



## 1. Application details

### 1.1. Permit application details

Permit application No.: 613/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: LionOre (Australia) Pty Limited

### 1.3. Property details

Property: M63/163  
M63/283  
Local Government Area: Shire Of Dundas  
Colloquial name: M63/163 & M63/283

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
118		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
<p>Beard vegetation associations in the area under application are:</p> <p>491: Medium woodland; morrel &amp; Dundas blackbutt (E. dundasii)</p> <p>552: Shrublands; Casuarina acutivalvus &amp; calothamnus (also melalucea) thicket on greenstone hills</p> <p>936: Medium woodland; salmon gum (Shepherd et al. 2001, Hopkins et al. 2001)</p>	<p>The areas under application are separated by the Hyden/Northam Road. The Emily Ann mine, processing plant and core farm are located to the north of the road and the Maggie Hays mine, tailings storage facility and Windy Hill camp are located to the south of the road. The land to the north of the Hyden/Northam Road, and therefore the infrastructure and surrounding areas of the Emily Ann mine, is part of the proposed Mt Day Nature Reserve.</p> <p>While this Reserve includes of all three vegetation associations, the predominant association is 491. Vegetation association 491 also extends south of the Hyden/Northam Road. The Emily Ann and Maggie Hays mines and associated infrastructure including the Windy Hill camp and the mine dewatering infrastructure at Lake Hope north are all managed as the Lake Johnston Operations.</p> <p>Six priority species have been recorded in the area and may be effected by the proposed activities (Environ 2005, LionOre Nickel (Australia) 2005). These include Diocirea microphylla ms, Microcybe pauciflora spp grandis and Stylidium ?validum ms (P1); Stylidium sejunctum and Hakea pendens (P2); and Eucalyptus cerasiformis.</p>	<p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)</p>	<p>The vegetation community in the area under application is described as common locally and widespread (Environ 2005). The condition is also described as in good condition, with minimal disturbance (LionOre Nickel (Australia) 2005). Weeds were present around disturbed areas such as the accommodation camp, the administration offices and the powerline track (LionOre Nickel (Australia) 2005).</p> <p>The condition of the vegetation was confirmed during a site inspection by Department of Environment officers on 7 April 2005.</p>

## 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 under application is a relatively small section of widespread, locally common vegetation associations, and had been subject to some disturbance through mining activity (Environ 2005). The area applied for (118 ha) consists of approximately twelve areas extending over a length of 6 kms. Three larger area measure

approximately 30 ha while to remaining areas are much smaller.

One of the larger areas, the Emily Ann site, of which approximately 30ha is currently cleared, and its associated infrastructure, comprises a relatively small section of the proposed Mt Day Nature Reserve (~28,000 ha) (Environ 2005). The undisturbed section of nature reserve and surrounding unmined areas are likely to contain greater biological diversity than the areas under application. The proposal, therefore, is not likely to be at variance to this Principle.

**Methodology** Environ (2005) (DoE Trim ref: IN21389)  
GIS database:  
Pre-European Vegetation - DA 01/01

**(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 original Notice of Intent (NOI) for the mining project in the Lake Johnston area included the results of a fauna survey by Curtin University which covered the project areas known as Emily Ann and Maggie Hays (LionOre 1999).

The survey reported that the mining project areas (Emily Ann, Maggie Hays and the areas expected to be affected by dewatering at Lake Hope north) had a comparable number of reptile species to the nearest Nature Reserves. The reptile fauna of both sites contained a large number of species on or near the limits of their distribution and one endemic species known as the Lake Cronin Snake, *Denisonia atriceps*, was only known from five specimens collected at nearby Lake Cronin and Maggie Hays during the survey. This snake is not listed in the Wildlife Conservation (Specially Protected Fauna) Notice 2005 (WA Government Gazette 8 February 2005). However, the carpet python, *Morelia spilota imbricata*, is listed in Division 3 of Schedule 4 and is present in the project area.

The mammals present were found to reflect the more arid interzone, whilst the persistence in one habitat of the Ashy-grey Mouse, *Pseudomys albocinereus*, may reflect faunal affinities with the south west province. (LionOre 1999)

The Hooded Plover, *Thinomis rubricollis*, was recorded as occurring on Lake Hope north but this would not be affected by the area under application as it is at least 10km from the proposed clearings. (LionOre 1999).

