
Beard vegetation association 93: Hummock grasslands, shrub steppe; kanji over soft Spinifex.			
Beard vegetation association 619: Medium woodland; river gum (<i>E camaldulensis</i>).			
Sixteen hectares of the clearing permit application area (totalling 24 hectares) were surveyed in further detail in May 2006 by Ecologia Environment (2006) and the vegetation divided into five main vegetation types.	Under Regulation 5 Item 16 of the <i>Environmental Protection (Clearing of native Vegetation)</i>		
A1: <i>Eucalyptus</i>			

camaldulensis subsp *obtusula*/ *Melaleuca argentea* moderately dense medium woodland to forest, over *Acacia trachycarpa*/ *Acacia coriacea* subsp *pendens*/ *Melaleuca linophylla* sparse tall shrubland.

Regulations 2004 a clearing permit is not required where approvals have been granted under the *Rights in Water and Irrigation Act 1914* to carry out works to interfere with the bed and banks of a watercourse.

A2: *Corymbia hammersleyana* open medium to low woodland, over *Acacia acradenia* open medium shrubs, over *Triodia* spp. moderately dense hummock grassland.

The riparian vegetation associated with this application corresponds with vegetation association A3 as described by Ecologia Environment (2006), which covers approximately three hectares in total. That area has been the subject of a Beds and Banks Clearing Permit Application under the *Rights in Water and Irrigation (RIWI) Act 1914*. The Section 17 Bed and Banks permit to obstruct or interfere with a proclaimed watercourse has been issued by the Department of Water (DoW) to BHPBIO to allow works associated with the replacement of the Turner bridge to occur as part of the overall project.

A3: *Corymbia hammersleyana* sparse low trees, over mixed *Acacia* spp. Forming sparse medium shrubland, over *Triodia* aff. *Basedowii* moderately dense hummock grassland changing to *Triodia wiseana* over stony ground.

A4: *Acacia tumida* var. *pilbarensis*/ *Petalostylis labicheoides* moderately dense tall shrubland over other shrubs, tussock and hummock grasses.

Given that three hectares of the clearing permit application area is exempt from a Native Vegetation Clearing Permit requirement due to the grant of a Beds and Banks permit, the assessor has not assessed the clearing of the riparian vegetation covered by this application against the clearing principles. Consequently the permit can only be granted to a maximum amount of 17 hectares.

A5: Scattered herbs, sedges and grasses such as *Gomphrena cunninghamii*, *Bulbostylis barbata*, *Fimbristylis simulans* and *Eriachne pulchella* subsp *dominii*.

A targeted flora survey of the whole of the proposed clearing area was conducted by ENV Australia in December 2006 (ENV Australia 2007). ENV Australia identified six vegetation types including disturbed areas which were not covered by Ecologia Environment (2006).

Three weed species have been recorded by Ecologia Environment (2006) and ENV Australia (2007a) within the areas surveyed: Kapok bush *Aerva javanica*, Buffel Grass *Cenchrus ciliaris* and *Asclepias currassavica* (Redhead Cottonbush).

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 area is located within the Chichester Interim Biogeographic Regionalisation of Australia (IBRA) subregion (GIS database). High reptile and mammal species diversity within hummock grasslands are described by Kendrick and McKenzie (2001) for the Chichester subregion. The ecosystems found within the application area include hummock grasslands (vegetation types A2, A3 and A4) described by Ecologia Environment (2004, 2006).

While the hummock grassland communities associated with this project may have a higher diversity of fauna species by virtue of their location adjacent to and within riparian habitat (compared to other hummock grassland communities further away from the riparian vegetation), it is unlikely that that diversity will be higher than other similar communities along the banks of the Turner River. ENV Australia (2007b) have stated that the habitats represented within the clearing permit area (other than the riverine habitats which are not assessed in this permit application) are well represented in the Pilbara and unlikely to constitute habitats of conservation significance to fauna. ENV Australia have stated as a result of a targeted flora survey conducted in December 2006 that no Declared Rare Flora or Priority flora were located within the areas proposed to be cleared (ENV Australia 2007a). The vegetation within the clearing permit application area has been noted as showing signs of localised disturbance, mostly due to the presence of weed species especially in the southern section surveyed (ENV Australia 2007a).

