



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2474/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: HBJ Minerals Pty Ltd

### 1.3. Property details

Property:

- LOT 103 ON PLAN 40395 ( LONDONDERRY 6429)
- LOT 103 ON PLAN 40395 ( KARRAMINDIE 6429)
- LOT 61 ON PLAN 226332 ( KARRAMINDIE 6429)
- LOT 102 ON PLAN 40393 ( KARRAMINDIE 6429)
- LOT 102 ON PLAN 40393 ( KARRAMINDIE 6429)
- LOT 171 ON PLAN 1095 ( KARRAMINDIE 6429)
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Local Government Area: Shire Of Coolgardie  
Colloquial name:

## 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
200		Mechanical Removal	Mineral Exploration

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation associations: 9- Medium woodland; coral gum ( <i>E. torquata</i> ) & Goldfields blackbutt ( <i>E. lesouefi</i> ).	The area under application is for clearing of 200 ha over 5 years for exploration within a ~5,900ha project area (Location 59 North). The project area is located approximately 4km east of the Coolgardie town site, on the Coolgardie-Esperance Highway.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The condition of the vegetation under application was determined from Site Photos included in the Flora Survey Report (Western Botanical, 2007).  Further, aerial photography for the area shows two areas of existing mining infrastructure and public roads within the area under application (project area).
123- Succulent steppe with open low woodland; sheoak over saltbush & bluebush.	A flora survey conducted by Western Botanical (2007) identified 19 vegetation habitats within the project area. The vegetation within the project area is dominated by Mixed Eucalypt woodlands with <i>Atriplex nummularia</i> shrub understorey on shallow alkaline loams with calcrete nodules and contains only one weed species, <i>Citrullus lanatus</i> (Western Botanical, 2007).		
125- Bare areas; salt lakes.			
936- Medium woodland; salmon gum.			
1294- Medium woodland; coral gum.			

(SAC Bio Datasets 01/05/2008; Shepherd, 2006).

## 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 at variance to this Principle

Aerial photography for the ~5,900ha project area (Location 59 North) shows the area of disturbance from mining activities to be limited to existing open pits and associated infrastructure within the northern-western section and the central-southern section of the project area. In addition, the Coolgardie-Esperance Highway and other minor tracks traverse sections of the project area.

A flora survey identified 19 vegetation habitats within the project area (Western Botanical, 2007). The dominant vegetation within the project area is Mixed Eucalypt woodlands with *Atriplex nummularia* shrub understorey on shallow alkaline loams with calcrete nodules and contains only one weed species, *Citrullus lanatus* (Western Botanical, 2007). The vegetation within the project area is determined to be in very good condition.

Vegetation comprising suitable habitat for rare flora (*Gastrolobium graniticum*) and priority flora has been identified within the area under application (Biodiversity Coordination Section DEC, 2005). In addition, it is likely that the vegetation within the notified area, particularly areas of Salmon Gum woodland, is utilised as suitable habitat and nesting hollows for a wide variety of fauna, and there recent records of malleefowl in the area (Biodiversity Coordination Section DEC, 2005).

There are 102 known records of 41 species of priority flora within the local area (50km radius) with the closest known record being *Acacia websteri* (P1) located ~3.9kms west of the project area. *Acacia websteri* (P1) is described as a shrub, 1.2-5 m high with fibrous bark with yellow flowers and occurs in red sand, clay or loam, on low-lying areas and flats (WA Herbarium 1998-). Vegetation habitat type 3.1 'Jam thickets in clay depressions' may be suitable habitat for *Acacia websteri*.

Further, BCS (2005) identified Vegetation habitat type 1.4 to potentially be suitable habitat for *Melaleuca coccinea* (P3) (Flowering September-January) and *Allocasuarina eriochlamys* subsp. *grossa* (P3). Both of these species of Priority flora occur within 50km of the project area.

