Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3233/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Hamersley Iron Pty Ltd**

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: Brockman 2 Project

1.4. Application

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

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
Beard Vegetation Associations have been mapped at a 250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database): 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (Kendrick, 2001). Rio Tinto (2009) conducted a vegetation survey over the application area and surrounding vegetation between the 10th and 16th of March, 2009. Twelve vegetation types have been identified as occurring within the application area (Rio Tinto, 2009). These are: 1) Shaly Hillslope*: Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees, over open shrubland of mixed Senna's typically dominated by *Senna glutinosa* subsp. *pruinosa*, *S. glutinosa* subsp. *glutinosa*, and *S. glutinosa* subsp. x *luerssenii*, over low shrubland of *Acacia bivenosa* and *Senna artemisioides* subsp. *oligophylla*, over *Maireana georgei* very low shrubland, over *Triodia wiseana* very open hummock grassland with scattered *Ptilotus exaltatus* herbs. 2) Footslopes: *Acacia inaequilatera* low open woodland over *Acacia pruinocarpa* and *A. atkinsiana* tall open shrubland, over *A. pruinocarpa* and *A. atkinsiana* open shrubland, over *Corchorus lasiocarpus* subsp. *parvus*, and *Goodenia stobbsiana*, low open shrubland over *Aristida holathera* subsp. *holathera* very open tussock grassland, over *Triodia wiseana* open hummock grassland. 3) Undulating Plain/Footslopes: *Eucalyptus leucophloia* subsp. *leucophloia scattered* low trees, over *Acacia atkinsiana* and *A. tenuissima* tall open shrubland, over *Acacia atkinsiana* and *Senna glutinosa* subsp. *pruinosa* shrubland, over *Acacia atkinsiana*, *A. tenuissima*, and *Corchorus lasiocarpus* subsp. *parvus* low open shrubland, over scattered mixed tussock grasses, over *Triodia wiseana* open hummock grassland. 4) Drainage Line (Undulating Plain/Footslopes): *Corymbia hamersleyana* scattered low trees, over *Gossypium robinsonii* and *Acacia monticola* tall shrubland, over *Gossypium robinsonii*, *Acacia monticola*, and *A. pyrifolia* shrubland, over *Ptilotus astrolasius*, *Acacia monticola*, and *Hybanthus aurantiacus* low open shrubland, over *Cleome viscosa*, *Gomphrena cunninghamii*, and *Phyllanthus maderaspatensis* very open herbland, over	Hamersley Iron Pty Ltd has applied to clear up to 3.5 hectares within an application area of 34 hectares. The proposal is situated at the Brockman 2 project area, located approximately 50 kilometres north-west of Tom Price, in the Pilbara region (Rio Tinto, 2009). Clearing will be required for: development of tracks; drill pads; and sumps. Clearing will be done using the raised blade technique where practicable or scrub rake in level terrain. Where already cleared tracks require maintenance, the track may be graded using blade down.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation descriptions were derived from descriptions by Rio Tinto (2009).

Eriachne muconata and *Enneapogon polyphyllus* very open tussock grassland, over *Triodia epactia* open to very open hummock grassland.

5) Drainage Line (Steep Gullies on Upper Slopes): *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland, over *Gossypium robinsonii*, *Acacia monticola*, and *Acacia pruinocarpa* tall open shrubland, over *Gossypium robinsonii*, *Acacia monticola*, and *Senna glutinosa* subsp. *glutinosa*, open shrubland, over mixed low open shrubland, over *Themeda triandra* and *Cymbopogon ambiguous* open to very open tussock grassland, over *Triodia epactia* open hummock grassland with scattered dominant patches of *Cynanchum floribundum* ground creeper.

6) Low Shrubland/Grassland Plain at Footslopes of Range: *Acacia inaequilatera* scattered low trees, over *Senna glutinosa* subsp. *glutinosa* and *Acacia ancistrocarpa* scattered shrubs/tall shrubs, over *Corchorus lasiocarpus* subsp. *parvus* and *Indigofera monophylla* low shrubland, over open tussock grssland of *Cymbopogon ambiguous*, over *Triodia wiseana* hummock grassland.

