



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4578/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Rio Tinto Exploration Pty Limited

1.3. Property details

Property: Iron Ore (Hamersley Range) Agreement Act 1963, Mineral Lease 4SA (AML 70/4)
Local Government Area: Shire of Ashburton
Colloquial name: Brockenwood Exploration Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 13 October 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area:

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and
175: Short bunch grassland - savanna/grass plain (Pilbara) (GIS Database).

A vegetation and flora survey was undertaken over the application area in June 2011 by botanists from Western Botanical. A description of the vegetation units observed at each proposed drill pad site and camp site was recorded (Western Botanical, 2011). These vegetation units, along with the landform of the site, are described below.

1. Rocky lower slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia pruinocarpa* shrubland over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* open hummock grassland.
2. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* low open woodland over *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia epactialpungens* and *Triodia wiseana* hummock grassland.
3. Rocky slope near drainage - *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* low open woodland over *Acacia pruinocarpa* shrubland over *Triodia wiseana* hummock grassland.
- 4, 6. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees *Hakea lorea* subsp. *lorea* scattered tall shrubs and *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
5. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
7. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia maitlandii* and *Acacia atkinsiana* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
8. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
9. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia arida* and *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
10. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* low open woodland over *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
11. Rocky mid-slope - *Hakea lorea* subsp. *lorea* and *Acacia pruinocarpa* scattered low trees over *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
19. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Hakea lorea* subsp. *lorea* scattered tall shrubs over *Acacia adoxa* var. *adoxa* low open shrubland with *Triodia wiseana* hummock grassland.
21. Rocky lower slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia arida*, *Acacia pruinocarpa* and *Hakea lorea* subsp. *lorea* high open shrubland over *Acacia adoxa* var. *adoxa* scattered low shrubs over *Triodia wiseana* hummock grassland.