Furthermore, a clearing proposal (project area ~14,500ha; Location 59 South) located immediately south to this current clearing proposal (Location 59 North) was recently assessed. The flora survey report identified nine populations of the priority species *Eremophila* sp Mt Jackson (P1) within Location 59 South. The nine populations were located within the vegetation groups interpreted as Open Shrubland; *Acacia acuminata* Shrubland; and Transitional Eucalyptus Woodland. The nearest population of *Eremophila* sp Mt Jackson is

located approximately 2.4km south of the south-west corner of Location 59 North.

*Eremophila* sp Mt Jackson (P1) is described as an erect shrub, to 3m high. Flowers are pink, white, flowering in November-December. Occurs occasionally on saline, red loam, red clay or greenstone gravel, on slopes of ridges and undulating stony alluvial plains (WA Herbarium 1998-). Some of the vegetation habitat types within the project area (~5,900ha) may be suitable habitat for *Eremophila* sp Mt Jackson.

A flora survey conducted in April 2006 by Western Botanical (2007) identified no rare flora and no priority species within the project area; however, Vegetation habitat types 1.4 and 3.1 are listed as occurring within the notified project area.

Although no rare flora or priority flora was identified during the flora survey, the flora survey was conducted in April 2006, which is outside of the flowering periods for *Gastrolobium graniticum* (Rare), *Melaleuca coccinea* (P3) and *Acacia websteri* (P1) and *Eremophila* sp Mt Jackson (P1). Therefore, the flora survey within the project area was not undertaken at an optimal time according to Guidance Statement 51 (EPA, 2004).

Given the vegetation under application may be necessary for the maintenance of rare flora and priority Flora, and may comprise significant habitat for a variety of fauna including malleefowl in the local area, it is considered the project area comprises a high level of biological diversity and therefore the proposed clearing is at variance to this Principle.

- Methodology**    **References:**
- Biodiversity Coordination Section, DEC (2005)
  - Western Botanical (2007)
  - WA Herbarium (1998-)
  - EPA (2004)
- GIS Database:**
- Kalgoorlie 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 report submitted by Harmony (2007) advised that 13 fauna species of conservation significance could potentially occur within the ~5,900ha project area. Of these, the Harmony (2007) report advises that:

- Malleefowl has been sighted in 1998 20km north of the project area.
- Vegetation habitat type 4.2: Lake bed vegetated with a range of halophytes may provide suitable habitat for the Slender-billed Thornbill and Hooded Plover.

Biodiversity Coordination Section, (BCS) DEC (2005) advice on fauna species occurring in the area included:

- Sightings of Malleefowl in the area are relatively recent. Malleefowl may be found in the project area.
- Bird species such as Peregrine Falcon, White-browed Babbler, Crested Bellbird (Southern) may utilise the notified area, but as the land systems are well represented within the region the habitat present is unlikely to be 'significant' for these species.
- It is likely that the vegetation within the notified area, particularly areas of Salmon Gum woodland, is utilised as suitable habitat and nesting hollows for a wide variety of fauna.

Salmon Gums (*Eucalyptus salmonophloia*) are identified within the following Vegetation habitat types (Western Botanical, 2007):

- Type 3.4: Broad tracts with *Eucalyptus salmonophloia*, *E. salubris* woodlands with *Sclerostegia disarticulata* on saline clay flats;
- Type 3.5: Broad tracts with *Eucalyptus salmonophloia*, *E. salubris* woodlands with *Eremophila ionantha* shrubland; and
- Type 3.6: Loamy plain with very scattered *Eucalyptus salmonophloia* with very scattered understorey.

Harmony (2007) reported that all efforts will be taken to minimise clearing and to rehabilitate at conclusion of mining to minimise any long-term impacts on habitats in the area. Management strategies to be adopted (Harmony, 2007) 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,
- Implementing a Weed Management Program,
- Retain trees (especially those with hollows) where possible, and
- Stockpiling vegetation and respreading where possible to provide habitat for fauna and to assist revegetation by providing a local seed source.

Given that the vegetation application may include significant habitat for fauna in the local area, including malleefowl, the proposed clearing may be at variance to this Proposal.