7) Steep Rocky Slopes/Breakaway: *Eucalyptus leucophloia* subsp. *leucophloia* and *Ficus brachypoda* scattered low trees, over *Acacia marramamba*, *A. bivenosa* and *A. aneura* var. *aneura* tall open shrubland to open shrubland, over *Gomphrena cunninghamii*, *Triumfetta leptacantha*, and *Maireana georgei* low open shrubland, over *Eriachne mucronata* open tussock grassland over *Triodia brizoides* open hummock grassland (replaced by *Triodia epactia* in some places).

8) Midslopes/Upper Slopes: *Eucalyptus leucophloia* subsp. *leucophloia low* open woodland with scattered *Corymbia deserticola* subsp. *deserticola*, and *Hakea chordophylla*, over *Acacia maitlandii*, and *Senna glutinosa* subsp. *glutinosa* open shrubland, over *Acacia maitlandii*, *Dampiera candicans*, and *Ptilotus calostachyus*, low open shrubland, over *Eriachne mucronata* and *Cymbopogon ambiguous* very open tussock grassland, over *Triodia wiseana* hummock grassland (with co-dominant patches of *T. wiseana* and *T. brizoides*).

9) Upper Slopes: *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland, over *Senna glutinosa* subsp. *glutinosa* open shrubland (with scattered tall shrubs), over *Eriachne mucronata* scattered tussock grasses, over *Triodia brizoides* hummock grassland.

10) Steep Slopes/Rocky Crags: *Corymbia ferritcola* low open woodland (with scattered *Eucalyptus leucophloia* subsp. *leucophloia*), over *Senna glutinosa* subsp. *glutinosa* scattered tall shrubs, over mixed low open shrubland typically dominated by *Dodonaea coriacea*, *Dampiera candicans*, and *Sida sp. Shovelanna Hill*, over *Triodia brizoides* hummock grassland (with *Triodia wiseana* as co-dominant in places).

11) Rocky Lower Slopes: *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland (to low woodland in places), over *Senna glutinosa* subsp. *glutinosa* and *Acacia pruinocarpa* tall open shrubland, over open heath typically dominated by *Senna glutinosa* subsp. *glutinosa*, and including *Acacia bivenosa*, *Acacia maitlandii* and *Acacia pruinocarpa*, over low open shrubland of the same but including *Corchorus lasiocarpus* subsp. *parvus* and *Indigofera monophylla*, over *Triodia epactia* very open hummock grassland.

12) Footslopes/Undulating Plain: *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland, over scattered tall shrubs of *Senna glutinosa* subsp. *pruinosa*, over shrubland dominated by *Senna glutinosa* subsp. *pruinosa*, but including *Senna glutinosa* subsp. *glutinosa*, over scattered low shrubs of *Corchorus lasiocarpus* subsp. *parvus*, *Indigofera monophylla*, and *Goodenia stobbsiana*, over very open tussock grassland of *Triodia wiseana*.

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 is located within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This subregion is characterised by sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite), with 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 (Kendrick, 2001).

The vegetation within the application area consists of Beard Vegetation Association 82 which is common and widespread throughout the Pilbara region, with approximately 100% of the pre-European vegetation remaining (Shepherd 2007; GIS Database).

Rio Tinto (2009) have identified and described 12 vegetation types for the application area and recorded a total of 141 flora species from 74 genera belonging to 37 families (Rio Tinto, 2009). The total number of flora species recorded from the application area is within the expected range for an area of this size in the locality, and is not considered to represent high species richness. The condition of the vegetation was deemed to be Excellent on the Keighery scale (1994), due to the lack of disturbance in the application area.

No Declared Rare Flora, Threatened Ecological Communities or Threatened Fauna Species were noted across the application area (GIS Database; Rio Tinto, 2009). A total of two Priority flora species were identified within the application area: *Sida* sp. Hamersley Range (P1) and *Indigofera gilesii* subsp. *gilesii* (P3). Both these species are not restricted to the Brockman locality and occur outside the application area (Rio Tinto, 2009). However, Rio Tinto (2009) has stated they will place exclusion zones around the Priority Flora species to prevent any disturbance occurring as part of the drilling program.

Three introduced flora species have been identified within the application area. These being: *Bidens Bipinnata* (Bipinnate Beggartick); *Portulaca oleracea* (Purslane); and *Cynodon dactylon* (Couch Grass) (Rio Tinto, 2009). Care must be taken to ensure that the proposed clearing activities do not spread or introduce the above listed introduced species to non infested areas. Should the permit be granted, it is recommended that appropriate conditions be imposed on the permit for the purpose of weed management.

