Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1415/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Barrick Gold of Australia - Plutonic Gold Mine**

1.3. Property details

Property: M52/295
M52/296
M52/300

Local Government Area: Shire of Meekatharra

Colloquial name: Trout Mining Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
72		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
The area proposed to be cleared has been broadly mapped at a scale of 1:250000 as: Beard Vegetation Association 29: Sparse low woodland; Mulga, discontinuous in scattered groups. The area applied to clear was the subject of a flora survey in August 1997 by the Curtin University Mine Rehabilitation Group (1997). As a result of that survey, two vegetation associations were mapped as occurring within the proposed clearing area: 1). Open Low Woodland - Mixed *Acacia*: This association is characterised by shallow, acidic, non-saline soils. Ironstone gravel and fragmented quartz comprise the surface layer. Species consist of a mixture of Acacias including *A. aneura*, *A. pruinocarpa*, *A. kempeana*, *A. linophylla*, *A. ramulosa* and *A. tetragonophylla* (all <5m in height). Mid shrubs are less prominent and are restricted to *Eremophila fraseri*, *E. forrestii*, *E. latrobei*, *E. spectabilis*, and *Senna* spp. Low shrubs consist largely of *Maireana* (bluebushes). At the ground level there is a sparse distribution of Kerosene grass (*Aristida contorta*), with a groundcover of numerous *Ptilotus* species (*exaltatus, schwartzii, helipteroides*). 2). Groves of Low Forest, with intergroves of Open Low Scrub: This vegetation association is less extensive. Groves are generally perpendicular to surface flow, and have deeper and wetter soils. Groves are separated by relatively open patches (intergroves). Tree species in groves are slightly higher (8-10m) and are dominated by Mulga (*A. aneura*) and Gidgee (*A. pruinocarpa*). Individual *Eucalyptus aspera* trees occur occasionally up to 15m height. Understorey is dominated by *Acacia linophylla*, *Eremophila forrestii* and *Eremophila spectabilis*. A lower shrub layer of *Ptilotus*, *Solanum* and *Maireana* also occurs. Onshore Environmental Consultants conducted a flora survey of the application area on July 6, 2006. The purpose of this survey was to search for Priority Flora previously identified from the Trout project area during earlier vegetation surveys. Onshore Environmental Consultants (2006) describe a vegetation association consisting of *Eremophila micrantha* scrub over *Eremophila maculata*, *Senna* spp. dwarf scrub over *Ptilotus exaltatus*, *Sclerolaena* spp. herbfield over *Aristida contorta* open low grass. This	The clearing permit application is for a purpose permit to clear 72ha within a project area of approximately 118ha. The clearing is for the extension of the existing Trout open pit mining operation. The proposal includes a cutback of the existing open cut pit and an expansion of the existing waste dump.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994) to Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Following the commissioning of the Plutonic Gold Mine in 1990, Barrick Gold of Australia (Barrick Gold) has discovered numerous viable orebodies within its mining tenements. As a result of these extensive operations, the landscape surrounding the application area has been cleared to establish open cut pits, associated waste dumps, haul roads and other mining infrastructure. The area applied to clear contains the existing Trout open cut pits and associated waste dump. The Orient Well haul road dissects the application area. Mining of the Trout pits initially took place between February 1999 and January 2000 (Barrick Gold, 2005).

vegetation association occurs on a relatively narrow floodplain and is restricted to two small areas within the area applied to clear.

Two weed species: Buffel Grass (*Cenchrus ciliaris*) and Ruby Dock (*Acetosa vesicaria*) occur in the area. Buffel Grass is a relatively common understorey species as it was originally planted as a pasture grass throughout much of Three Rivers pastoral station (Curtin University Mine Rehabilitation Group, 1997). Ruby Dock is restricted to highly disturbed areas and is being kept under control by an aerial herbicide spraying program implemented in May 2001 (Curtin University Mine Rehabilitation Group, 2001). Biannual spot spraying is being used to control Ruby Dock on the existing Trout waste dumps.

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 proposed clearing area is located within the Peak Hills Goldfields, 180km north - northeast of Meekatharra (Barrick Gold, 2006a). This area lies within the Three Rivers pastoral station and has been subject to a history of extensive livestock grazing (Barrick Gold 2006a). Mining has become the dominant land use in the area since the 1990's.