22. Rocky mid-slope - *Hakea lorea* scattered shrubs over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* open hummock grassland.
 23. Rocky mid-slope - *Acacia arida* and *Acacia monticola* scattered shrubs over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* open hummock grassland.
 24. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia pruinocarpa*, *Clerodendrum floribundum* subsp. *angustifolium* and *Hakea lorea* subsp. *lorea* open shrubland over *Triodia epactial/pungens* hummock grassland.
 25. Rocky mid-slope - *Corymbia hamersleyana* scattered low trees over *Acacia arida*, *Acacia pruinocarpa* and *Hakea lorea* subsp. *lorea* shrubland over *Triodia wiseana* hummock grassland.
 26. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia pruinocarpa* scattered shrubs over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* hummock grassland.
 27. Flat rocky plain - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* open hummock grassland.
 28. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Hakea lorea* subsp. *lorea* and *Acacia maitlandii* scattered shrubs over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* hummock grassland.
 29. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia tenuissima* scattered shrubs over *Triodia wiseana* open hummock grassland.
 30. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia arida* and *Hakea lorea* scattered shrubs over *Triodia epactial/pungens* open hummock grassland.
 31. Rocky crest - *Hakea lorea* subsp. *lorea* scattered shrubs over *Triodia epactial/pungens* and *Triodia wiseana* open hummock grassland and *Eriachne mucronata* scattered grasses.
 32. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia monticola* and *Hakea lorea* subsp. *lorea* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* hummock grassland.
 33. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees *Grevillea wickhamii* and *Acacia maitlandii* open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* open hummock grassland.
 34. Rocky mid-slope - *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Hakea lorea* scattered tall shrubs over *Acacia adoxa* var. *adoxa* scattered low shrubs *Triodia epactial/pungens* open hummock grassland.
 35. Rocky crest - *Hakea lorea* subsp. *lorea* and *Senna glutinosa* subsp. *pruinosa* scattered shrubs over *Triodia epactial/pungens* and *Triodia wiseana* open hummock grassland.
 36. Rocky crest - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia arida*, *Acacia pruinocarpa* and *Hakea lorea* subsp. *lorea* high open shrubland over *Acacia adoxa* var. *adoxa* low open shrubland over *Triodia wiseana* hummock grassland.
 37. Rocky mid-slope - *Acacia pruinocarpa* high open shrubland over *Indigofera monophylla* scattered low shrubs over *Triodia epactial/pungens* very open hummock grasslands.
 38. Rocky slope - *Corymbia hamersleyana* scattered low trees over *Senna glutinosa* subsp. *glutinosa* and *Acacia maitlandii* scattered shrubs over *Triodia wiseana* very open hummock grassland.
 39. Rocky mid-slope - *Triodia epactial/pungens* open hummock grassland.
 40. Valley drainage - *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* low open woodland over *Senna artemisioides* subsp. *helmsii* and *Gossypium robinsonii* scattered shrubs over *Triodia epactial/pungens* open hummock grassland.
 41. Rocky upper slope - *Acacia adoxa* var. *adoxa* scattered low shrubs over *Triodia wiseana* hummock grassland and *Amphipogon sericeus* very open grassland.
 42. Rocky upper slope - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia adoxa* var. *adoxa* scattered low shrubs over *Triodia wiseana* and *Triodia epactial/pungens* hummock grassland.
 43. Rocky low slope near drainage - *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* low open woodland over *Senna glutinosa* subsp. *pruinosa* and *Senna glutinosa* subsp. *glutinosa* low open shrubland.
 46. Low rocky crest - *Acacia tenuissima*, *Hakea lorea* subsp. *lorea* and *Acacia monticola* scattered shrubs over *Gompholobium* sp. Pilbara (N.F. Norris 908) scattered low shrubs over *Triodia wiseana* open hummock grassland.
 47. Rocky low slope near drainage - *Gossypium robinsonii*, *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa* and *Ptilotus calostachyus* open shrubland over *Dampiera candidans*, *Corchorus laniflorus* and *Sida* sp. Pilbara (A.A. Mitchell PRP 1543) low open shrubland over *Triodia epactial/pungens* and *Triodia wiseana* open hummock grassland.
 48. Flat rocky plain - *Corymbia hamersleyana* low open woodland over *Acacia arida*, *Acacia atkinsiana*, *Ptilotus calostachyus* and *Ptilotus exaltatus* open shrubland over *Stylobasium spathulatum* and *Indigofera monophylla* low open shrubland over *Triodia epactial/pungens* and *Triodia wiseana* open hummock grassland.
 49. Rocky mid-slope - *Acacia maitlandii*, *Codonocarpus cotinifolius* and *Hakea lorea* subsp. *lorea* scattered shrubs over *Gompholobium* sp. Pilbara (N.F. Norris 908) scattered low shrubs over *Triodia wiseana* very open hummock grassland and *Eriachne mucronata* very open grassland.
 50. Rocky upper slope - *Acacia pruinocarpa*, *Hakea lorea* subsp. *lorea* and *Senna glutinosa* subsp. *glutinosa* open shrubland over *Triodia epactial/pungens* and *Triodia wiseana* very open hummock grassland.
 51. Rocky upper slope - *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia pruinocarpa* scattered shrubs over *Acacia maitlandii*, *Corchorus laniflorus* and *Sida* sp. Pilbara (A.A. Mitchell PRP 1543) scattered low shrubs over *Triodia wiseana* open hummock grassland.
 52. Rocky upper slope - *Eucalyptus gamophylla* scattered low trees over *Ptilotus calostachyus* scattered low shrubs over *Triodia wiseana* very open hummock grassland and *Amphipogon sericeus* scattered grasses.
- Northern Campsite. Rocky plain - *Hakea lorea* subsp. *lorea* scattered tall shrubs over *Acacia atkinsiana* and *Acacia pruinocarpa* scattered shrubs over *Triodia wiseana* open hummock grassland.
- Southern Campsite. Rocky plain - *Codonocarpus cotinifolius* and *Hakea lorea* subsp. *lorea* scattered tall shrubs over *Acacia atkinsiana* and *Acacia bivenosa* scattered shrubs over *Triodia wiseana* hummock grassland.

Clearing Description

Rio Tinto Exploration Pty Limited has applied to clear up to 10 hectares of native vegetation within an application area of approximately 11.3 hectares for the purpose of mineral exploration. Clearing will be for drill pads, access tracks and camp sites. The application area is located approximately 43 kilometres north-west of Tom Price.

The vegetation will be cleared using bulldozers or diggers.

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

Comment The vegetation condition is based on vegetation descriptions of the application area by botanists from Western Botanical (2011) and orthophotos.

