



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3754/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Barrick (Darlot) NL**

1.3. Property details

Property: Mining Lease 37/252
Mining Lease 37/155
Mining Lease 37/608
Local Government Area: Shire of Leonora
Colloquial name: TSF4 Project

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard Vegetation Associations have been mapped at a scale of 1: 250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application area (Shepherd, 2007):

Beard Vegetation Association 18: low woodland; Mulga (*Acacia aneura*).

Mattiske Consulting conducted a flora and vegetation survey of the application area in February 2010. Mattiske Consulting (2010) recorded the following five vegetation communities within the application area, during the survey:

Vegetation Unit 1:

Low woodland of *Acacia aneura* var. *argentea*, *Acacia aneura* var. *intermedia*, *Acacia ayersiana* and *Acacia tetragonophylla* over a sparse understorey mixture of *Cratystylis subspinescens*, *Eremophila latrobei*, *Eremophila metallicorum*, *Eremophila scoparia*, *Senna artemisioides* subsp. *helmsii*, *Scaevola spinescens* and *Sclerolaena* sp. on a mixture of cracking and skeletal clay with ironstone, dolorite and quartz pebbles on flats and low rises.

Vegetation Unit 2:

Open low woodland of *Acacia ayersiana*, *Acacia tetragonophylla* and *Hakea preissii* over *Scaevola spinescens*, *Maireana georgei* and a mixture of *Eremophilas* and *Sennas* on skeletal clay with ironstone and quartz pebbles on flats.

Vegetation Unit 3:

Open scrub of *Hakea preissii* over *Atriplex vesicaria*, *Cratystylis subspinescens*, *Frankenia fecunda*, *Lawrenzia squamata*, *Maireana georgei*, *Sclerolaenas* and *Senna artemisioides* subsp. *helmsii*, on a mixture of cracking and skeletal clay with ironstone and quartz pebbles on flats.

Vegetation Unit 4:

Low shrubland of *Atriplex vesicaria*, *Eriochiton sclerolaenoides*, *Sclerolaena cuneata*, *Sclerolaena* sp. And *Tecticornia disarticulata* with occasional emergent *Hakea preissii* on skeletal clay with ironstone and quartz pebbles on flats.

Vegetation Unit 5:

Open low woodland of *Acacia aneura* var. *argentea*, *Acacia aneura* var. *intermedia*, *Acacia ayersiana*, *Acacia effusifolia*, *Acacia tetragonophylla*, *Exocarpus aphyllus* and *Hakea preissii* over

Clearing Description

Barrick (Darlot) NL (2010) (Barrick) proposes to clear up to 27.8 hectares of native vegetation. The application area is located approximately 55 kilometres east of Leinster (GIS Database).

The purpose of the proposed clearing is for the construction of a Tailings Storage Facility (Barrick, 2010). Vegetation will be cleared by bulldozer and topsoil and vegetation will be stockpiled for rehabilitation purposes (Barrick, 2010).

Vegetation Condition

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

to

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment

The vegetation condition rating was derived from flora and vegetation surveys conducted by Mattiske Consulting in February 2010, and previously in April 1995.

Mattiske Consulting (1995) reports that the Darlot project area has been previously disturbed by grazing, tree cutting, former human settlements and mining activities. Furthermore, the assessing officer conducted a site inspection in March 2010. It was noted that parts of the application area have suffered quite extensive disturbance.

Cratystylis subspinescens, *Eremophila youngii* subsp. *youngii*,
Frankenia fecunda, *Frankenia pauciflora* var. *pauciflora*, *Lawrenzia*
squamata, *Senna artemisioides* subsp. *helmsii* and mixed chenopods
on skeletal clay with ironstone pebbles in micro channels.

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 Eastern Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia bioregion (GIS Database). This subregion is described by CALM (2002) as being rich and diverse in both its flora and fauna. CALM (2002) reports that most species are wide ranging and usually occur in at least one, and often several, adjoining regions.