The area applied to clear surrounds the existing Trout open cut pit and associated waste dump. The Orient Well haul road also dissects the area. The vegetation in this area consists of Mulga woodlands which are well represented in the surrounding area and Gascoyne bioregion (GIS Database; Shepherd et al, 2001). There is no evidence to suggest that the proposed clearing area contains a high level of biological diversity (DEC, 2007).

No fauna species of conservation significance are known to occur within the application area (GIS Database; Curtin University Mine Rehabilitation Group, 1997). One flora species of conservation significance exists within the application area - *Eremophila micrantha* (P1); however this species is not expected to be significantly impacted as a consequence of the proposed clearing (CALM, 2006).

The proposed clearing area is unlikely to be of higher biodiversity than surrounding areas given its previous history of pastoral and mining disturbance.

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

Methodology

GIS Database:
- Pre-European Vegetation - DA 01/01
- Threatened Fauna - CALM 30/09/05.

Barrick Gold (2006a).
CALM (2006).
Curtin University Mine Rehabilitation Group (1997).
DEC (2007).
Shepherd et al. (2001).

(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

Barrick Gold commissoned the Curtin University Mine Rehabilitation Group to carry out a flora and fauna survey of the Trout project area in August 1997 (Curtin University Mine Rehabilitation Group, 1997). The fauna survey was undertaken in conjunction with the flora survey, and involved a survey of fauna habitats and an opportunistic survey of vertebrate fauna. The fauna survey recorded 36 species of birds from opportunistic sightings, in addition to sightings of common mammals such as the Red Kangaroo and the Euro. None of the fauna species observed in the application area were of conservation significance. The Curtin University Mine Rehabilitation Group (1997) concluded that the area was structurally and floristically similar to the wider region; therefore not representative of any unique habitats for indigenous fauna.

The Western Australian Museum was commissioned to undertake a desktop database search of all terrestrial fauna (amphibians, reptiles and mammals) previously collected from the project area and surrounds (latitude 24°00' to 26°00' S, longitude 118°00' to 120°00' E). The database search showed that a majority of the fauna species recorded within the grid coordinates were widely represented in other parts of the Northern Goldfields. Two species of conservation significance were listed from the database search: the Western Pebble-mound Mouse; *Pseudomys chapmani* and Mulgara; *Dasycercus cristicauda* (Curtin University Mine Rehabilitation Group, 1997).

The Western Pebble-Mound Mouse is likely to have been an historical record from the database search area. Start, Anstee & Endersby (2000) and the Western Australian Museum (2003) report this species is now likely to be extinct from the Gascoyne and Murchison bioregions. Whilst abandoned pebble mounds can still be found in the Gascoyne and Murchison bioregions, there are no recent extant records of this species outside of the

Pilbara bioregion (Strahan, 1995). Furthermore, the Western Pebble-Mound Mouse commonly inhabits hummock grasslands of *Triodia basedowii*, and this vegetation type is not represented in the proposed clearing area (Strahan, 1995; Curtin University Mine Rehabilitation Group, 1997). It is therefore highly unlikely that the Western Pebble-Mound Mouse utilises habitat in the Trout project area.

The Mulgara is known to occur approximately 15 - 30km northeast of the application area. This species is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. It is also listed on Schedule 1 of the *Western Australian Wildlife Conservation Act 1950* (Barrick Gold, 2003).

The preferred habitat for the Mulgara is Mulga shrubland dominated by hummock grasses. The Mulgara creates distinctive complex burrow systems beneath hummock grasses (Barrick Gold, 2003). This preferred habitat type is dominant in the Marymia breakaway area which lies approximately 25km northeast of the area applied to clear. There are no hummock grasses present within the Trout project area (Curtin University Mine Rebilitation Group, 1997). The Mulgara or signs of its burrows have not been recorded in the application area (Barrick Gold, 2006c).

The proposed clearing area does not represent habitat that is suitable for the Western Pebble-Mound Mouse, Mulgara, or any other significant fauna species indigenous to Western Australia. There is no evidence to suggest that any species of conservation significance depends on specific habitat within application area (GIS Database; Curtin University Mine Rehabilitation Group, 1997; DEC, 2007).