To mitigate any impacts from the proposed clearing, fauna management conditions will be imposed.

- Methodology**    **References:**
- Biodiversity Coordination Section, DEC (2005)
  - Harmony (2007)
  - Western Botanical (2007)

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Comments**        **Proposal may be at variance to this Principle**

There are 36 known records of the rare flora, *Gastrolobium graniticum* within the local area (50km radius) with the closest known record being ~4.1kms west of the project area.

*Gastrolobium graniticum* is described on DEC's Florabase (WA Herbarium 1998-) as an erect, open shrub, to 2.5m high and occurs on sandy soils, granite and margins of rock outcrops, along drainage lines. Flowers are yellow, orange, and red, flowering in August to September. A recent assessment of a clearing proposal immediately south of the project area included advice from Biodiversity Coordination Section (BCS), DEC (2005). BCS (2005) advised that Vegetation habitat type 1.4 'Rocky Acacia Shrublands on outcropping gabbro, granite or schist' may be a suitable habitat type for *Gastrolobium graniticum* given the granite base.

A flora survey conducted in April 2006 by Western Botanical (2007) identified no rare flora and no priority species within the project area; however, Vegetation habitat types 1.4 and 3.1 are listed as occurring within the notified project area.

Although no rare flora or priority flora was identified during the flora survey, the flora survey was conducted in April 2006, which is outside of the flowering periods for *Gastrolobium graniticum* (Rare), *Melaleuca coccinea* (P3) and *Acacia websteri* (P1) and *Eremophila* sp Mt Jackson (P1). Therefore, the flora survey within the project area was not undertaken at an optimal time according to Guidance Statement 51 (EPA, 2004).

Given the above, it is considered that the vegetation to be cleared may include or be necessary for the continued existence of, rare flora. Therefore, the proposed clearing may be at variance to this Principle.

To mitigate any impacts from the proposed clearing, a flora management condition will be imposed.

- Methodology**    **References:**
- Biodiversity Coordination Section, DEC (2005)
  - EPA (2004)
  - Harmony (2007)
  - WA Herbarium (1998-)
  - Western Botanical (2007)
- GIS Database:**
- SAC Bio Datasets 14/05/2008

**(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 (TEC) within the local area (50km radius). The nearest recorded TEC (Russell Range) is located approximately 330km south-east of the project area.

Given the distance to the nearest threatened ecological community, it is not considered likely that the vegetation proposed to be cleared comprises the whole or part of or is necessary for the maintenance of a threatened ecological community.

- Methodology**    **GIS Database:**
- SAC Bio Datasets 14/05/2008

**(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 vegetation under application is mapped within Beard Vegetation types 9, 123, 125, 936 and 1294, which have 99.7%, 100%, 94.2%, 96.7% and 100% of pre-European vegetation extent remaining respectively (Shepherd, 2006).

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 (Commonwealth of Australia, 2001). The vegetation types within the area under application are above the recommended minimum of 30% representation.

Given the high representation of the vegetation types identified with the project area, the vegetation under application is not considered to be significant as a remnant in an extensively cleared area.

However, it is noted that the Beard vegetation types are not well represented in secure tenure.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregions*				
- Coolgardie	12 912 208	12 707 623	98.4	
Beard Vegetation types*				
9	240 509	239 898	99.7	7.8
123	9 090	9 090	100.0	0.0
125	3 491 833	3 287 864	94.2	7.0
936	698 753	675 658	96.7	3.6
1294	6 295	6 295	100.0	1.8

\* (Shepherd 2006)

- Methodology** References:
- Commonwealth of Australia (2001)
  - Shepherd (2006)
- GIS Databases:
- Pre-European Vegetation
  - Interim Biogeographic Regionalisation of Australia
  - SAC Bio Datasets 01/05/2008

**(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 at variance to this Principle**

There are several minor non-perennial watercourses, including Italian Gully, and a non-perennial salt lake, Brown Lake, located within the ~5,900ha project area. Therefore, it is considered likely that some of the vegetation under application is associated with waterbodies.