None of the ecosystems at risk or refugia listed in Kendrick and McKenzie (2001) occur within or in the vicinity of the clearing permit area.

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

Methodology Ecologia Environment (2004)
Ecologia Environment (2006)
ENV Australia (2007a)
ENV Australia (2007b)
Kendrick and McKenzie (2001)
GIS Database:
Interim Bioregionalisation of Australia (subregions) EA 18/10/2000

(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**

A number of fauna species either listed on the Wildlife Conservation (Specially Protected Fauna) Notice 2006(2) or listed on the Department of Environment and Conservation's (DEC) own priority list, are known to occur within ten kilometres from the areas proposed to be cleared (GIS Database).

A level one Fauna Assessment desktop survey of the project area was undertaken by ENV Australia in December 2006 (ENV Australia 2007b). The fauna assessment was conducted in accordance with the Environmental Protection Authority (EPA) guidance statements 3 and 56 (EPA 2002 and 2004). That assessment also included a one day site visit (ENV Australia 2007b). That fauna assessment undertaken highlighted that the riverine habitat within the project area is of most conservation value, due in part to the value of the riverine vegetation to fauna, including those fauna of conservation significance.

ENV Australia (2007) stated that the habitats assessed outside of the riverine areas are well represented in the Pilbara region and that fauna of conservation significance would not specifically depend on these specific habitats.

A number of Western Pebble Mound Mice *Pseudomys chapmani* (P4) records are located north east of the application area (GIS Database). A number of mounds were located by Ecologia at three locations on the north side of the Turner River, east of the existing railway line (Ecologia 2006).

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. There are numerous records of that species throughout the Pilbara area and Kendrick and McKenzie (2001) do not regard the species as threatened. Ecologia Environment (2006) has recommended that impacts to Western Pebble Mound Mice mounds (active or inactive) be avoided by clearly marking those areas and avoiding clearing within 20 metres of such areas.

ENV Australia did not record the occurrence of Western Pebble Mound Mice during its field assessment in December 2006, and stated further that while suitable habitat may occur in the project area, it would be unlikely to occur due to the absence of scree slopes (ENV Australia 2007).

Two records for the Mulgara *Dasyercus cristicaudata* (Schedule 1) are known from an area south west of the clearing permit area (GIS Database). Neither Ecologia Environment, nor ENV Australia noted that the

proposed clearing areas were suitable Mulgara habitat or noted the presence of their distinctive burrows.

One record of diggings attributed to the Bilby *Macrotis lagotis* (Schedule 1) exists south of the clearing permit application area (GIS Database). The threatening processes associated with the decline of that critical weight range species are listed in Kendrick and McKenzie (2001) as associated with predation by exotic predators (fox and cat) as well as grazing pressure and changed fire regimes.

One record for the Spectacled Hare Wallaby *Lagorchestes conspicillatus leichardtii* (P3) exists close to the existing railway line north of the clearing permit area (GIS Database). The Middle Turner River is also listed in Kendrick and McKenzie as a known location of the Spectacled Hare Wallaby (Kendrick and McKenzie 2001). The threatening processes associated with the decline of that critical weight range species are listed in Kendrick and McKenzie (2001) as associated with predation by an exotic predator (fox) as well as grazing pressure and changed fire regimes.

The impacts associated with the proposed clearing of native vegetation are unlikely to be as significant and longer lasting than the landscape scale changes that have led to the decline of the Bilby and Spectacled Hare Wallaby. It is unlikely that the proposed clearing would affect the conservation status of the Bilby and Spectacled Hare Wallaby. Increased mortality of those species due to the project being undertaken are more likely to result from increased roadkills due to a temporary increase in traffic in the local area, the greater availability of resources to the existing feral predator population in the area (from improper rubbish disposal, feeding of wild animals) and the potential for an increased incidence of fire due to the construction activities than from the proposed clearing of native vegetation.

While not recorded to date within the clearing permit area or surrounds, the Pilbara Olive Python *Liasis olivaceus barroni* (Schedule 1) may occur within the project area. This species tends to be associated with riparian vegetation, permanent waterholes and associated gorges in the Pilbara. Kendrick and McKenzie (2001) in his assessment of the status of the Pilbara Olive Python states that it is common, widespread, not declining or threatened.