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

Methodology

GIS Database - Threatened Fauna - CALM 30/09/05.
Barrick Gold (2003).
Barrick Gold (2005).
Barrick Gold (2006b).
Curtin University Mine Rehabilitation Group (1997).
DEC (2007).
Start, Anstee & Endersby (2000).
Strahan (1995).
Western Australian Museum (2003).

(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 (DRF) have been located within the clearing permit area to date (GIS Database; Onshore Environmental Consultants, 2006; Curtin University Mine Rehabilitation Group, 1997).

Onshore Environmental Consultants conducted a flora survey of the application area on July 6, 2006. The purpose of this survey was to search for Priority Flora previously identified from the Trout project area.

Eremophila lanata (P3) was found in 9 locations surrounding the Trout and Bream Mining Project Areas, covering a total area of approximately 351ha (Onshore Environmental Consultants, 2006). These populations are 250m-1km from the proposed clearing area. Population density varies from 50 plants/ha to 1,100plants/ha (Onshore Environmental Consultants, 2006). *E. lanata* was previously categorized as Priority 1, but has since been downgraded to Priority 3 following the discovery of several populations in the local and regional area. According to the Curtin University Mine Rehabilitation Group, at least 12 separate populations of *E. lanata* exist within the Plutonic tenements (2001).

E. lanata does not occur within the application area, and the proposed clearing is unlikely to have any impact upon the continued existence of this species.

There are five populations of *Eucalyptus semota* (P1), two populations of *Eremophila arguta* (P1), and one population of *Micromyrtus racemosa var. mucronata* (P1) within a 50km radius of the application area (GIS Database). The nearest of these Priority species is a population of *E. semota* approximately 21km to the northeast (GIS Database). Given the distance from the application area, it is unlikely that the proposed clearing will have any impact upon the existence of these Priority species.

Two populations of *Eremophila micrantha* (P1) were located within the area applied to clear by Onshore Environmental Consultants (2006). One of these populations was previously recorded in 2002, whilst the other was a new record (Barrick Gold, 2006a). *Eremophila micrantha* is a large, long-lived shrub which is known to occur in remote areas between Meekatharra and Newman (DEC, 2007). According to Onshore Environmental Consultants (2006), *E. micrantha* occurs in lower parts of the landscape. There is no evidence to suggest that this species is a disturbance specialist, in fact it is rarely observed to flower or set seed, suggesting that it may be a recalcitrant species (Onshore Environmental Consultants, 2006).

One of the two *E. micrantha* populations located by Onshore Environmental Consultants is situated immediately

north of the Trout open cut pit, and comprises approximately 300-350 plants over an area of 9.5ha (Barrick Gold, 2006a). Plant heights range from 0.5-3m (Onshore Environmental Consultants, 2006). Plants were observed to be in good condition, with no evidence of grazing (Onshore Environmental Consultants, 2006). Approximately 5ha of this population; comprising 200-250 individual plants, will need to be cleared for the proposed expansion of the Trout open cut pit (Barrick Gold, 2006b).

The second population is located directly northeast of the existing Trout waste dump, and comprises approximately 250-300 plants over an area of 5.4 ha (Barrick Gold, 2006c). Plants were observed to be in good condition, with no evidence of grazing (Onshore Environmental Consultants, 2006). Plant heights range from 0.5-3m (Onshore Environmental Consultants, 2006). This population is located approximately 200m to the east of the first population. Barrick Gold has committed to modify their waste dump design so that this population is not disturbed (Barrick Gold, 2006c). A condition will be placed on the clearing permit which excludes this area from any clearing.

Three other populations of *Eremophila micrantha* have previously been found within Plutonic leases approximately 10km northeast of the application area (Barrick Gold, 2006c). Two of these populations are within Mining Lease M52/257 (Gerbil deposit). They are very small populations containing 10-15 plants each (Barrick Gold, 2006a). The other population is located within M52/321 (Hawke deposit). This population is large, with an estimated density of 400 plants/ha, over an area of 42.42 ha (Barrick Gold, 2006c). Populations of *E. micrantha* have also been recorded along the boundary of the Ashburton and Austin botanical districts, north of Wiluna (Barrick Gold, 2006b). The proposed clearing will not impact on any of these populations.