CALM (2005) advises that as records for vulnerable, endangered and priority listed fauna taxa in the local area exist, based on the precautionary principle, the proposed clearing may be at variance to this principle. However, ground truthing (Environ 2005, Site visit 07.04.05) indicates that the areas applied to be cleared have been subject to varying degrees of disturbance, and given that the habitat for these fauna is common and widespread, it is unlikely that the clearing as proposed will be at variance to this Principle.

**Methodology** Notice of Intent - LionOre (1999)  
Environ (2005) (DoE Trim ref: IN21389)  
Wildlife Conservation (Specially Protected Fauna) Notice 2005 (WA Government Gazette 8 February 2005)  
CALM (2005) Land Clearing Proposal Advice (DoE Trim ref: IN23868)

**(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**

One Declared Rare Flora (DRF) species, *Marianthus mallis*, is known to occur in the local area (50km radius) (CALM 2005). Two separate flora surveys did not find any specimens of this species or any other DRF species within the area under application (Environ 2005, Craig 2005).

A number of Priority species are also known to occur in the local area (50km radius), including seven Priority 1 species, six Priority 2 species, eleven Priority 3 species and ten Priority 4 species (CALM 2005). From the two flora surveys conducted, the following Priority species have been identified within the area under application:

*Diocirea microphylla* ms (P1);  
*Keraudernia cacaobrunnea* subsp. *undulata* ms (P1);  
*Microcybe pauciflora* subsp. *grandis* (P1);  
*Stylidium validum* ms (P1);  
*Hakea pendens* (P2);  
*Stenanthemum* aff. *poecilum* (P2)  
*Stylidium senjunctum* (P2);  
(Environ 2005, Craig 2005).

Most of these Priority species are common to the region (Environ 2005, Craig 2005).

In addition to these Priority species, the Priority 4 species *Eucalyptus cerasiformis* has also been identified within the area under application (Environ 2005). This species was removed from the DRF register in 2004, but

is still listed on the Environmental Protection and Biodiversity Conservation Act 2000 (Environ 2005). The proponent applied to the Commonwealth Department of Environment and Heritage (DEH) for permission to remove this particular species. The response from the DEH was that the purpose of the clearing was not considered to be a controlled action, therefore, no approval was required for their removal (TRIM ref No. KG11161).

Therefore, given that no DRF species were identified from within the area under application, that the Priority species found in the area under application are common to the region and that permission is not required for the removal of *Eucalyptus cerasiformis*, the clearing as proposed is not considered to be at variance to this Principle.

**Methodology** Environ (2005) (DoE Trin ref:IN21389)  
Craig (2005) (DoE Trim ref:IN23141)  
CALM (2005) Land Clearing Proposal Advice (DoE Trim ref:IN23868)

**(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**

CALM (2005) recognises that the majority of the proposed clearing lies within the Bremer Range, (State) Priority Threatened Ecological Community (TEC). Data presented by Beard (1976) (cited in CALM 2005) shows the vegetation of the Bremer Range to be a separate vegetation system unique to this area. Additional support was given by Gibson & Lyons (1995, 1998) (cited by CALM 2005) quadrat based survey.

Although the Bremer Range has not been listed as a TEC under the EPBC Act, its presence on the WA State Priority list and the supporting work of Beard (1976) (cited by CALM 2005) and Gibson & Lyons (1995, 1998) (cited by CALM 2005) highlights the regional significance of this ecological community. However, the Bremer Range TEC is not currently listed, designated or declared under a written law and thus it does not comply with the definition of Threatened Ecological Community (Schedule 5.(2) Environmental Protection Act 1986). Therefore, in reference to this Principle, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** CALM (2005) Land Clearing Proposal Advice (DoE Trim ref: IN23868)  
Environmental Protection Act 1986  
GIS database: -  
Threatened Ecological Communities - 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 likely to be at variance to this Principle**

The State Government is committed to the National Objectives and 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). Vegetation complexes in this application are below the recommended minimum of 30% representation.

The vegetation at the site consists of components of Beard Vegetation Associations 491, 552 and 936 (Hopkins et al. 2001) of which Hopkins et al (2001) states there is 100%, 94.1% and 84%, of the pre-European extent remaining, respectively (Shepherd et al. 2001). These vegetation types are therefore of least concern for biodiversity conservation (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)  
GIS database: -  
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 approximately 4.5km north of the nearest lake, and the nearest drainage line is approximately 350m to the west. The clearing as proposed is therefore not likely to be at variance to this Principle.