The riverine vegetation is not part of this clearing permit assessment as a Beds and Banks Permit has been granted under the *RIWI Act 1914* (DoW 2007). That part of the project area is exempt from the Clearing of Native Vegetation Regulations 2004 provisions of the Environmental Protection Act 1986 (hereby referred as the Clearing Regulations) under Regulation 5 Item 16, of the Clearing Regulations.

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

Methodology Ecologia Environment (2006)
EPA (2002)
EPA (2004)
Kendrick and McKenzie (2001)
GIS Database:
Threatened Fauna CALM 30/09/2005

(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 vegetation located within the areas proposed to be cleared was surveyed for the presence of flora species of conservation significance in June 2004 (Ecologia Environment 2004), May 2006 (Ecologia Environment 2006) and December 2006 (ENV Australia 2007a). As a result of those three studies no flora listed in the Western Australian Wildlife Conservation (Rare Flora) Notice 2005 of the *Wildlife Conservation Act 1950*, or on the Department of Environment and Conservation's (DEC) own priority list have been recorded within the areas proposed to be cleared. The ENV Australia survey was carried out in a manner compliant with the EPA position statements number 3 (EPA 2002) and 51 (EPA 2004). The closest known locations of Flora of conservation significance are located more than 100 kilometres from the clearing permit area (GIS database).

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

Methodology Ecologia Environment (2004)
Ecologia Environment (2006)
ENV Australia (2007a)
EPA (2002)
EPA (2004)
GIS Database:
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

The nearest endorsed Threatened Ecological Community (TEC) is the Themeda Grassland Community found on the cracking clay soils of Hamersley Station approximately 160 kilometres from the clearing permit application area (GIS Database). Previous flora survey by Ecologia Environment and ENV Australia within and surrounding the areas proposed to be cleared have not highlighted any significant ecological communities (Ecologia Environment 2004; 2006, ENV Australia 2007a).

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

Methodology Ecologia Environment (2004)
Ecologia Environment (2006)
ENV Australia (2007a)
GIS Database:
Threatened Ecological Communities CALM 12/04/2005

(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 Pilbara region within which this proposal is located (GIS Database, Shepherd 2001). Available aerial photography (GIS Database) and information from the various biological surveys conducted within the local area indicate that the areas surrounding this clearing permit application have not been extensively cleared (Ecologia Environment 2004; 2006; ENV Australia 2007a; BHPBIO 2006). The proposed clearing area cannot be considered to be a significant remnant of native vegetation within an extensively cleared area.

Based on the above, the proposal is not at variance to this principle.

Methodology Ecologia Environment (2004)
Ecologia Environment (2006)
ENV Australia (2007a)
Shepherd et al 2001
GIS Database:
Interim Biogeographic Regionalisation of Australia (regions) EA 18/10/2000
Wodjina 1.4m orthomosaic DLI 2001

(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 not likely to be at variance to this Principle

Under Regulation 5, Item 16 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, a clearing permit is not required where an approval has been granted under the *Rights in Water and Irrigation Act 1914* to carry out works which interfere with the bed and banks of a watercourse.

The riparian vegetation associated with this application corresponds with vegetation association A3 as described by Ecologia (2006); and covers approximately three hectares in total. That area has been the subject of a Beds and Banks Clearing Permit Application under the *Rights in Water and Irrigation (RIWI) Act 1914*. The Section 17 Bed and Banks permit to obstruct or interfere with a proclaimed watercourse has been issued by the Department of Water (DoW) to BHPBIO to allow works associated with the replacement of the Turner bridge to occur as part of the overall project.

The impacts on the native vegetation as a result of a Beds and Banks Permit application are considered in the assessment of such permits and it is a condition on the Bed and Banks permit issued by DoW to BHPBIO that the works be undertaken with minimal disturbance to riparian vegetation (DoW 2007).

The nature of the proposed works is such that the clearing of the remaining vegetation is unlikely to impact on other riparian vegetation located nearby.

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

Methodology DoW (2007)
Ecologia (2006)
GIS Database:

(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 Department of Agriculture and Food Western Australia (DAFWA) undertook a desk top assessment of this clearing permit application and provided the following advice (DAFWA 2007):

The area to be cleared has been surveyed and mapped by the Department of Agriculture and Food to be Macroy and River Land Systems (DAFWA 2004).