The clearing of approximately 200-250 individuals of *E. micrantha* is unlikely to affect the continued existence of the species, given the extent of other known populations (CALM, 2006). In order to manage and conserve *E. micrantha*, the proponent has committed to the following clearing permit conditions:

- The Permit Holder shall not clear any native vegetation in the area cross hatched red on attached Plan 1415/1.

- The Permit Holder shall ensure that all mine site induction training alerts personnel to the presence of, and restricted access to, rare and priority flora species that occur in the areas cross-hatched yellow and red on attached Plan 1415/1; and

- Prior to the commencement of clearing, the permit holder shall:

a) Erect signs around populations of rare or priority flora species within the area cross-hatched red as shown on attached Plan 1415/1. The signs shall read 'Warning Rare Plants In This Area - No Access Unless Authorised' and

b) Signs shall be erected at such a distance that another sign can be observed in a direct line of sight. Signs shall be coloured bright pink or day-glo orange.

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

Methodology GIS Database - Declared Rare and Priority Flora List - CALM 01/07/05.
Barrick Gold (2006b).
Barrick Gold (2006c).
CALM (2006).
Curtin University Mine Rehabilitation Group (1997).
Curtin University Mine Rehabilitation Group (2001).
DEC (2007).
Onshore Environmental Consultants (2006).

(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 vicinity of the application area (GIS Database). The nearest known TEC is the Ethel Gorge aquifer stygobiont community, approximately 220km north-northeast of the area applied to clear (GIS Database).

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

Methodology GIS Database - Threatened Ecological Communities - CALM 12/04/05.

(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 area applied to clear falls within the Interim Biogeographic Regionalisation for Australia (IBRA) Gascoyne bioregion (GIS Database). There is approximately 100% of the pre-European vegetation remaining in this bioregion (Shepherd et al, 2001).

The vegetation of the application area has been classified as Beard Vegetation Association 29: Sparse low woodland; mulga, discontinuous in scattered groups (GIS Database). There is approximately 100% of this vegetation type remaining (Shephered et al, 2001). The area proposed to clear does not represent a significant remnant of vegetation in an area that has been extensively cleared.

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

Methodology

GIS Database:
- IBRA - EA - 18/10/00.
- Pre-European Vegetation - DA 01/01

Shepherd et al. (2001).

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is not likely to be at variance to this Principle

The area applied to clear is located within the Gascoyne river catchment area (GIS Database). There are no permanent watercourses or wetlands within the area applied to clear or in the surrounding area (GIS Database). Minor tributaries within 1km of the proposed clearing area flow following significant summer rainfall (Barrick Gold, 2006b). The proposed clearing is not likely to impact on native vegetation associated with any watercourse or wetland.

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

Methodology

GIS Database:
- Hydrographic Catchments - Catchments - DOE 23/3/05.
- Hydrography, linear - DOE 01/02/04.

Barrick Gold (2006b).

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

Comments

Proposal may be at variance to this Principle

Based on the interpretation of satellite imagery, the Department of Agriculture and Food, Western Australia (DAFWA) have advised that the proposed clearing area is located on low greenstone hills above an area of Mulga grove country (2006). Soils are likely to be red loams with a protective stony mantle (DAFWA, 2006).

DAFWA (2006) have advised that the proposed clearing may cause accelerated soil erosion if surface water run off is not adequately managed. Furthermore, run off dependent Mulga groves located down gradient from the site may be adversely affected if the natural surface water flow regime is significantly altered (DAFWA, 2006).

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

Methodology

DAFWA (2006).

(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

There are no DEC Reserves in close proximity to the application area (GIS Database). The nearest conservation areas managed by DEC are the ex-pastoral stations, Doolgunna and Mooloogool; located approximately 20km and 55km to the south, respectively (DEC, 2007). The Collier Range National Park is located approximately 55km to the northwest (GIS Database).

Given the distance from the proposed clearing to these conservation areas, it is unlikely that this proposal will impact upon conservation areas or their associated environmental values.