**Methodology** GIS databases:  
- Geodata, Lakes - GA 28/06/02  
- Rivers 250K - GA

**(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 advice from DAWA (2005) indicated that soil erosion, salinity, acidification, secondary salinity and acid leachate are land degradation issues that may arise following the granting of this permit. However, only soil erosion is likely to occur as a result of clearing of the native vegetation with the remaining degradation issues being a result of mining processes (DAWA 2005). The sandy clay loams and sandy loams, exposed as a result of the clearing, are prone to erode if surface water is not managed (DAWA 2005). In relation to the other degradation issues, it is the dewatering of mines that is likely to cause the salinity problem and the waste rock produced as a result of mining would result in acidification if not carefully managed (DAWA 2005). Further, the sulphides in the waste rock may lead to secondary salinity and acid leachate and will require management through the mining process (DAWA 2005). Therefore, in relation to the assessment of the clearing of native vegetation, the only land degradation that needs to be addressed for the purpose of this clearing application is soil erosion.

For the issue of soil erosion, the clearing as proposed consists of different-sized, scattered pockets (0.2 ha to 34ha) rather than one large 118 ha area. Within these disjunct areas there are no major flow lines (Environ 2005), the absence of which reduce the risk of local soil erosion. With average annual rainfall of 300 - 400mm and average annual areal potential evapotranspiration of 1200 mm, the possibility of an erosion event is only likely in unseasonal rainfalls. Given the above the assessing officer recommends that the clearing as proposed is not likely to be at variance to this Principle.

The assessing officer advises that in the event of occasional, unseasonal rainfall events, the proponent adhere to the conditions placed on the granting of the mining tenements M63/163 & M63/283 which include the diversion of storm water run-off.

**Methodology** DAWA (2005) Land Degradation Advice (DoE Trim ref:EI3361)  
Environ (2005) (DoE Trim Ref:IN21389)  
GIS databases:  
Rainfall, Mean Annual - BOM 30/09/01  
Evapotranspiration, areal potential BOM 30/09/01

**(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 Crown lands managed for conservation are the Jibadji Nature Reserve, approximately 48km to the north west and Frank Hann National Park, approximately 52km to the south. Due to the distances, these are unlikely to be affected by the proposed clearing.

Part of the area under application is within the proposed Mt Day Nature Reserve. The Emily Ann site and associated infrastructure north of the Norseman/Hyden Road is within the proposed reserve while the Maggie Smith area and other infrastructure south of the road is not.

The area currently cleared for the Emily Ann mine is 30ha. If this permit to clear is granted, this area would be increased by 20ha to 50ha. This increased area will represent <0.001% of the total area of the proposed reserve, and occur only on the southern boundary of the reserve area.

CALM (2005) advise that their Department is still committed to implementing the gazettal of the proposed Mt Day Nature Reserve. In addition, CALM recommend that the proponent continue to actively pursue options that avoid, minimise or mitigate their impacts; and adopt the rehabilitation initiatives described by the Paul Armstrong and Associates report as included in the documentation for the clearing permit application (Environ 2005).

As this area has not been gazetted and is not managed as a Nature Reserve, the clearing is not likely to be at variance to this principle.

**Methodology** Environ (2005) (DoE Trim ref: IN21389)  
CALM (2005) (DoE Trim ref: IN23868)  
  
GIS database:  
- CALM Managed Lands and Waters - CALM 01/08/04

**(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 at variance to this Principle**

The area under application is small in comparison to the vegetated area surrounding it. It is also recognised that the effect of the dewatering of the mines on groundwater aquifers is extensive, so much so that the

proposed clearing itself, is unlikely to cause significant deterioration in the quality of underground water.

In addition, as there are no drainage lines within the area under application, it is considered that the proposed clearing would have little to no impact on surface water quality.

**Methodology** Environ (2005) (DoE Trim ref:IN21389)  
GIS Databases:  
- Hydrography, Linear - DOE 01/02/04

**(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 of proposed clearing is flat with a topographic variation of approximately 2m and a slope of 1 degree over the whole area. Surface flow in the area, therefore, has a sheet flow characteristic and occurs only after heavy rain. The proposed clearing consists of smaller parcels of land and not one 118 ha block. Given the above, the clearing of native vegetation over the area under application is unlikely to cause an incremental increase in either flood height or duration.

**Methodology** Environ (2005) (DoE Trim ref:IN21389)  
GIS Databases:  
- Topographic Contours, Statewide - DOLA 12/09/02

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

**Comments**

A licence under the Environmental Protection Act 1986 (EP Act) includes the tenements M63/283 and M63/163 and includes the categories: 5: Processing or beneficiation of metallic or non-metallic ore, 6: Mine Dewatering, 54: Sewage facility, 64: Class II putrescible landfill site.