Western Botanical (2007) conducted a flora survey within the project area and identified vegetation growing in association with the drainage foci and broad drainage tracts land type. The vegetation identified within this land type includes Jam thickets and Eucalyptus Salmonophloia, Eucalyptus salubris woodlands (Western Botanical, 2007).

Given that some of the native vegetation to be cleared is growing in an environment associated with water bodies the clearing as proposed is at variance to this Principle.

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed.

- Methodology** Reference:
- Western Botanical (2007)
- GIS Databases:
- Geodata, Lakes
  - Hydrography, linear

**(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**

The landscape of the project area and surrounds can be described as:

- Predominantly rocky ranges and hills of greenstones-basic igneous rocks; the chief soils seem to be shallow calcareous loamy soils with shallow brown and grey-brown calcareous earths below which weathered rock occurs at shallow depths.
- Salt lakes and their associated areas; the common soils are gypseous and saline loams together with gypseous and saline soils on the lake beds.
- Gently undulating valley plains and pediments with some outcrop of basic rock; the chief soils are alkaline red earths with limestone or limestone nodules at shallow depth on gently sloping slightly concave plains with low gentle rises (Northcote et al, 1960).

Nineteen vegetation habitat types have been identified within the ~5,900ha project area (Western Botanical, 2007). These habitat types have been grouped into four land types: Low hills; Non-saline plains and low gentle

rises; Drainage foci; and Saline plains, low rises and associated drainage tracts (Western Botanical, 2007). The soils of the drainage foci and drainage tracts land types are susceptible to erosion if the soil is disturbed or the natural surface water flow regime is altered.

Given the risk of erosion associated with the removal of native vegetation, the proposed clearing may be at variance to this Principle.

Management actions to be undertaken include utilising existing tracks and creek crossings and the immediate rehabilitation of cleared areas which will assist in the avoidance of long-term land degradation (Harmony, 2007).

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed.

**Methodology**    References:  
- Harmony (2007)  
- Northcote et al (1960)  
- Western Botanical (2007)  
GIS Database:  
- Soils, Statewide

**(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 project area with the nearest reserves being DEC managed lands, located approximately 4.8km west south-west (Kangaroo Hills Timber Reserve), 8.8km east south-east (Karamindie Forest), 9.8km north-east (Kurrawang Nature Reserve), 9.9km south south-east (Yallari Timber Reserve) and 12.1km south (Scahill Timber Reserve) of the project area.

Timber Reserves were originally established as Sandalwood Reserves and are now managed as conservation estate for flora and fauna (DEC, 2007).

The ~5,900ha project area is not considered to contribute to, provide a buffer for, or provide an ecological linkage to any of these conservation areas. Given this and the distance to the reserves, the clearing as proposed is not likely to have an impact on local conservation values.

**Methodology**    Reference:  
- DEC (2007)  
GIS database:  
- DEC Managed Lands and Water

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

There are several minor non-perennial watercourses, including Italian Gully, and a non-perennial salt lake, Brown Lake, located within the ~5,900ha project area.

Nineteen vegetation habitat types have been identified within the project area (Western Botanical, 2007). These habitat types have been grouped into four land types: Low hills; Non-saline plains and low gentle rises; Drainage foci; and Saline plains, low rises and associated drainage tracts (Western Botanical, 2007). The soils of the drainage foci and drainage tracts land types are susceptible to erosion if the soil is disturbed or the natural surface water flow regime is altered.

Whilst the proposal is to clear 200ha within a ~5,900ha project area, the proposed clearing may result in water erosion particularly in drainage tracts and areas of stony plains. Water erosion of these soils and drainage into nearby surface water bodies may result in the deterioration of water quality. Therefore the proposed clearing is may be at variance to this Principle.

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed.