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 - CALM 01/07/05.

DEC (2007).

(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 surface water features within the application area (GIS Database). To reduce the likelihood of erosion, sedimentation and turbidity affecting adjacent tributaries, Barrick Gold will rehabilitate disturbed areas as soon as it is feasible to do so (Barrick Gold, 2006b). Drains and sediment bunds will also be used to prevent sediment run-off from the waste dump and run-of mine areas (Barrick Gold, 2006b). The assessing officer is satisfied that sedimentation will be adequately addressed in the Mining Proposal approval process, managed under the *Mining Act 1978*. The proposed clearing is therefore unlikely to cause deterioration in surface water quality.

The groundwater level in the application area is between 15-40m below the surface, however the water table is perched in some areas (Barrick Gold, 2005). Quality of the underground water is classified as fresh to brackish (dissolved solid concentrations below 1500mg/L). Dewatering will be required for the proposed mining operation, however this will take place in accordance with Barrick Gold's current groundwater licences administered by the Department of Water (Barrick Gold, 2006a). It is unlikely that the removal of vegetation will have any significant impact upon groundwater levels and/or quality.

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

Methodology

GIS Database - Hydrography, linear- DOE 01/02/04.
Barrick Gold (2005).
Barrick Gold (2006a).
Barrick Gold (2006b).

(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 long term annual average rainfall for the Shire of Meekatharra is 233.5mm (Barrick Gold, 2006b). Approximately 74% of the annual rainfall in the area is received from January to June; with average annual evaporation rates in the range of 3,600mm (Barrick Gold, 2005). Consequently, drainage channels in the area are seasonal; only flowing occasionally following significant rainfall events. There are no drainage channels in the immediate vicinity of the application area (GIS Database).
The proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology

GIS Database - Hydrography, linear - DOE 01/02/04.
Barrick Gold (2005).
Barrick Gold (2006a).

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

Comments

There is one native title claim over the area under application. This claim (WC06/002) has been registered with the National Native Title Tribunal (GIS Database). However, the mining tenement 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 Sites of Aboriginal Significance within the area applied to clear (GIS Database). However, there are eight Aboriginal Sites of Significance within Mining Leases M52/300, M52/295 and M52/296 (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance (either registered or unregistered) are damaged through the clearing process.

The clearing permit application was advertised by DoIR, inviting submissions from the public. One public submission was received, raising concerns regarding the potential impacts of the proposed vegetation clearing on flora and fauna, water quality, Sites of Aboriginal Significance, and Native Title rights. The proposed mine pit expansion area lies partly within three mining tenements (M52/300, M52/295 and M52/296), which cover a total area of approximately 2313 ha; and hence the proposed clearing of up to 72 ha constitutes a very small percentage of the total area covered by these three mining tenements (GIS Database). The potential impacts of the proposed clearing on flora, fauna and water quality are further addressed under the relevant clearing principles. The nearest of the Sites of Aboriginal Significance (Site ID 6178 - Art) is located approximately 270m from the boundary of the area applied to clear and consequently it is unlikey to be affected by the proposed vegetation clearing

Barrick Gold has a current operating licence (6868/9) and two Works Approvals (3976 & 4252) granted in

accordance with the *Environmental Protection Act 1986* (DoE, 2006). The proposed clearing is not at variance to the licence or the works approvals, and no amendments to the licence or works approvals will be required for the extension of the existing Trout open cut pits (DoE, 2006).

Barrick Gold has two current groundwater licences (GWL 151450 & 100812) for the purpose of mineral processing granted in accordance with the *Rights in Water and Irrigation Act 1914* (DoE, 2006).

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 - DIA 04/07/02.
- Native Title Claims - DLI 19/12/04.
- Pre-European Vegetation - DA 01/01.

DoE (2006).