A licence to extract water is current under the Rights in Water and Irrigation Act 1914 and includes the tenements M63/283 and M63/163. The uses for this water are dewatering, dust suppression and mineral processing.

There is a native title claim by the Central West Goldfields people but the proposed clearing is for purposes consistent with the mining tenements which have been granted, therefore the granting of a clearing permit is not a future act under the Native Title Act.

A public submission was received which urged that a comprehensive and appropriately timed flora and fauna survey be conducted. The surveys should consider the following issues:

- The biodiversity of the site, including fungi. The issue of biodiversity is addressed in Principle a. While no specific survey for fungi has been conducted, the vegetation complexes in the area under application are common and widespread throughout the region. Therefore any fungal species that grow in association with the vegetation is unlikely to be restricted to the area under application.
- The significance of the site for fauna, including invertebrates.- The information provided by the proponent included a search of CALM's Threatened Fauna Database which identified a number of protected species, none of which were invertebrate species (Environ 2005). These protected species generally have a large habitat range and are not restricted to the area under application and its surroundings (see Principle b).
- Whether the site contains Declared Rare Flora (DRF) Species.- No DRF were identified from the two vegetation surveys of the area under application (Environ 2005, Craig 2005).

In addition to the above, the submission also outlined that the consideration of the application should also involve:

- A report on the existing environment including topography, surface hydrology and soil mapping. This information was provided in the supporting documentation accompanying the application (Environ 2005, DoE Trim Ref IN21389). The information was considered in the assessment of Principle g and i.
- Written description and vegetation mapping of condition of vegetation. Descriptions of the vegetation in each of the distinct areas Maggie Hays, Emily Ann and Windy Hill was described and documented (Environ 2005). This information was considered in the assessment of Principle a, c and e in addition to providing information for the Vegetation Description.
- Management plan for remaining vegetation.- Recommendations were made in relation to the clearing of native vegetation and the construction of infrastructure, but not in relation to the remaining vegetation (Environ 2005). Given the large areas of native vegetation remaining, it would be considered impractical for the applicant to develop a management for the thousands of hectares remaining in each tenement.
- Management plan for surface water run-off, weed control, nutrient monitoring (including plant tissue analysis) and Aboriginal and European Heritage Issues. The information provided by the proponent addressed all of these issues except that of nutrient monitoring. In relation to weed control, wash down practices are already in place. Surveys were conducted in relation to European and Aboriginal Heritage issues, no sites were found that would be adversely affected by the proposed activities. In relation to nutrient monitoring, some aspect of nutrient monitoring would be contained within the tenement conditions and the submission of a Notice of Intent to Mine to the Department of Industry and Resources. However, nutrient monitoring it not is considered to be

within the scope of this particular assessment

## Methodology

### 4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	118	Grant	<p>The assessment has been completed and the clearing as proposed is not likely to be at variance to the Clearing Principles.</p> <p>The assessing officer advises that this permit be granted with the following conditions:</p> <ol style="list-style-type: none"><li>1. The Permit Holder shall record the following for each instance of clearing:<ol style="list-style-type: none"><li>a) location where clearing occurred;</li><li>b) purpose;</li><li>c) area cleared in hectares; and</li><li>d) area rehabilitated in hectares.</li></ol></li><li>2. The Permit Holder shall provide a report to the CEO 1 October setting out the records required under condition 1 of this permit in relation to clearing carried out between 1 September and 31 August of the previous year.</li></ol> <p>The Department advises that rehabilitation take place using local provenance species.</p>

### 5. References

- CALM (2005) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref IN23868
- Craig, G.F. (2005) Windy Hill Camp Firebreak Zone. A Declared Rare and Priority Flora Survey. Report prepared for LionOre Australia Pty Ltd. DoE TRIM ref:IN23141
- DAWA (2005) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref EI3361.
- 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.
- Department of the Environment and Heritage website. <http://www.deh.gov.au/index.html>
- Environ (2005) Documentation provided with native vegetation clearing permit application. Produced for LionOre Pty Ltd DoE TRIM ref. IN21389
- 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.
- Keighery, BJ (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Letter from Department of Environment and Heritage outlining decision of application under the Environmental Protection and Biodiversity Conservation Act 1999. DoE TRIM ref:KGI1161
- LionOre (1999) Notice of Intent, Emily Ann Nickel Project, 27 October 1999
- 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)

