





Further, the area under application has been subject to a history of extensive grazing activities and timber cutting for firewood with the vegetation to be cleared being predominantly regrowth. The area has also been previously disturbed as it contains existing open pits, haul roads, public roads, railway line and gas pipeline (MBS Environmental 2006).

Given the high level of disturbance from historical and existing activities, it is considered unlikely the area under application comprises a high level of biological diversity.

**Methodology** MBS Environmental (2006) (TRIM Ref ED1730)  
GIS Databases:  
- Kalgoorlie Kurnalpi 50cm Orthomosaic - DLI00  
- Lake Lefroy 1.4m Orthomosaic - DLI 02

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

A recent clearing proposal (CPS 935/1) within and to the south of the area under application was assessed and granted. The assessment included Biodiversity Coordination Section (BCS), DEC (2005) advice regarding fauna species occurring in the area.

BCS (2005) advised that the following species are known to occur within a 50km radius of the proposed clearing:

- Chuditch, *Dasyurus geoffroii*, Vulnerable (State) WC Act and (Federal) EPBC Act;
- Malleefowl, *Leipoa ocellata*, Vulnerable (State) WC Act and (Federal) EPBC Act;
- Peregrine Falcon, *Falco peregrinus*, Specially Protected (State) WC Act and (Federal) EPBC Act;
- *Ogyris subterrestris petrina* (P1) This butterfly is known only from a small area north east of Lake Douglas;
- Crested Bellbird (southern), *Oreocica gutturalis gutturalis* (P4);
- Shy Heathwren (western ssp), *Hylacola cauta whitlocki* (P4) (historic record);
- White-browed Babbler (western wheatbelt), *Pomatostomus superciliosus ashbyi* (P4).

BCS also advised that:

- The Chuditch prefers habitat that provides more cover than is likely to be found in the notified area.
- Records of Malleefowl in the area are relatively recent therefore the proponent should actively check for the presence of Malleefowl mounds before commencing any clearing operations.
- Bird species such as Peregrine Falcon, White-browed Babbler, Crested Bellbird (Southern) and Malleefowl may utilise the notified area but the habitat present is unlikely to be 'significant' for these species.
- The threatened species of butterfly *Ogyris subterrestris petrina* is at risk from mining activities but as individuals have not been seen since 1993 it is difficult to speculate on the probability of the proposed clearing affecting the habitat and thus conservation status of this taxon.

A report submitted by MBS Environmental (2006) states that there are no ranges or caves in the study area and that the primary fauna habitat is low hills that may support a range of common reptiles. The report (MBS Environmental 2006) also states that all efforts will be taken to minimise clearing and to progressively rehabilitate so that habitats and fauna of conservation significance will not be impacted upon. Management strategies to be adopted (MBS Environmental 2006) include:

- Utilising existing tracks, firebreaks, fence lines for access where possible,
- Locating tracks so as to avoid large trees and shrubs and their root zones,
- Weed management programme,
- Retain trees (especially those with hollows) for bird, bat and reptile habitat where possible,
- Stockpiling vegetation to be respread to provide habitat for fauna, and
- Feral cat trapping.

Given the above, it is recommended the proponent should actively survey for the presence of malleefowl mounds before commencing any clearing and that trees (especially those with hollows) should be retained where possible. Therefore, the area applied to be cleared shall be walked, prior to clearing, to determine the presence of malleefowl (*Leipoa ocellata*) mounds. Further, clearing shall not occur within 50 m of any malleefowl mounds identified in the survey.

**Methodology** Biodiversity Coordination Section, DEC (2005) (TRIM Ref HD26053)  
MBS Environmental (2006) (TRIM Ref ED1730)

**(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**

There are no known records of Declared Rare Flora (DRF) within the local area (50km radius). The nearest recorded DRF is located approximately 64km west of the area under application. It is therefore unlikely that the proposed clearing will have an impact on DRF or any other species of conservation significance.

There are no records of Priority species within the area under application, with the following Priority species known to occur in the local area (50km radius) with the closest being 15km north:

- Acacia websteri (P1)
- Eremophila praecox (P1)

A flora survey conducted in 2003/04 identified no Priority species within the area under application and three Priority species in the surrounding areas (MBS Environmental 2006). These species included Eremophila praecox (P1), Melaleuca coccinea (P3) and Allocasuarina eriochlamys ssp. grossa (P3) (MBS Environmental 2006). The vegetation habitat types containing the observed priority flora have been described as: Rocky Acacia Shrublands on outcropping gabbro, granite or schist; Rocky Acacia - Mallee Shrublands on sands over gabbro, granite or schist; and Calcrete Platform Shrublands with Casuarina pauper (MBS Environmental 2006).

