



## 1. Application details

### 1.1. Permit application details

Permit application No.: 671/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Sundowner Minerals NL

### 1.3. Property details

Property: M37/417  
 M37/155  
 L37/109  
 L37/110  
 Local Government Area: Shire Of Leonora  
 Colloquial name: Darlot Goldmine - Micellaneous Lease L37/110

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
17.7		Cutting	Extractive Industry

## 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 under application consists of Beard Vegetation Associations: 18 - low woodland, Mulga (Acacia aneura); and 676 - succulent steppe, samphire (Shepherd et al 2001, Hopkins et al 2001).	The area under application is linear in shape with a small rectangular area at its northern end. The clearing is for the construction of an access road to the Darlot Gold Mine and borrow pit (rectangular shape). The wider project area, which includes the area under application, consists of a landscape dominated by extensive Acacia and Chenopod dominated shrublands, with scattered mulga (Acacia aneura) woodlands on low sandy rises (Ecologia Environment 2005). The vegetation type is widespread with all flora species typical of the Goldfields region. No weed species were identified within the project area (Ecologia Environment 2005). Four main vegetation types were identified within the survey area and related to changes in topography and drainage (Ecologia Environment 2005). These were:- Chenopod shrublands on flat stony loam plains;- mixed shrublands on flat stony loam plains;- Acacia woodlands/shrublands along loam drainage lines; and- Acacia aneura (mulga) woodland on low sandy rises (dunes)(Ecologia Environment 2005).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	There were no weed species recorded during the vegetation and flora survey (Ecologia Environment 2005). However, from the photos provided in the survey report, there does seem to be some disturbance through vehicle tracks, but the general condition of the vegetation is excellent (Ecologia Environment 2005).

## 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
	All vegetation types identified are common in the surrounding area (Ecologia Environment 2005) and the Beard vegetation associations within the area under application have over 98% of their original extent remaining (~25 million ha) (Shepherd et al 2001, Hopkins et al 2001). All flora species recorded within the area under application were considered to be typical of the Goldfields region with no species having restricted ranges or exhibiting extensions in range from documented distributions (Ecologia Environment 2005).  Due to the commonality of the vegetation under application, it is unlikely that the area under application is of higher biodiversity value than that in the surrounding area.
Methodology	Ecologia Environment (2005) (TRIM Ref HD26501) Shepherd et al (2001) Hopkins 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**

A survey carried out for a clearing permit containing the same vegetation type, 30km south west of the proposed area, found no evidence of unusual habitats that may be significant for indigenous fauna (M.J & A.R Bamford, Consulting Ecologists 2001). That survey found that the indigenous fauna within the area has been significantly impacted upon by the introduction of feral fauna which is widespread throughout the goldfields area.

Given its relatively small size and linearity, it is unlikely that the area proposed to be cleared, is necessary for the maintenance of significant habitat for indigenous fauna.

**Methodology** Ecologia Environmental (2005) (TRIM Ref HD26051)  
M.J & A.R Bamford, Consulting Ecologists (2001) (Supporting document for CPS 521)  
GIS Databases:  
- Pre-European Vegetation - DA 01/01

**(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**

Nine Priority flora species have the potential to occur within the mining lease containing the area under application (Ecologia Environmental, 2005). However no Priority or Declared Rare Flora (DRF) species were identified within the area under application (Ecologia Environmental 2005). The closest known occurrence of DRF or Priority species is the Priority 4 species *Grevillea inconspicua*, which is 32.6km to the north and the Priority 4 species *Hemigenia exilis*, which is 52km to the south west. Given that no DRF or Priority species were identified within the area under application (Ecologia Environmental 2005), the clearing as proposed is not likely to be at variance to this Principle.

**Methodology** Ecologia Environmental (2005) (TRIM Ref HD26051)  
GIS Databases:  
- 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 Threatened Ecological Communities (TEC) were recorded within the area under application (Ecologia Environmental, 2005). In addition, no TECs are known to occur within 50km of the proposed clearing. Therefore it is considered unlikely that the clearing as proposed would be at variance to this Principle.

**Methodology** Ecologia Environmental (2005) (TRIM Ref HD26051)  
GIS Databases:  
- Threatened Ecological Communities - CALM 15/07/03

**(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 likely to be at variance to this Principle**

The Beard vegetation associations found within the area under application are 18 and 676 (Shepherd et al 2001, Hopkins et al 2001). Beard vegetation association 18 has approximately 24,659,110ha (99.9%) remaining and Beard vegetation association 676 has approximately 2,087,974ha (98.9%) remaining (Shepherd et al 2001, Hopkins et al 2001). As both of these vegetation representations are well represented, it is considered that the clearing as proposed is not at variance to this Principle.

**Methodology** Shepherd et al (2001)  
Hopkins et al (2001)  
GIS Databases:- Pre-European Vegetation - DA 01/01

**(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 under application is in an arid environment with no permanent watercourses or wetlands. None of the non-perennial watercourses traversing the area are identified as having significant environmental values. Some of the vegetation under application is considered to be salt-tolerant rather than wetland or watercourse dependent. (Ecologia Environmental, 2005). The clearing as proposed, therefore is not likely to be at variance to this principle.

**Methodology** Ecologica Environmental (2005) (TRIM Ref HD26051)  
GIS Databases:  
- Hydrography, linear - DOE 1/2/04  
- Lakes, 1M - GA 01/06/00

**(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**

DAWA (2006) reports that wind erosion may occur if extensive areas are stripped and left bare prior to rehabilitation. Further, where the proposed haul road crosses creek lines, culverts and energy dissipating structures maybe required in order to avoid soil erosion.