**Methodology**    Reference:  
- Western Botanical (2007)  
GIS Databases:  
- Geodata, Lakes  
- Hydrography, linear

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

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

With an average annual rainfall of approximately 250mm and an annual evaporation rate of approximately 2,600mm there is little surface flow during normal seasonal rains. Given there is little surface flow, the proposed clearing of 200 ha within a ~5,900ha project area is not likely to cause or increase the incidence or intensity of flooding.

**Methodology** GIS Databases:  
- Evaporation Isoleths  
- Isohyets

**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; however, this proposal of mineral exploration is not associated with groundwater abstraction.

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 are two Aboriginal Sites of Significance listed within the ~5,900ha project area, the applicant will be advised of their obligations under the Aboriginal Heritage Act 1972.

The zoning for Lot 103 on Plan 40395 (previously Part Lot 59 On Plan 226332) is rural / mining.  
Lot 103 on Plan 40395 is Freehold land.

There are two native title claims over the project area; however, since the land is privately owned the Native Title has been extinguished under the Native Title Act. Therefore the clearing is considered to be a secondary approval and not a future act under the Native Title Act 1993.

**Methodology** GIS databases:  
- Aboriginal Sites of Significance  
- Native Title Claims  
- RIWI Act, Groundwater Areas -  
- RIWI Act, Surface Water Areas  
- Town Planning Scheme Zones

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

**Comment**

The assessable criteria have been addressed and the clearing as proposed is at variance to Principles (a) and (f) and may be at variance to Principles (b), (c), (g) and (i).

#### **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 IN25055
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC (2007) Goldfields Regional advice, Department of Environment and Conservation. TRIM Ref ED1814
- EPA (2004) Guidance for the Assessment of Environmental Factors - terrestrial flora and vegetation surveys for Environmental Impact Assessment in Western Australia. Report by the EPA under the Environmental Protection Act 1986. No 51 WA.
- Harmony (2007) South Kal Mines Pty Ltd - Purpose Permit Application, Location 59 North, Assessment of Clearing Principles, May 2007, Harmony Gold (Australia) Pty Ltd, Western Australia. TRIM Ref DOC30231
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2006). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 12/05/2008).

## 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)





## 1. Application details

### 1.1. Permit application details

Permit application No.: 2474/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: HBJ Minerals Pty Ltd  
Postal address: Locked Bag 2 WA  
Contacts: Phone: 9021 9595  
Fax: 9021 9202  
Email:

### 1.3. Property details

Property:

- LOT 103 ON PLAN 40395 ( LONDONDERRY 6429)
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Colloquial name:

## 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
200		Mechanical Removal	Mineral Exploration

## 2. Background

### 2.1. History (including previous clearing permits, compensation paid, caveats on title deeds etc.)

Date	Comments
20 May 2008	Due to NVC 26 June.
16 May 2008	CPS 2474 is the same proposal as CPS 1923.
16 May 2008	Lot 59 on Plan 226332 has been registered since 13/9/2007 as Lot 103 on Plan 40395.
13 May 2008	Leanne Morey (Applicant) sent an email confirm the map was correct (TRIM Ref DOC52979).
13 May 2008	Leanne Morey (Applicant) sent an email confirm that the project area comprised 36 lots and that Lot 59 is now known as Lot 103; HBJ Minerals refers to this area as Location 59 (TRIM Ref DOC52978).
12 May 2008	Grace Patorniti (Swan, NVP) sent an email to Leanne Morey (Dioro, Applicant) (TRIM Ref DOC52979). Grace asked Leanne to confirm that Lot 59 is now Lot 103 on Plan 40395, to confirm the project area comprises 36 lots and to confirm the attached map was correct.
08 May 2008	Application Accepted. Advertised Monday 12 May 2008.
06 May 2008	Loaded shape. Emailed applicant as It is not acceptable for the clearing area of 200 hectares to be from within the 85,835 hectares indicated. Requested amended shape file.
02 May 2008	Received shape file and sent to GIS to deproject.
23 April 2008	No Fee applicable per Matt Warnock. Sarah McEvoy has advised that these applications be processed ASAP. Originals were sent in February but we have no record of them. This application is the same as CPS 1923/1 but different owner and smaller clearing area.