From a fauna perspective, no detailed surveys have been undertaken to measure the species richness of the application area. It is acknowledged that the Pilbara bioregion is known to support a diversity of arid zone reptiles. However, based on an assessment of fauna habitat it is not likely that the area applied to clear would support a higher level of fauna species diversity than any other area in the local area or region (GIS Database; Rio Tinto, 2009).

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

Methodology

Keighery (1994)
Kendrick (2001)
Rio Tinto (2009)
Shepherd (2007)
GIS Database:
-Declared Rare and Priority Flora
-Interim Biogeographic Regionalisation for Australia
-Jeerinah 50 cm Orthomosaic

(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 assessing officer has conducted a search of the Western Australian Museum's online fauna database, centred on the coordinate 22°25'31"S, 117°23'00"E, with a radius of 40 kilometres. Two amphibian, 25 avian, 19 mammalian and 65 reptilian species have been identified as potentially occurring in the search area (Western Australian Museum, 2009). Rio Tinto (2009) also conducted a desktop search of the Department of Environment and Conservation's (DEC) Threatened Fauna Database. After consideration of the results of both surveys, the following species of conservation significance could potentially utilise the application area:

- *Amytornis striatus* subsp. *striatus* (Striated Grasswren) listed DEC Priority Four;
- *Ardeotis australis* (Australian Bustard) listed DEC Priority Four;
- *Burhinus grallarius* (Bush Stone-curlew) listed DEC Priority Four;
- *Lagorchestes conspicillatus* subsp. *leichardti* (Spectacled Hare-wallaby) listed DEC Priority Three;
- *Leggadina lakedownensis* (Short-tailed Mouse) listed DEC Priority Four;
- *Macroderma gigas* (Ghost Bat) listed DEC Priority Four;
- *Pseudomys chapmani* (Western Pebble-mound Mouse) listed DEC Priority Four;
- *Sminthopsis longicaudata* (Long-tailed Dunnart) listed DEC Priority Four; and
- *Notoscincus butleri* listed DEC Priority Four.

Three broad terrestrial fauna habitat types have been identified within the application area. These are: Minor drainage lines; Stony slopes; and Plains (Rio Tinto, 2009). These habitat types are both common and widespread in the Pilbara bioregion and would not be considered to be under threat by the proposed works (Rio Tinto, 2009). Apart from minor caves occurring throughout the stony slope habitat, no other significant fauna habitats such as major caves, rock piles, waterholes, termite mounds or sandy banks were observed within the application area (Rio Tinto, 2009).

There were no unique, restricted, or fauna specific habitat types observed in the application area that are not well represented elsewhere throughout the Pilbara region (GIS Database; Rio Tinto, 2009). Although it has been noted that some Priority fauna species may utilise these habitats, neither the landforms nor vegetation types represent 'core habitat' for any of these species. The close proximity to existing mine infrastructure could also be considered to act as a deterrent to many native fauna species, greatly reducing the probability that they would frequent the area (Rio Tinto, 2009).

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

Methodology Rio Tinto (2009)
Western Australian Museum (2009)
GIS Database:
-Jeerinah 50 cm Orthomosaic

(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 datasets, there are no known records of Declared Rare Flora (DRF) or Priority Flora species within the application area (GIS Database).

A Declared Rare Flora and Priority Flora survey was undertaken by a botanist from Rio Tinto in March 2009. No species of DRF or Environmental Protection and Biodiversity Conservation (EPBC) Act, 1999 listed threatened flora were recorded within the application area (Rio Tinto, 2009). Based on the known information, the proposed clearing is not likely to impact on any DRF species.

Two Priority Flora species were recorded within the application area. These are:

- *Sida* sp. Hamersley Range (Priority One);
- *Indigofera gilesii* subsp. *gilesii* (Priority Three).

