



## 1. Application details

### 1.1. Permit application details

Permit application No.: 644/1  
Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Forsayth NL

### 1.3. Property details

Property: M36/277  
Local Government Area: Shire Of Leonora  
Colloquial name: Mining Tenement M36/277

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
21		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	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Association 18: Low woodland; mulga (Acacia aneura). (Hopkins et al. 2001; Shepherd et al. 2001).	The proposal is for the clearing of 21 hectares of native vegetation adjacent to an area previously cleared for the purposes of mineral production. The area to be cleared is predominantly Mulga (Acacia aneura) however there is a population of Eucalyptus striatocalyx in the northern part of the proposal (Jims Seeds, Weeds & Trees 2004 - DOE TRIM Ref HD 18163)	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Jims Seeds, Weeds & Trees (2005) rates the condition of the vegetation as fair to average as a result of disturbance from historical mining and pastoral activities. Photographs supplied with the flora report indicate that the vegetation has retained a structure sufficient to enable natural regeneration of native vegetation to occur (Jims Seeds, Weeds & Trees 2004 - DOE TRIM Ref HD 18163)

## 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 area proposed to be cleared has been subject to disturbance through historical mining and pastoral activities and has minimal habitat remaining (Jims Seeds, Weeds & Trees, 2005) Given this historical disturbance, it is unlikely that the biological diversity at the site is higher than that in the local area, the Shire of Leonora or the bioregion.

**Methodology** Jims Seeds, Weeds & Trees (2005).

### (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

**Comments** **Proposal is not likely to be at variance to this Principle**  
The area subject to be cleared has been subject to disturbance through historical mining and pastoral activities and has minimal habitat remaining (Jims Seeds, Weeds & Trees, 2005). As such, it is unlikely that the vegetation under application provides significant habitat for indigenous fauna (Jims Seeds, Weeds & Trees, 2005). Furthermore, the size of the area applied to be cleared (21 ha) is relatively small in relation to that remaining of the vegetation type (>24 million ha) (Hopkins et al. 2001; Shepherd et al. 2001)

**Methodology** Jims Seeds, Weeds & Trees (2005).  
Hopkins et al. (2001).  
Shepherd et al. (2001)

**(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**

No Declared Rare Flora have been identified in the area under application (Jims Seeds, Weeds & Trees, 2004) or within 10km of the proposed clearing. A Priority 4 species (*Hemigenia exilis*) has been mapped 8.5km south of the proposal but not in the same vegetation association as that under application.

**Methodology** Jims Seeds, Weeds & Trees (2004).

GIS Databases:

- Pre-European Vegetation - DA 01/01.

- Declared Rare and Priority Flora List - CALM 01/07/05

**(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**

No known Threatened Ecological Communities (TEC) have been identified in the area under application or within 30km of the proposed area. Due to heavy disturbance from previous mining and grazing activities, there would appear to be a low probability of any TEC's remaining within the area proposed to be cleared.

**Methodology** GIS Databases:

- Threatened Ecological Community Database - CALM 12/4/05.

**(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 State Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment, 2002; EPA, 2000). The vegetation of the site is a component of Beard Vegetation Association 18 (Hopkins et al. 2001) of which there is ~99.9% of the pre-European extent remaining (Shepherd et al. 2001). While the benchmark of 15% representation in conservation reserves (JANIS Forests Criteria, 1997) has not been met for Beard vegetation association 18, more than 24 million hectares remain and it is therefore of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment 2002).

	Pre-European	Current	Remaining	Conservation	% in
reserves/CALM-	area (ha)	extent (ha)	%*	Status**	managed land
IBRA Bioregion - Murchison	28,206,195	28,206,195	100%	Least concern	
Shire of Leonora	No information available				
Beard vegetation type - 18	24,675,970	24,659,110	~99.9%	Least concern	0.0

\* Shepherd et al. (2001)

\*\* Department of Natural Resources and Environment (2002)

**Methodology** Shepherd et al. (2001).

Hopkins et al. (2001).

Department of Natural Resources and Environment (2002).

EPA (2000).

JANIS Forests Criteria (1997).

GIS Databases:

- Pre-European Vegetation - DA 01/01.

- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.

**(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**

No watercourses or wetlands of significance are present within the proposal area. Some minor, non-perennial watercourses exist within close proximity to the area under proposal, however, these remain primarily dry until summer rains generate sufficient runoff to substantiate a flow within these systems (Barrick Gold of Australia Ltd, 2004). There are no vegetation types within the area under application that are growing in, or in association with wetlands or watercourses.