The proposed bridge and some of the related works are to be located on the River Land System. The land units of this land system are highly susceptible to soil erosion if cleared.

The new rail formation to service the bridge is proposed to be constructed on Macroy land System. This is described as stony plains and occasional tor fields based on granite supporting hard and soft Spinifex grasslands. Interpretation of the available information suggests that the Calcrete Plains and Stony Plains land units are proposed to be cleared. Red, shallow sands and duplex soils are likely to be encountered on the Stony Plain and Calcrete land unit. These could erode if surface water is not adequately managed during the construction phase.

It is concluded that the proposed clearing may cause land degradation in the form of soil erosion.

Based on the above, the proposal may be at variance to this principle.

Methodology DAFWA (2004)
DAFWA (2007)
GIS Database:
Rangeland 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 Department of Environment and Conservation managed area is the Class 'A' Mungaroona Range Nature Reserve located approximately 60 kilometres to the south west of the clearing application area. Based on the distance between the proposed clearing permit area and the Mungaroona range Nature Reserve any adverse impacts on the environmental values of that reserve are unlikely.

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

Methodology GIS Database:
CALM managed land and waters CALM 1/07/2005

(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 proposal is not located within a Public Drinking Water Source Area (GIS Database).

Under Regulation 5, Item 16 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, a clearing permit is not required where approvals have been granted under the *Rights in Water and Irrigation Act 1914* to carry out works to interfere with the bed and banks of a watercourse.

The riparian vegetation associated with this application corresponding to vegetation association A3 described by Ecologia (2006) covers approximately three hectares in total. That area has been the subject of a Beds and Banks Clearing Permit Application under the *Rights in Water and Irrigation (RIWI) Act 1914*. The Section 17 Bed and Banks permit to obstruct or interfere with a proclaimed watercourse has been issued by the Department of Water (DoW 2007) to BHPBIO to allow works associated with the replacement of the Turner bridge to occur as part of the overall project.

The impacts on the native vegetation as a result of a Beds and Banks Permit application are considered in the assessment of such permits.

Based on advice provided by the Department of Agriculture and Food WA (DAFWA 2007) the proposal has the potential to impact surface water quality if surface water is not managed during the proposed works. The management procedures adopted by BHPBIO to manage such impacts are listed in the BHPBIO Rail Construction Environmental Management Plan and Minimum Environmental Standards for Contractors (BHPBIO 2005a; 2005b).

The management measures listed in the Rail Construction Environmental Management Plan are listed in the EMP 008 and aim to minimise impacts on the quality of surface water, and avoid any unnecessary disturbance to natural surface drainage.

To achieve those aims the following practices are to be implemented:

Culverts are to be designed and constructed to minimize the amount of upstream ponding and the need for outlet drains.

Culvert size is to be capable of withstanding seasonal flows and a 1 in 20 flood event;

Where the potential for erosion is high, appropriate methods for erosion control are to be used (such as rip rap protection and reno mattresses);

Cleared vegetation and topsoil is to be stockpiled away from watercourses;

Erosion on access tracks is to be prevented by careful and erosion proof constructions;

Erosion around infrastructure is to be minimised by reduced clearing and constructing adequate drainage and bunding.

In addition 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.

The assessor is satisfied that the above measures are adequate to address the concerns raised in the assessment of this principle.

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

Methodology BHPBIO (2005a)
BHPBIO (2005b)
DAFWA (2007)
DOW (2007)
Ecologia (2006)
GIS Database:
PDWSA DoW.

(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

Based on BHPBIO's advice the amount of clearing is likely to be approximately 10 hectares (BHPBIO 2007). With a permanent disturbed area of 5 hectares following rehabilitation. When compared with the extent of the catchment area of the Turner River which is approximately 300,000 hectares (GIS database), that amount of clearing is unlikely to result in incremental increases in peak flood height or duration.

The assessor also notes that the proposed works will result in the removal of the old bridge and abutments which when built in 1968 reduced the width of the Turner River by half (BHPBIO 2007). This project will result in the removal the old bridge and associated causeway and replacement with a new bridge twice as long. As a result the Turner River will be returned to its original width, significantly reducing the risk of flooding (BHPBIO 2007).