Sida sp. Hamersley Range is an is found in skeletal red stony soil and ironstone on cliffs and summits or in shady locations around the Hamersley Ranges (Rio Tinto, 2009; Western Australian Herbarium, 1998-2009). Eight populations were recorded within the vegetation study area, each containing between one to four individuals (Rio Tinto, 2009). A further 35 populations have been recorded during Rio Tinto Iron Ore surveys from the Tom Price/Channar area (eight populations ranging in size from one to five individuals) and the Brockman two and three region (27 populations in total containing between one to 20 individuals). Although this species is not prolific, it seems to be distributed in most rocky outcrops, below cliffs in the general Brockman area and is therefore not restricted to the study area (Rio Tinto, 2009).

Indigofera gilesii subsp. *gilesii* is found generally in pebbly loam amongst boulders/outcrops and hills (Rio Tinto, 2009; Western Australian Herbarium, 1998-2009). Four populations containing four to 30 individuals were recorded in the study area. These are the first recordings of this species in the Brockman locality by Rio Tinto, having only been recorded previously in the West Angelas and Rhodes Ridge region.

Due to the presence of these Priority species, Rio Tinto has proposed implementing 20 metre exclusion zones around the recorded populations to avoid any disturbances. It is therefore considered unlikely that the removal of vegetation within the application area will impact on the conservation status and continued existence of any Priority Flora.

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

Methodology Rio Tinto (2009)
Western Australian Herbarium (1998-2009)
GIS Database:
-Declared Rare and Priority Flora List

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments **Proposal is not likely to be at variance to this Principle**
There are no known Threatened Ecological Communities (TEC's) within the application area (GIS Database; Rio Tinto, 2009). The nearest known TEC is located approximately 16 kilometres north-east of the application area (GIS Database). Given the distance between the proposal and the nearest known TEC, the proposed clearing is not likely to impact on the conservation of that TEC.

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

Methodology Rio Tinto (2009)

GIS Database:
-Clearing Regulations - Environmentally Sensitive Areas
-Threatened Ecological Communities

(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 application area is located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) report that approximately 99.95% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application area is broadly mapped as Beard Vegetation Association 82: Hummock grasslands; low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Kendrick, 2001). According to Shepherd (2007) there is approximately 100% of these vegetation types remaining in the Pilbara Bioregion and the State (see table below).

According to the Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for the Pilbara Bioregion and Beard Vegetation Association 82 is of 'Least Concern' (Department of Natural Resources and Environment, 2002).

Although several large scale mining operations are located within a 50 kilometre radius of the application area, the Pilbara Bioregion remains largely uncleared (GIS Database). As a result, the conservation of the vegetation associations within the bioregion is not likely to be impacted upon by the proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,188	17,794,647	~99.95	Least Concern	~6.32
Beard veg assoc. - State					
82	2,565,901	2,565,901	~100	Least Concern	~10.2
Beard veg assoc. - Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	~10.2

* Shepherd (2007)
** 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)
Kendrick (2001)
Shepherd (2007)
GIS Database:
-Interim Biogeographic Regionalisation of Australia
-Pre European Vegetation
-Rangeland Land System Mapping

(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

According to available GIS databases there are no permanent wetlands or watercourses within the application area (GIS Database). The proponent has advised that the vegetation to be cleared is not associated with any major watercourses, wetlands or wetland dependant vegetation (Rio Tinto, 2009). Several ephemeral creek systems and flow lines traverse the application area (GIS Database). These watercourses are minor natural drainage channels that are widespread across the Pilbara landscape and are responsible for quickly dispersing floodwaters after significant rainfall events (ANRA, 2007).

As there are watercourses within the application area, the proposed clearing is at variance to this Principle. However, the vegetation communities growing in association with the watercourses are not unique and are considered common and widespread in the Pilbara bioregion (GIS Database; Rio Tinto, 2009; Shepherd, 2007). The proposed clearing is unlikely to significantly impact on vegetation communities growing in association with these minor ephemeral creek systems.

Methodology

ANRA (2007)

Rio Tinto (2009)
Shepherd (2007)
GIS Database:
-Hydrography, Lakes (Course Scale, 1m GA)
-Hydrography, Linear (Hyd_Type)
-Rivers

(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 the Department of Agriculture's Technical Bulletin No. 92 'An inventory and condition survey of the rangelands of the Pilbara region, Western Australia', the application area is comprised of the Newman Land System and the Boolgeeda Land System (GIS Database; Van Vreeswyk et al., 2004).