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Remova l	72	**Grant**	The clearing principles have been addressed and the proposal is not at variance to principle (e) and not likely to be at variance to principles (a), (b), (c), (d), (f), (h), (i) and (j). The proposal may be at variance to principle (g). The assessing officer is satisfied that the issues raised in the assessment of principle (g) will be addressed in the Mining Proposal approval process, managed under the *Mining Act 1978*. The assessing officer therefore recommends that the permit should be granted, subject to the following conditions: 1. The Permit Holder shall record the following for each instance of clearing: a) the location of where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system; b) the size of the area cleared in hectares; c) the dates on which the area was cleared; d) the area rehabilitated in hectares; e) the method of clearing; f) the purpose of clearing. 2. The Permit Holder shall provide a report to the Director, Environment, Department of Industry and Resources by 1 March each year for the life of the permit setting out the records required under condition 1 of this permit in relation to clearing carried out between 1 January and 31 December of the previous year. This report can be included as an addendum to the Annual Environmental Report. 3. The Permit Holder shall not clear any native vegetation in the area cross hatched red on attached Plan 1415/1. 4. The Permit Holder shall ensure that all mine site induction training alerts personnel to the presence of, and restricted access to, Rare and Priority Flora species that occur in the areas cross-hatched yellow and red on attached Plan 1415/1. 5. Prior to the commencement of clearing, the permit holder shall: a) Erect signs around populations of Rare or Priority Flora species within the area cross-hatched red as shown on attached Plan 1415/1. The signs shall read "Warning – Rare Plants In This Area - No Access Unless Authorised" and; b) Signs shall be erected at such a distance that another sign can be observed in a direct line of sight. Signs shall be coloured bright pink or day-glo orange.

Explanatory Notes:

1. In this permit **Annual Environmental Report** means a report produced as a requirement of tenement conditions under the *Mining Act 1978*.

5. References

Barrick Gold of Australia (2003) Management Plan for the Protection of the Mulgara, Barrick Gold, Western Australia.

Barrick Gold of Australia (2005) Trout Open Pit Mining Project Summary, Barrick Gold of Australia, Western Australia.

Barrick Gold of Australia (2006a) Plutonic Gold Mine - Land Clearing Management Plan, Barrick Gold of Australia, Western Australia.

Barrick Gold of Australia (2006b) Plutonic Gold Mine - Land Clearing Principles, Barrick Gold of Australia, Western Australia.

Barrick Gold of Australia (2006c) Letter of Correspondence regarding Trout Open Pit Proposal, from Registered Manager - Barrick Gold of Australia, Plutonic Gold Mine; to Biodiversity Coordination Section, Department of Environment of Conservation; 4th September 2006.

CALM (2006) Land clearing proposal advice. Advice to Registered Manager, Barrick Gold of Australia. Department of Conservation and Land Management, Perth.

Curtin University of Technology Mine Rehabilitation Group (1997) Outline for Biological and Environmental Components of a Notice of Intent, Trout Project - Plutonic Gold Mine (M52/296, M52/300, M52/301 and M52/295 Leases), School of Environmental Biology, Western Australia.

Curtin University of Technology Mine Rehabilitation Group (2001) Flora and Vegetation Survey for a Notice of Intent, Piranha Project - Homestake Gold Plutonic Mine (M52/296 Lease), Department of Environmental Biology, Western Australia.

DAFWA (2006) Land degradation assessment report. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 13 November 2006. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia.

DEC (2007) Biodiversity advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 25 January 2007. Biodiversity Coordination Section, Department of Environment and Conservation, Western Australia.

DoE (2006) Water Allocation/Licence Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Environment, Western Australia.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Onshore Environmental Consultants Pty Ltd (2006) Rare Flora Survey of the Trout and Bream Deposits: Plutonic Gold Mine, Onshore Environmental Consultants, 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 (updated 2005).

Start, A.N, Anstee, S.D & Endersby, M (2000) A review of the biology and conservation status of the Ngadji, *Pseduomys chapmani* Kitchener, 1980 in CALMScience 3(2): 125-147 (2000). Western Australia.

Strahan, R. (1995) The Mammals of Australia, Reed Books, New South Wales.

Western Australian Museum (2003). Faunabase and WA Faunalist. Search for Pseudomys chapmani. Western Australian Museum. http://www.museum.wa.gov.au/faunabase/prod/

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.

IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P2 **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P3 **Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

P4 **Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

R **Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

X **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:

(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or

(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:

(a) is not critically endangered; and

(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:

(a) is not critically endangered or endangered; and

(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.