One of the vegetation habitat types, Rocky Acacia - Mallee Shrublands on sands over gabbro, granite or schist (Habitat Type 1.5), occurs within the area under application (MBS Environmental 2006) and is likely to include the two P3 species. As such, a condition to ensure that this habitat type is protected has been imposed on this clearing permit.

**Methodology** MBS Environmental (2006) (TRIM Ref ED1730)  
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**  
There are no known records of Threatened Ecological Communities (TECs) within the local area (100km radius). The nearest recorded TEC is located approximately 115km south-east. It is therefore unlikely that the vegetation proposed to be cleared comprises the whole or part of or is necessary for the maintenance of a TEC.

**Methodology** GIS Databases:  
- Threatened Ecological Community Database - CALM 12/04/05  
- Environmentally Sensitive Areas - DOE 08/03/05

**(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 and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present Pre-European settlement (Department of Natural Resources and Environment 2002).  
The Vegetation Complexes in the area under application are above the recommended minimum of 30% representation.

	Pre-European (ha)*	Current extent (ha)*	Remaining (%)*	Conservation status**	In reserves/CALM managed land
IBRA Bioregions					
- Coolgardie	12 917 718	12 719 084	98.5	Least Concern	
Shire of Coolgardie	No information available				
City of Kalgoorlie/Boulder	No information available				
Vegetation type:					
Beard: Unit 9	250 894	250 183	99.7	Least Concern	3.0%
Beard: Unit 468	476 124	476 120	100	Least Concern	0.2%
Beard: Unit 540	182 232	182 232	100	Least Concern	35.6%

\* (Shepherd et al. 2001)

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

Given there is 98.5% of remnant vegetation remaining within the Region and there is 99.7% (Beard 9), 100% (Beard 468) and 100% (Beard 540) (Shepherd et al. 2001) of native vegetation remaining, the vegetation proposed to be cleared is not significant as a remnant of native vegetation in the surrounding area.

It is noted that Beard Complexes 9 and 468 are poorly reserved.

**Methodology** Department of Natural Resources and Environment (2002)  
Hopkins et al. (2001)  
Shepherd et al. (2001)

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**

There are numerous minor non-perennial watercourses located throughout the area under application. Therefore, it is considered likely that some of the vegetation under application is associated with watercourses.

The proponent has advised in their application that the area will be revegetated once mining activities cease, and conditions have been imposed to require this. Therefore the proposed clearing is not likely to be at variance to this principle.

**Methodology 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 may be at variance to this Principle**

Four land systems have been identified within the area under application (DAFWA 2007). These land systems include:

- Gumland land system is described as extensive pediplains supporting eucalypt woodlands with halophytic and non-halophytic shrub understoreys. The minor stony plain land unit has red deep duplex soils and is prone to erode if cleared and the protective stony mantle disturbed. Any concentration of run off is also likely to cause soil erosion and affect lower vegetation dependent upon the natural sheet flows (DAFWA 2007).

- Moriarty land system is described as low greenstone rises supporting eucalypt woodland over chenopod understorey. The red loamy earths and shallow loams that occur on the low rises and stony/gravelly plains land units are reasonably resistant to soil erosion (DAFWA 2007).

- Graves land system is described as low basalt and greenstone hills and rises that support eucalypt woodland over salt bush and blue bush understorey. The alluvial plains/drainage tract land units are susceptible to erosion if disturbed. The shallow loams of the hills, and slopes land units are resistant to soil erosion if the protective stony mantles are not disturbed (DAFWA 2007).

- Bunyip land system comprises alluvial plains below greenstone hills. There are two minor areas of Bunyip land system within the CPS area and they are moderately susceptible to soil erosion if cleared or the natural drainage is disturbed (DAFWA 2007).

DAFWA (2007) advised that the proposed clearing for exploration, prospecting and pit development purposes is unlikely to cause serious soil erosion provided care is taken to minimise disturbance of natural flow regimes and the bed and banks of drainage lines.

Management actions to be undertaken include utilising existing tracks and creek crossings and the rehabilitation of disturbed areas once mining activities cease (MBS Environmental 2006), which will assist in the avoidance of long-term land degradation.

To mitigate any impacts from the proposed clearing a condition for revegetating cleared areas has been recommended for this permit.