### 2.2. Existing environment and information

#### 2.2.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation associations: 9- Medium woodland; coral gum (E. torquata) & Goldfields blackbutt (E. lesouefi).	The area under application is for clearing of 200 ha over 5 years for exploration within a ~5,900ha project area (Location 59 North). The project area is located approximately 4km east of the Coolgardie town site, on the Coolgardie-Esperance Highway.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The condition of the vegetation under application was determined from Site Photos included in the Flora Survey Report (Western Botanical, 2007).
123- Succulent steppe with open low woodland; sheoak over saltbush & bluebush.	A flora survey conducted by Western Botanical (2007) identified 19 vegetation habitats within the project area. The vegetation within the project area is dominated by Mixed Eucalypt woodlands with Atriplex nummularia shrub understorey on shallow alkaline loams with calcrete nodules and contains only one weed species, Citrullus lanatus (Western Botanical, 2007).		Further, aerial photography for the area shows two areas of existing mining infrastructure and public roads within the area under application (project area).
125- Bare areas; salt lakes.			
936- Medium woodland; salmon gum.			
1294- Medium woodland; coral gum.			

(SAC Bio Datasets 01/05/2008; Shepherd, 2006).

#### 2.2.2. Items of interest

Theme	Value	Within meters
Aboriginal Sites of Significance	Gala Site Two	
Aboriginal Sites of Significance	KURKUTJUTANA	
Declared Rare and Priority Flora List	SHI	10000
Environmental Impact Assessments	level of assessment not set - currently being filtered	
Environmental Impact Assessments	s16 - Section 16 Report	
Environmental Impact Assessments	s38 - Formal (not specified)	
Environmental Impact Assessments	s38 - Not Assessed - No Advice Given	
Environmental Impact Assessments	s38 - Not Assessed - Public Advice Given	
Environmental Impact Assessments	s48A - Scheme Not Assessed - Advice Given	
Hydrographic Catchments - Catchments	(no appeals on lev	
Hydrographic Catchments - Catchments	Lake Lefroy	
Interim Biogeographic Regionalisation of Australia	Raeside-Ponton	
Local Government Authorities	Coolgardie	
Native Title Claims	SHIRE OF COOLGARDIE	
Native Title Claims	CENTRAL WEST GOLDFIELDS	
Pre-European Vegetation	WIDJI	
Pre-European Vegetation	123	
Pre-European Vegetation	125	
Pre-European Vegetation	1294	
Pre-European Vegetation	9	
Pre-European Vegetation	936	

## 3. Permit assessment activities

Date	Activity	Comment	Trim Ref.
23 April 2008	Application received		
08 May 2008	Accepted for assessment		

12 May 2008	Under assessment		
12 May 2008	Under assessment		
13 May 2008	Other	Leanne Morey (Applicant) sent an email confirm that the project area comprised 36 lots and that Lot 59 is now known as Lot 103; HBJ Minerals refers to this area as Location 59.	DOC52978
19 May 2008	Dec Advice Received	DEC Kalgoorlie office has previously submitted advice (30 May 2007) in regards to Principle h) for a nearby clearing application. It was advised that Timber Reserves were originally established as Sandalwood Reserves. The Timber Reserves are managed as conservation estate for flora and fauna and there is no timber harvesting or removal.	ED1814
19 May 2008	Referred To Dept Of Ag & Food	DAFWA advice not requested for this application.	

#### 4. 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 at variance to this Principle

Aerial photography for the ~5,900ha project area (Location 59 North) shows the area of disturbance from mining activities to be limited to existing open pits and associated infrastructure within the northern-western section and the central-southern section of the project area. In addition, the Coolgardie-Esperance Highway and other minor tracks traverse sections of the project area.

A flora survey identified 19 vegetation habitats within the project area (Western Botanical, 2007). The dominant vegetation within the project area is Mixed Eucalypt woodlands with *Atriplex nummularia* shrub understorey on shallow alkaline loams with calcrete nodules and contains only one weed species, *Citrullus lanatus* (Western Botanical, 2007). The vegetation within the project area is determined to be in very good condition.