**Methodology** Barrick Gold of Australia Ltd (2004).

GIS Database:

- Hydrography, linear - DOE 01/02/04.

**(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 proposal is situated on mulga flats, with ground falling approximately one metre from north to south. The major soil type across the proposed area is a red gravel (Barrick Gold of Australia Ltd, 2005), and based on surface water hydrology does not appear to be in a high risk soil erosion area. With low annual rainfall (200mm) and high annual transevaporation (3,500mm), recharge to groundwater would be low as would the associated salinity and erosion risks. The vegetation type is well represented across the local area, hence clearing on such a relatively small scale is unlikely to increase land degradation. Barrick Gold of Australia Ltd (2004) also advises that the proposed mine will operate for several months after which time the cleared area will be contoured where possible, topsoil re-spread over disturbed areas, ripped and seeded to DoIR standards to stabilise the site. Rehabilitation progress will be monitored annually to determine revegetation success.

**Methodology** Barrick Gold of Australia Ltd (2004).  
Barrick Gold of Australia Ltd 2005).  
GIS Database:  
- Hydrography, linear - DOE 01/02/04.  
- Evaporation Isopleths - BOM 09/98.  
- Isohyets - BOM 09/98.

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

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

The nearest CALM managed conservation area is approximately 55km from the proposal, therefore the vegetation within the proposal is unlikely to be significant in providing an ecological linkage with regional conservation areas. The benchmark of 15% representation in conservation reserves (Janis Forests Criteria 1997) has not been met for Beard Vegetation Type 18, however, due to the largely uncleared state of this vegetation type it is not considered to be a serious conservation issue.

**Methodology** JANIS Forests Criteria (1997).  
Shepherd et al. (2001)  
GIS Databases:  
- Pre-European Vegetation - DA 01/01.  
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.  
- CALM Managed Lands and Water - CALM 1/07/05.

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

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

With an average annual rainfall of 200mm and an annual evaporation rate of 3,500mm there is little surface flow during normal seasonal rains. It is only during major rainfall events that there is any significant surface flow. Surface flow during these events tends to be relatively fresh. The saline lake system of the Salt Lake Basin of the Western Plateau becomes a medium for the collection and transportation of major flows. With high annual evaporation rates and low annual rainfall there is little recharge into the regional groundwater table which, at this site and between 500mg/l and 1,000 mg/l, and is considered to be brackish. The proposed clearing of native vegetation is unlikely to have an impact on regional groundwater considering the magnitude of the regional Yilgarn-Goldfields groundwater province (>290,000 sq km), the relatively small area applied to be cleared and the extent of native vegetation remaining in the Murchison Bioregion (>24 million ha)

**Methodology** GIS Databases:  
- Evaporation Isopleths - BOM 09/98.  
- Isohyets - BOM 09/98.  
- Groundwater Salinity, Statewide - 22/02/00.  
- Hydrography, linear - DOE 01/02/04.  
- Hydrographic Catchments-Sub-catchments - DOE 23/3/05.

**(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**

With an average annual rainfall of 200mm and an annual evaporation rate of 3,500mm there is little surface flow during normal seasonal rains. It is only during major rainfall events that there is a likelihood of flooding. The broad valleys and lake systems of the region compensate and sustain floodwaters. Given the relatively small area to be cleared, it is unlikely that the proposal is at variance to this principle.

**Methodology** GIS Databases:  
- Evaporation Isopleths - BOM 09/98.

- Isohyets - BOM 09/98.
- Hydrography, linear - DOE 01/02/04.

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

### Comments

No comment

### Methodology

## 4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	21	Grant	<p>The clearing principles have been addressed and the proposed clearing is either not or not likely to be at variance to any of the principles.</p> <p>The DoE recognises the proponents' commitment to rehabilitate cleared areas in accordance with the procedures detailed in Barrick Gold of Australia Ltd (2004), and the assessing officer therefore recommends that the permit be granted.</p>

## 5. References

- Barrick Gold of Australia Ltd (2004) Lawlers Gold Mine, Clearing Permit, Supporting Documentation (DOE TRIM Ref IN18390).
- Barrick Gold of Australia Ltd (2005) Additional correspondence received with respect to flora, fauna and hydrology
- 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.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
- Jims Seeds, Weeds & Trees (2004) Correspondence DOE TRIM Ref HD18163.
- Jims Seeds, Weeds & Trees (2005) Correspondence DOE Trim Ref ND643.
- Keighery, BJ (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

## 6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoE)