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 application area occurs within the Hamersley (PIL3) Interim Biogeographic Regionalisation of Australia (IBRA) subregion (GIS Database). This subregion is generally described as Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

The vegetation within the application area is broadly mapped as Beard vegetation associations 82 and 175, both of which have over 99% of their pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). A flora and vegetation survey of the application area was conducted by Western Botanical botanists in June 2011. A total of 85 native vascular plant taxa, belonging to 48 genera from 30 families, were recorded within the application area (Western Botanical, 2011). The genera with the highest number of taxa recorded were *Acacia*, *Senna* and *Ptilotus* (Western Botanical, 2011), which is typical of the Pilbara.

No Declared Rare Flora, Priority Flora, Threatened Ecological Communities or Priority Ecological Communities were recorded during the field survey conducted by Western Botanical in June 2011, or have previously been recorded within the application area (Western Botanical, 2011; GIS Database).

No introduced flora species were recorded within the application area (Western Botanical, 2011). Care must be taken to ensure that the proposed clearing activities do not introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A search of the Department of Conservation and Environment's (DEC) NatureMap revealed records of one amphibian, 107 bird, 15 mammal and 51 reptile species within a 20 kilometre radius (DEC, 2011). The high number of reptile species is typical of the Pilbara while the number of bird species is relatively high. The fauna habitats within the application area are predicted to occur adjacent to the application area and throughout the locality (GIS Database) so the bird species are not likely to be restricted to the application area.

The application area is not likely to comprise a greater diversity than similar areas either locally or at a bioregional scale.

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

Methodology CALM (2002)
DEC (2011)
Shepherd (2009)
Western Botanical (2011)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Jeerinah 50 cm Orthomosaic - Landgate 2004
- Pre-European Vegetation
- Rocklea 50 cm Orthomosaic - Landgate 2004
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered

(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**

No fauna surveys have been conducted within the application area. The broad landforms in the application area are rocky crests, slopes and plains, and valley drainage (Western Botanical, 2011). Large *Eucalyptus*, *Acacia* and *Corymbia* trees provide possible fauna habitat and nesting sites (Western Botanical, 2011). The landforms and vegetation associations recorded within the application area are found throughout the locality and the Pilbara region (Western Botanical, 2011; GIS Database), therefore, the fauna habitats provided by the application area are likely to be found in adjacent areas and throughout the Pilbara region. The vegetation within the application area may be utilised by a variety of fauna but the lack of specialised fauna habitats means it is unlikely to provide core habitat for any fauna species.

A single Western Pebble-mound Mouse (*Pseudomys chapmani*) (DEC Priority 4) nest was recorded at one

location on a proposed track (Western Botanical, 2011). This species is considered common to very common in suitable habitat within the Pilbara bioregion (Western Botanical, 2011). Similar habitat for the Western Pebble-mound Mouse is available throughout the Pilbara and the given the relatively small area of the proposed clearing the impact on this species is not likely to be significant.

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

Methodology Western Botanical (2011)
GIS Database:
- Jeerinah 50 cm Orthomosaic - Landgate 2004
- Pre-European Vegetation
- Rocklea 50 cm Orthomosaic - Landgate 2004

(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**
According to available databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database). There are two records of the DRF *Lepidium catapycnon* within 2 kilometres of the application (GIS Database).

A flora and vegetation survey of the application area was conducted by Western Botanical botanists in June 2011 with a focus on flora species with conservation significance. No DRF were recorded within the application area (Western Botanical, 2011).

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

Methodology Western Botanical (2011)
GIS Database:
- Threatened and Priority Flora

(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**
A search of available databases revealed there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The buffer of the nearest recorded TEC, *Themeda* grasslands on cracking clays, is located approximately 0.4 kilometres east of the application area (GIS Database).

A flora and vegetation survey was conducted by Western Botanical botanists in June 2011 over the application area. No observations were made during the field survey to suggest that any areas within the application area constitute a community similar to that of the *Themeda* grasslands community (Western Botanical, 2011).

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

Methodology Western Botanical (2011)
GIS Database:
- Threatened Ecological Sites Buffered

(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**
The clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 99.9% of the pre-European vegetation remains (see table) (Shepherd, 2009; GIS Database). This gives it a conservation status of 'Least Concern' according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been mapped as Beard vegetation associations:

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and
175: Short bunch grassland - savanna/grass plain (Pilbara) (Shepherd, 2009; GIS Database).