The Newman Land System consists of rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands which typify much of the Pilbara (Van Vreeswyk et al., 2004). The majority of the vegetation present appears to occur on the landform units: 'Plateaux, ridges, mountains and hills'; and 'Lower slopes' (GIS Database; Van Vreeswyk et al., 2004).

The Boolgeeda Land System consists of stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals it is most likely to occur within the 'Stony slopes and upper plains' land unit; 'Stony lower plains' land unit; and 'Groves' land unit.

Both land systems within the application area have a high resistance to soil erosion due to the stony surface materials and red loamy earths present within the soils. According to Van Vreeswyk et al. (2004), approximately 99% of the Newman Land System and 100% of the Boolgeeda Land System is not affected by soil erosion. These landscapes are at the end point of millions of years of erosion and withstand massive rainfall events on an annual basis without any appreciable land degradation or erosion. Given that vegetation is removed on a regular basis through fire (Van Vreeswyk et al., 2004) without any apparent increase in erosion, it is unlikely that the removal of vegetation will by itself exacerbate land degradation.

The proposed clearing will be undertaken using the raised blade methods, leaving the root stock and soil in situ, thereby minimising the potential for erosion (Rio Tinto, 2009). The small scale of the proposed clearing is unlikely to result in appreciable land degradation.

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

Methodology

Rio Tinto (2009)
Van Vreeswyk et al., 2004)
GIS Database:
-Jeerinah 50cm Orthomosaic
-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 application area is not situated within a Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation estate is Karijini National Park, which is situated approximately 56 kilometres east, south-east of the application area (GIS Database). Based on the distance between the proposal and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of Karijini National Park.

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

Methodology

GIS Database:
-CALM Managed Lands and Waters

(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, drainage systems or wetlands within the application area (GIS Database). The land systems associated with the application area have high resistance to erosion (Van Vreeswyk et al., 2004), thereby reducing the risk of sediment export which may result in sedimentation and turbidity in any nearby watercourses. The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Millstream Water Reserve which is located approximately 16 kilometres north of the application area (GIS Database). The proposed clearing activities involve clearing 3.5 hectares for the purposes of access tracks, sumps and drill pads across an application area of 34 hectares (Rio Tinto, 2009). Given the distance separating the application area and the nearest water supply area, the proposed clearing is unlikely to impact on the quality of the Millstream Water Reserve.

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

Methodology Rio Tinto (2009)
Van Vreeswyk et al., (2004)
GIS Database:
-Hydrography, Linear (Hyd_Type)
-Public Drinking Water Source Area (PDWSA's)

(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 not associated with any permanent wetlands or watercourses (GIS Database). The application area experiences average annual rainfall of approximately 400 millimetres (GIS Database; Bureau of Meteorology, 2009), with the majority of rainfall received between December and March, but continuing through until June, with a pronounced dry period between August and November (ANRA, 2007). Local flooding can be expected to occur in the Pilbara region as a result of heavy rainfall triggered by cyclonic activity and sporadic thunderstorms.

Numerous ephemeral watercourses are distributed across the landscape, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS Database; ANRA, 2007). It is unlikely that the proposed clearing for drill pads, sumps and access tracks will impact on the drainage patterns in the local area. The proposed clearing of native vegetation is unlikely to cause or increase the incidence of flooding, or result in an increase in peak flood height.

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

Methodology ANRA (2007)
Bureau of Meteorology (2009)
GIS Database:
-Hydrography, Linear (Hyd_Type)
-Rainfall, Mean Annual

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

Comments

There is one native title claim over the area under application: WC97/089. This claim has been registered with the National Native Title Tribunal on behalf of the claimant groups. However, the tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (ie. 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 known Aboriginal sites of significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

No submissions were received raising objections to this proposal.

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.

Methodology GIS Database:
-Aboriginal Sites of Significance
-Native Title Claims

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principle and is not at variance to Principle (e), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j) and is at variance to Principle (f).

It is recommended that should a permit be granted, conditions be imposed on the permit for the purposes of weed management, retention of topsoil and vegetative material, record keeping and permit reporting.

5. References

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Western Australian Museum (2009) NatureMap - Mapping Western Australia's Biodiversity - Department of Environment and Conservation. Available online from: http://naturemap.dec.wa.gov.au/default.aspx Accessed 21 September 2009.

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.
DMP	Department of Mines and Petroleum, 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.