Mattiske Consulting conducted a flora and vegetation survey of the proposed clearing area in February 2010. Mattiske Consulting (2010) recorded a total of 33 vascular plant taxa from 21 genera and 15 families, within the application area. Mattiske Consulting (2010) reports the following families as representing the majority of the flora; *Fabaceae* (8), *Chenopodiaceae* (7) and *Scrophulariaceae* (4). These results do not represent diverse flora for this region (Mattiske Consulting, 2010).

The vegetation within the application area has been impacted by past mining and grazing activities, which was also noted during a site inspection conducted by the assessing officer in March 2010 (Mattiske Consulting, 2010). The results of the flora and vegetation survey indicate that the area is quite low in flora diversity and Mattiske Consulting (2010) reports that no Declared Rare Flora, Priority Flora, Threatened Ecological Communities or other vegetation communities of high significance were recorded within the survey area. The vegetation associations present within the application area are widespread in areas adjacent to the application area and within the Murchison bioregion.

Mattiske Consulting (2010) reports that there were no weed species recorded during the flora and vegetation survey. It is important to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas, as this could lower the biodiversity of the area. The risk of spreading weed species can be mitigated by imposing a condition for the purpose of weed management.

The assessing officer has conducted a search of the Department of Environment and Conservation's NatureMap database for fauna species that could potentially occur within a 40 kilometre radius of the application area. This search identified up to 17 vertebrate fauna species from 14 families, within the search area (DEC, 2007-). These species consisted of three mammal species, four bird species, nine reptile species and one amphibian (DEC, 2007-). These results do not represent diverse fauna, however, more species than represented here are expected to occur within the search area, particularly bird and reptile species.

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

Methodology

CALM (2002)
DEC (2007-)
Mattiske Consulting (2010)
GIS Database
- IBRA WA (Region - Subregion)

(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 and Barrick (2010) have conducted desktop searches of the Department of Environment and Conservation's NatureMap database for fauna species that could potentially occur within a 40 kilometre radius of the application area. No fauna species of conservation significance were identified within the search area (Barrick, 2010; DEC, 2007-).

The fauna habitats present within the application area have all suffered from disturbance due to past and present mining activities, grazing and tracks (Mattiske Consulting, 2010). This was noted by the assessing officer during a site inspection of the application area in March 2010. In particular, a high level of disturbance from feral animals such as goats was observed.

Given the high level of disturbance and the proximity of the application area to active mining areas, the vegetation of the application area is unlikely to represent significant habitat for any fauna species.

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

Methodology

Barrick (2010)
DEC (2007-)
Mattiske Consulting (2010)

(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

Mattiske Consulting conducted a flora and vegetation survey of the application area in February 2010. This survey consisted of a desktop survey, in addition to a field survey (Mattiske Consulting, 2010). Furthermore, Mattiske Consulting conducted a flora and vegetation survey of the Darlot project area in April 1995 (Mattiske Consulting, 1995).

Neither of the field surveys identified any Declared Rare Flora or Priority Flora species within the application area (Mattiske Consulting, 1995; 2010). Therefore, the proposed clearing of 27.8 hectares of native vegetation is unlikely to affect the conservation status of any conservation significant flora.

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

Methodology Mattiske Consulting (1995)
Mattiske Consulting (2010)

(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 (TECs) or Priority Ecological Communities (PECs) within the area applied to clear (GIS Database). The nearest known TEC or PEC is located approximately 25 kilometres north-west of the application area (GIS Database).

Mattiske Consulting (2010) reports that no TECs or PECs were identified within the application area during the flora and vegetation survey.

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

Methodology Mattiske Consulting (2010)
GIS Database
- Threatened Ecological Sites

(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 falls within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2007) reports that approximately 100% of the pre-European vegetation still exists within this bioregion (see table below). The vegetation within the application area is recorded as the following Beard Vegetation Association (Shepherd, 2007):

Beard Vegetation Association 18: low woodland; Mulga (*Acacia aneura*).