**Methodology DAFWA (2007) (TRIM Ref ED1662)**

MBS Environmental (2006) (TRIM Ref ED1730)

**(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 conservation reserves within the area under application with the nearest reserves being DEC managed lands, located approximately 11km north (Lakeside Timber Reserve), 12km south (Kambalda Nature Reserve), 13km west (Karamindie Forest) and 23km north-west (Karrawang Nature Reserve) of the proposed clearing.

The area under application has been subject to a history of extensive grazing activities and timber cutting for firewood with the vegetation being predominantly regrowth. The area has also been previously disturbed as it contains existing tracks, open pits, public roads, railway and a gas pipeline (MBS Environmental 2006).

The area under application may provide an environmental corridor for fauna between reserves. However, due to the high level of disturbance from historical and existing activities and the distance to the DEC Managed

Lands, the clearing as proposed is unlikely to have significant impact on local conservation values.

**Methodology** MBS Environmental (2006) (TRIM Ref ED1730)  
GIS databases:  
- CALM Managed Lands and Water - CALM 01/07/05

**(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 250mm and an annual evaporation rate of 2,600mm there is likely to be little surface flow during normal seasonal rains. During major rainfall events there would be significant surface flow for which the Bandy Creek Catchment of the Salt Lake Basin becomes a medium for the collection and transportation of the major flows.

With high annual evaporation rates and low annual rainfall there is little recharge into regional groundwater table. At this site the groundwater salinity level is between 14,000 mg/l and 35,000 mg/l, which is considered to be high saline to hyper saline.

Given the above, the clearing of vegetation under application is unlikely to cause deterioration in the quality of surface or underground water.

**Methodology** GIS Databases:  
- Evaporation Isopleths - BOM 09/98  
- Isohyets - BOM 09/98  
- Groundwater Salinity, Statewide - 22/02/00  
- Hydrographic Catchments, Catchments - DOE 23/03/05

**(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 at variance to this Principle**

With an average annual rainfall of 250mm and an annual evaporation rate of 2,600mm there is little surface flow during normal seasonal rains. Given the area under application occurs on a relatively flat landscape and there is little surface flow, the proposed clearing is not likely to cause or increase the incidence or intensity of flooding.

**Methodology** GIS Databases:  
- Evaporation Isopleths - BOM 09/98  
- Isohyets - BOM 09/98  
- Hydrography, linear - DOE 01/02/04  
- Topographic Contours, Statewide - DOLA 12/09/02

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

**Comments**

The area under application is within the Proclaimed Groundwater Area of Goldfields. Therefore any abstraction of groundwater would require a licence.

Mineral exploration is not a prescribed premise as defined under Environmental Protection Regulations 1987 Schedule 1 - Prescribed premises.

It is the proponent's responsibility to determine whether any Works Approval, or any other licences or approvals are required for future proposed works.

There is an Aboriginal Site of Significance listed within the area under application, the applicant will be advised of their obligations under the Aboriginal Heritage Act 1972.

There are two native title claims over the area under application. These claims (WC98/027 and WC99/029) have been registered with the National Native Title Tribunal. However, the mining tenements 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.

**Methodology** GIS databases:  
- Aboriginal Sites of Significance - DIA 28/02/03  
- Native Title Claims - DLI 7/11/05  
- RIWI Act, Groundwater Areas - WRC 13/06/00  
- RIWI Act, Surface Water Areas - WRC 18/10/02

**4. Assessor's comments**

Purpose	Method Applied	area (ha)/ trees	Comment
Mineral Exploration	Mechanical Removal	450	<p>The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986. The clearing as proposed may be at variance to Principles (b) and (g), and not likely to be at variance to the remaining Principles.</p> <p>The CEO decided that in view of cumulative impacts of clearing and the lengthy period of time requested for this permit, he would approve clearing of 225 hectares over a five year period at this time, rather than 450 hectares over a ten year period with conditions, including revegetation and reporting conditions.</p>

## 5. References

- Biodiversity Coordination Section, DEC (2005) Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM Ref HD26053
- DAFWA (2007) Land degradation advice. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. TRIM Ref ED1662
- 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.
- 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.
- MBS Environmental (2006) Purpose Permit Application, Mt Shea Application Area and Hampton Locations 50 and 62: Native Vegetation Management Plan and Assessment of Clearing Principles, July 2006, Prepared for South Kal Mines Pty Ltd, Martinick Bosch Sell Pty Ltd, Western Australia. TRIM Ref ED1730
- 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)