In response to this report, the cleared area exposed to potential wind erosion, progressive rehabilitation and the management of topsoil have been included as conditions of this permit. In relation to a potential for soil erosion, the proponent has provided photographs of examples of locations where the proposed road crosses creeklines with an explanation of how the road is to be constructed and maintained ( Sundowner Minerals NL (2006) TRIM Ref DOC3616). The photographs show that the creeklines described in the desktop survey are more like drainage lines within a large flat plain. The proponent has reported that the haul road is created/graded across the creek line with no material that could obstruct the flow of water when the creek do run. The proponent had also indicated that it is common practice to close the haul road during heavy rain events and grade the road following rain events for vehicular use.

Conditions requiring the progressive rehabilitation and the retention of topsoil have been recommended on this permit to mitigate the effects of wind and soil erosion.

**Methodology** DAWA 2006 (TRIM Ref: IN 25583)  
Sundowner Minerals NL (Trim ref: DOC 3616)

**(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 closest conservation area to the area under application is the Wanjarri A class Nature Reserve located 58km to the north west.

Given the distance between the area under application and Wanjarri Nature Reserve it is unlikely that clearing as proposed will have a significant impact on this Reserve.

**Methodology** GIS Databases:  
- CALM Managed Lands and Waters - 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**

The area under application occurs in the Lake Carey Groundwater Subarea of the Salt Lake Basin in the Goldfields Groundwater Area. There is currently no record of groundwater-dependent ecosystems occurring within the area under application. Given the low annual rainfall (300mm) and the high annual evaporation rate (3600mm), the clearing as proposed is unlikely to significantly alter groundwater quality, or increase sedimentation, erosion, turbidity or eutrophication of non-perennial surface waterbodies on or off site.

**Methodology** GIS Databases:  
- Evaporation Isopleths - BOM 09/98  
- Isophyets - BOM 09/98  
- Groundwater Salinity, Statewide / 22/02/00  
- Hydrography, Linear - DOE 01/02/04  
- Hydrographic Catchments - Catchments - DOE 01/07/03  
- Hydrographic Catchments - Basins - DOE 01/07/03  
- Rainfall, Mean Annual - BOM 30/09/01  
- EPP, Lakes - DEP 1/12/92  
- Groundwater Subareas - WRC 10/10/08

**(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 area under application is characterised by a Mediterranean-Desert climate with a highly variable average rainfall of 300mm and an annual evaporation rate of approximately 3600mm. Widespread flooding can occur within the area during capricious rainfall events, however the water is eventually dispersed through a complex

network of non-perennial creeks and water courses that have evolved to compensate for such events. The proposed clearing is over a small area relative to the total catchment area. Further the clearing of relatively small area and its linearity is unlikely to cause or exacerbate the incidence or intensity of flooding.

- Methodology** GIS Databases:
- Hydrography, linear - DOE 1/2/04
  - Lakes, 1M - GA 01/06/00
  - Evaporation Isopleths - BOM 09/98
  - Isophyets - BOM 09/98

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

**Comments**

No Native Title Claim or Aboriginal Sites of Significance occur with the area under application. There is no other RIWI Act Licence, Works Approval or EP Act licence that will affect the area that has been applied to clear.

- Methodology** GIS Databases:
- Native Title Claims - DLI 19/12/04
  - Aboriginal Sites of Significance - DIA 04/07/02
  - WRL, Properties, Groundwater - WRC (current) Properties

#### **4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
Extractive Industry	Cutting	17.7	The application has been assessed and the assessing officer has found that the proposal may be at variance to principle (g) and unlikely to be at variance to all other principles. Therefore the assessing officer recommends that the permit be granted to clear 16.4ha subject to conditions that mitigate the impacts of wind erosion through progressive revegetation and proper management of the disturbed topsoil.

#### **5. References**

- DAWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref IN 25583.
- 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.
- Ecologica Environment (2005) Darlot Gold Mine Sand Dune Access Track Flora and Vegetation Assessment. Unpublished report for Barrick Gold of Australia
- 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.
- Keighery, B.J. (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
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
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 DEC)

## CPS 671 – Dot Points Sundowner Minerals NL

- Area applied to clear is 17.7ha within the Shire of Leonora for the purpose of sand pit mining and a road to service the pit by Sundowner Minerals at the Darlot Goldmine.
- DAWA advice concluded that the proposed clearing maybe at variance with principle (g). The advice given indicated that the potential for degradation could be minimised if conditions were put in place to ensure that the topsoil removed during the establishment of the pit and roads be collected and returned during the rehabilitation phase of the project. It was also recommended that culverts and energy dissipating structures be used in creeklines to limit the potential for soil erosion.
- The proponent report indicated that it is company policy to retain the topsoil for rehabilitation and that it is in their best interests to build culverts and energy dissipating structures to ensure the longevity of the road to minimise maintenance.
- The original application lay outside of the leases owned by Sundowner minerals and subsequently a new map was sent by Sundowner showing that they had access to the proposed area through miscellaneous leases that allowed for the proposed land use.
- Permit re-advertised showing the new area
- The application has been assessed against the 10 principles and the clearing is not likely to be at variance to the principles.
- Conditions relating to the revegetation of sand extraction areas have been recommended and accepted by the applicants.
- The assessing officer therefore recommends that the permit be granted.