The vegetation within the application area is not a remnant of native vegetation within 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 - Murchison	28,120,590	28,120,590	~100	Least Concern	~1
Beard vegetation associations - State					
18	19,892,305	19,890,195	~100	Least Concern	~2
Beard vegetation associations - Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	~0.4

* 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)
Shepherd (2007)
GIS Database

(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

According to available databases there are no watercourses or wetlands within the proposed clearing area (GIS Database). The nearest ephemeral watercourse is approximately 180 metres from the application area (GIS Database).

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

Methodology GIS Database
- hydrography, linear

(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

The application area is mapped as occurring within the Steer land system (GIS Database).

The Steer land system is described by Pringle et al. (1994) as consisting of gravelly alluvial plains with halophytic shrublands. This land system is generally not susceptible to erosion, partly as a consequence of protective stone and gravel soil mantles (Pringle et al., 1994). It is reported by Pringle et al. (1994) that unprotected areas on alluvial plains and more particularly on drainage floors are susceptible to water erosion.

According to available databases there are no watercourses within the application area (GIS Database). Furthermore, based on the vegetation descriptions provided by Mattiske Consulting (2010), the application area appears to be protected by a stony mantle.

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

Methodology Mattiske Consulting (2010)
Pringle et al. (1994)
GIS Database
- hydrography, linear
- 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 at variance to this Principle

The proposed clearing is not located within any conservation areas (GIS Database). The nearest conservation reserve is the Wanjarri Nature Reserve located approximately 65 kilometres north-west of the application area (GIS Database).

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

Methodology GIS Database
- DEC Tenure

(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

According to available databases there are no watercourses within the application area. Furthermore, it was noted by the assessing during a site inspection of the application area in March 2010 that the proposed clearing area is located on relatively flat ground, minimising sheet flow and hence erosion (GIS Database). Given this, the sediment load of surface water is unlikely to be significantly increased by the proposed clearing.

It was also noted by the assessing officer during the site inspection that the vegetation to be removed is generally quite sparse with frequent patches of bare ground. Therefore, the proposed clearing of 27.8 hectares of sparse native vegetation is unlikely to contribute to a deterioration in surface or underground water quality.

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

Methodology GIS Database
- hydrography, linear

(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

According to available databases there are no watercourses or wetlands within the application area (GIS Database).

Natural flood events do occur within the region following significant rainfall (Mattiske Consulting, 2010), however, the clearing of 27.8 hectares of native vegetation is unlikely to increase the incidence or intensity of flood events.

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

Methodology Mattiske Consulting (2010)
GIS Database
- hydrography, linear

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

Comments

There are no Native Title claims over the area under application (GIS Database).

According to available databases there are no registered 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 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 by the Department of Mines and Petroleum on 21 June 2010, inviting submissions from the public. There was one submission received in relation to heritage concerns. The details of this submission were relayed to the proponent at the request of the submitter.

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

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the Environmental Protection Act 1986, and the proposed clearing is not likely to be at variance to Principles (a), (b), (c), (d), (f), (g), (i) and (j) and is not at variance to Principles (e) and (h).

5. References

- Barrick (2010) Clearing Permit Application Supporting Documentation. Barrick (Darlot) NL, Western Australia.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- DEC (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: <http://naturemap.dec.wa.gov.au/>.
- 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.
- Mattiske Consulting (1995) Flora, Vegetation and Vertebrate Fauna of the Darlot Project Area. Unpublished report. Mattiske Consulting Pty Ltd, Western Australia.
- Mattiske Consulting (2010) Flora and Vegetation Survey of Darlot Gold Mine for Proposed Tailings Expansion. Unpublished report. Mattiske Consulting Pty Ltd, Western Australia.
- Pringle, H., Van Vreeswyk, A. and Gilligan, S. (1994) An Inventory and condition survey of the north-eastern Goldfields, Western Australia. Technical Bulletin 87. Department of Agriculture, Western Australia.
- Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

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.