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

Methodology BHPBIO (2007)
GIS Database:
Hydrography linear DoE 2004
Hydrography Catchments-Sub Catchments DoW

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

Comments

BHP Billiton Iron Ore (BHPBIO) was previously granted a clearing permit for up to 10 hectares of native vegetation within an area which partly falls within the area covered by this application (DoE 2005). The siding associated with that clearing permit (CPS 516/1) has been constructed (BHPBIO 2007).

A Section 17 Bed and Banks permit to obstruct or interfere with a proclaimed watercourse has been issued under the *Rights in Water and Irrigation Act 1914* by the Department of Water (DoW) to BHPBIO, to allow works associated with the replacement of the Turner bridge to occur as part of the overall project. It is a condition of this permit that work authorised by the S17 permit shall be undertaken with minimal disturbance to riparian vegetation (DoW 2007).

A number of Aboriginal Sites of Significance (Dambara Yambara, Turner River and Turner River Tjirril) are located within two kilometres of the proposed clearing area (GIS Database). Information supplied by BHPBIO has stated that an archaeological survey of the rail corridor has been undertaken and that no archaeological sites have been identified within that corridor. An ethnographic survey of the rail corridor undertaken with the Karriyara people has been undertaken and no ethnographic sites have been identified within the rail corridor which is the subject of this application. BHPBIO have stated that further consultation with the Department of Indigenous affairs (DIA) and the Karriyara people is planned in the future (BHPBIO 2007).

It is BHPBIO's responsibility to ensure that all persons employed or engaged in the project are made aware of their obligations under the *Aboriginal Heritage Act 1972*. In addition, BHPBIO needs to be aware that should cultural material be discovered during its clearing program, work should cease and the site should be recorded and the DIA notified.

If an unrecorded/recorded site cannot be avoided during the project, a section 18 notice must be submitted to obtain the Minister of Indigenous Affairs' prior consent to use the land on which this site is located.

There is a Native Title Claim over the area under application (GIS Database). However, the special lease for mining operations has been granted under section 116 of the *Land Act 1933-1965* and the *Iron Ore (Mount Newman) Agreement Act 1964*, 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*.

There is no requirement for an approval from the Minister for Resources under a clause of the *Iron Ore (Mount Newman) Agreement Act 1964* as this project involves the replacement of existing infrastructure on existing tenure (BHPBIO 2007).

A submission was received from the Town of Port Headland on the 6 March 2007, within which no objections were raised.

A submission was received on the 27 February 2007, raising two issues.

The submission requested that the clearing be undertaken in compliance with the *Aboriginal Act 1972*. BHPBilliton Iron Ore in their correspondence on this and other matters have stated that archaeological, ethnographic surveys, as well as consultation with the Karriyara people, has been undertaken and no ethnographic or archaeological sites have been identified within the rail corridor subject of this application. BHPBIO have also stated that they are planning on further consultation with the DIA and Karriyara people in relation to the above issues (BHPBIO 2007).

The submission also mentioned that native vegetation is used by Aboriginal people and that the assessment of the clearing of that vegetation should consider impacts on that use on the basis that cultural and social use falls within the definition of environment under section 3 (2) of the Environmental Protection Act 1984 (sic) (WA). The submission further stated that the Environmental Protection Authority Guidance Statement 41 states that: "the Environmental Protection Act 1984 (sic) can give attention to matters of a social nature, including traditional hunting activities, by providing for the retention of habitat for native fauna to enable such activities to continue".

Such potential impacts are not considered in the decision to grant, refuse or set conditions for a clearing permit as they are not part of the criteria listed under schedule 5 of the *Environmental Protection Act 1986*.

Methodology BHPBIO (2007)
DoE (2005)
DoW (2007)
GIS Database:
Aboriginal Sites of Significance DIA.
Native Title Claims DLI 7/11/05

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Railway construction or maintenance	Mechanical Removal	20	Grant 17 Hectares	<p>The proposal has been assessed against the clearing principles listed in Schedule 5 of the <i>Environmental Protection Act 1986</i> and it is either unlikely to be at variance to principles a,b,c,d,f,h,i,j and not at variance to principle e.</p> <p>Advice received from the Department of Agriculture and Food Western Australia states that the proposal may be at variance to principle g if surface water is not adequately managed during the construction phase of the project.</p> <p>The management procedures adopted by BHPBIO to manage such impacts are listed in the BHPBIO Rail Construction Environmental Management Plan and Minimum Environmental Standards for Contractors (BHPBIO 2005a & b).</p> <p>The management measures listed in the Rail Construction Environmental Management Plan are listed in the EMP 008 and aim to minimise impacts on the</p>

quality of surface water and avoid any unnecessary disturbance to natural surface drainage.