According to Shepherd (2009), over 99% of both of these vegetation associations remain at a state and bioregional level (see table). These vegetation associations would be given a conservation status of 'Least Concern' at both a state and bioregional level (Department of Natural Resources and Environment, 2002).

The vegetation under application is not a remnant of vegetation in an area that has been extensively cleared.

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,193	17,785,001	~99.89	Least Concern	6.32
Beard Veg Assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	10.24
175	526,206	524,861	~99.74	Least Concern	4.22
Beard Veg Assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	10.25
175	507,036	507,036	~99.99	Least Concern	4.38

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(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

There are no permanent watercourses or wetlands within the application area (GIS Database). However, there are several minor non-perennial watercourses through parts of the application area (GIS Database).

One of the proposed drill pad sites has a vegetation unit associated with a valley drainage landform and an additional two sites had landforms described as rocky low slope near drainage (Western Botanical, 2011). Minor drainage lines are common in the Pilbara and vegetation associated with minor drainage lines is well represented locally (GIS Database).

Based on the above, the proposed clearing is at variance to this Principle. However, the vegetation types associated with the minor watercourses are common in the local and regional area, and the small amount of proposed clearing is unlikely to have any significant impact on any watercourse or wetland.

Methodology Western Botanical (2011)
GIS Database:
- Hydrography, Linear
- Jeerinah 50 cm Orthomosaic - Landgate 2004
- Rocklea 50 cm Orthomosaic - Landgate 2004

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

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

According to available datasets the application area intersects the Newman Land System and Platform Land System (GIS Database).

The Newman Land System is characterised by rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). Each of the landforms in the land system have a mantle of abundant pebbles of ironstone and other rocks, which translates to a low soil erosion risk (Van Vreeswyk et al., 2004).

The Platform Land System is characterised by dissected slopes and raised plains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). The land forms in this land system generally have surface mantles of very abundant pebbles and cobbles and the system is not susceptible to erosion (Van Vreeswyk et al., 2004).

Rio Tinto Exploration Pty Limited has applied to clear up to 10 hectares for exploration activities. The proposed clearing activities are not likely to result in large areas of disturbed or open land. Given the small size and the nature of the of the proposed activities, the clearing is not likely to result in appreciable land degradation.

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

Methodology Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land System Mapping

(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 proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation area is the ex-Hamersley Station pastoral lease, a DEC proposed 2015 pastoral lease exclusion property, which is located 38 kilometres east of the application area (GIS Database). At this distance the proposed clearing is unlikely to impact on the environmental values of the conservation area.

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

Methodology GIS Database:
- DEC Tenure
- Register of National Estate (Status)

(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

There are no permanent watercourses or wetlands within the application area (GIS Database). There are several minor ephemeral drainage lines within the application area (GIS Database) but these would only flow following substantial rainfall events. Rio Tinto Exploration Pty Limited (2011) have procedures for erosion control and will be rehabilitating the area following completion of the exploration program. This will reduce the risk of sedimentation into nearby surface water.

According to available databases the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is Millstream Water Reserve, which is approximately 23 kilometres to the north (GIS Database).

The small amount (10 hectares) of proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.

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

Methodology Rio Tinto Exploration Pty Limited (2011)
GIS Database:
- Hydrography, Linear
- Public Drinking Water Source Areas (PDWSAs)

(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 located within the Ashburton River catchment area (GIS Database). Given the size of the area to be cleared (10 hectares) in relation to the size of the catchment area (7,877,743 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim (WC97/89) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance in the vicinity of the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

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.

The clearing permit application was advertised on 5 September 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received advising there was no objections to the proposed clearing.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Determined by the Federal Court

4. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3 (PIL3 - Hamersley Subregion). Department of Conservation and Land Management, Western Australia.
- DEC (2011) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. <http://naturemap.dec.wa.gov.au/default.aspx> (Accessed 7 October 2011).
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Rio Tinto Exploration Pty Limited (2011) Supporting Document for Clearing Permit. August 2011.
- Shepherd, D.P. (2009) 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.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara Region, Western Australia, No. 92. Department of Agriculture, Government of Western Australia, Perth, Western Australia.
- Western Botanical (2011) Brockenwood Bore Threatened and Priority Flora Survey. Report Prepared by Western Botanical for Rio Tinto Exploration, August 2011.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
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 Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

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.