To achieve those aims the following practices are to be implemented:

Culverts are to be designed and constructed to minimize the amount of upstream ponding and the need for outlet drains.

Culvert size is to be capable of withstanding seasonal flows and a 1 in 20 flood event;

Where the potential for erosion is high, appropriate methods for erosion control are to be used (such as rip rap protection and reno mattresses);

Cleared vegetation and topsoil is to be stockpiled away from watercourses;

Erosion on access tracks is to be prevented by careful and erosion proof constructions;

Erosion around infrastructure is to be minimised by reduced clearing and constructing adequate drainage and bunding.

In addition 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.

The assessor is satisfied that the above measures that are adequate to address the concerns raised in the assessment of principle g.

The assessor has set three conditions, listed below, to monitor the timing and extent of the proposed clearing as well as to ensure that the above measures are followed to manage surface water erosion issues.

1. The Permit Holder shall provide a report to the Director, Environment, Department of Environment and Resources by the 30th of September each year setting out the records required by condition 2 of this permit in relation to clearing carried out in the previous year. The report to 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 procedures listed in the following documents: BHP Billiton Iron Ore Rail Construction Environmental Management Plan 0234-EMP-001 Revision 1 and Minimum Environmental Standards for Contractors, November 2005 Revision 3.

5. References

- BHPBIO (2005a) BHP Billiton Iron Ore Rail Construction Environmental Management Plan 0234-EMP-001 Revision 1. Unpublished Management Plan produced by BHP Billiton dated 16/5/2005.
- BHPBIO (2005b) Minimum Environmental Standards for Contractors, November 2005 Revision 3. Unpublished Document dated 21/11/20005.
- BHPBIO (2006) BHP Billiton Iron Ore Rail Operations Turner River Bridge. Purpose Permit Vegetation Clearing permit Application. Supporting Documentation. Revision 1, unpublished document dated December 2006.
- BHPBIO (2007) BHP Billiton Iron Ore Rail Operations Turner River Bridge. Email advice received by the Department of Industry and Resources on the 6th March in relation to CPS 1716/1.
- DAFWA (2004) Technical Bulletin 92- An inventory and condition survey of the Pilbara Region of Western Australia, report published by the Department of Agriculture Western Australia.
- DAFWA (2007) Land degradation assessment report. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 20 February 2007. 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.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- DoE (2005) Clearing Permit 516/1, Purpose permit granted (8 October 2005 to 8 October 2007) to BHP Billiton Iron Ore Pty Ltd for the purpose of railway construction and maintenance. Approval granted by the Department of Environment, Western Australia.

- DoW (2007) Letter from the Acting Regional Manager for the Department of Water Pilbara region to the Environment Division DoIR, dated 13 March 2007, advising of the grant of the Beds and Banks permit under the RIWI Act 1914 for the proposed BHPBIO Turner Bridge work and associated Clearing Permit Application 1716/1.
- Ecologia Environment (2004) BHP Billiton On-Going works Rail Development Project Turner River Bridge, Rare and Priority Flora, and Declared Weed Survey. Unpublished report produced for BHP Billiton Iron Ore and the Mine and Port Development Joint Venture, Dated November 2004.
- Ecologia Environment (2006) MPD JV Rail Corridor Survey Turner River Bridge, DRF and Priority Flora assessment. Unpublished report produced for the Mine and Port Development Joint Venture, Dated July 2006.
- ENV Australia (2007a) Turner River Bridge Declared Rare and Priority Flora, and Weed Survey. Unpublished report produced by ENV Australia for BHPBIO, dated 9 March 2007.
- ENV Australia (2007b) Turner River Bridge Fauna Assessment level 1. Unpublished report produced by ENV Australia for BHPBIO, dated 9 March 2007.
- EPA (2002) Terrestrial Biological Surveys as an element of biodiversity protection. Position Statement No. 3. March 2002. Environmental Protection Authority
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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.