Vegetation comprising suitable habitat for rare flora (*Gastrolobium graniticum*) and priority flora has been identified within the area under application (Biodiversity Coordination Section DEC, 2005). In addition, it is likely that the vegetation within the notified area, particularly areas of Salmon Gum woodland, is utilised as suitable habitat and nesting hollows for a wide variety of fauna, and there recent records of malleefowl in the area (Biodiversity Coordination Section DEC, 2005).

There are 102 known records of 41 species of priority flora within the local area (50km radius) with the closest known record being *Acacia websteri* (P1) located ~3.9kms west of the project area. *Acacia websteri* (P1) is described as a shrub, 1.2-5 m high with fibrous bark with yellow flowers and occurs in red sand, clay or loam, on low-lying areas and flats (WA Herbarium 1998-). Vegetation habitat type 3.1 'Jam thickets in clay depressions' may be suitable habitat for *Acacia websteri*.

Further, BCS (2005) identified Vegetation habitat type 1.4 to potentially be suitable habitat for *Melaleuca coccinea* (P3) (Flowering September-January) and *Allocasuarina eriochlamys* subsp. *grossa* (P3). Both of these species of Priority flora occur within 50km of the project area.

Furthermore, a clearing proposal (project area ~14,500ha; Location 59 South) located immediately south to this current clearing proposal (Location 59 North) was recently assessed. The flora survey report identified nine populations of the priority species *Eremophila* sp Mt Jackson (P1) within Location 59 South. The nine populations were located within the vegetation groups interpreted as Open Shrubland; *Acacia acuminata* Shrubland; and Transitional Eucalyptus Woodland. The nearest population of *Eremophila* sp Mt Jackson is located approximately 2.4km south of the south-west corner of Location 59 North.

*Eremophila* sp Mt Jackson (P1) is described as an erect shrub, to 3m high. Flowers are pink, white, flowering in November-December. Occurs occasionally on saline, red loam, red clay or greenstone gravel, on slopes of ridges and undulating stony alluvial plains (WA Herbarium 1998-). Some of the vegetation habitat types within the project area (~5,900ha) may be suitable habitat for *Eremophila* sp Mt Jackson.

A flora survey conducted in April 2006 by Western Botanical (2007) identified no rare flora and no priority species within the project area; however, Vegetation habitat types 1.4 and 3.1 are listed as occurring within the notified project area.

Although no rare flora or priority flora was identified during the flora survey, the flora survey was conducted in April 2006, which is outside of the flowering periods for *Gastrolobium graniticum* (Rare), *Melaleuca coccinea* (P3) and *Acacia websteri* (P1) and *Eremophila* sp Mt Jackson (P1). Therefore, the flora survey within the project area was not undertaken at an optimal time according to Guidance Statement 51 (EPA, 2004).

Given the vegetation under application may be necessary for the maintenance of rare flora and priority Flora, and may comprise significant habitat for a variety of fauna including malleefowl in the local area, it is considered the project area comprises a high level of biological diversity and therefore the proposed clearing is at variance to this Principle.

**Methodology** References:  
- Biodiversity Coordination Section, DEC (2005)  
- Western Botanical (2007)  
- WA Herbarium (1998-)  
- EPA (2004)  
GIS Database:  
- Kalgoorlie 1.4m Orthomosaic - DLI 02

**Officer** Grace Patorniti

**(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 report submitted by Harmony (2007) advised that 13 fauna species of conservation significance could potentially occur within the ~5,900ha project area. Of these, the Harmony (2007) report advises that:  
- Malleefowl has been sighted in 1998 20km north of the project area.  
- Vegetation habitat type 4.2: Lake bed vegetated with a range of halophytes may provide suitable habitat for the Slender-billed Thornbill and Hooded Plover.

Biodiversity Coordination Section, (BCS) DEC (2005) advice on fauna species occurring in the area included:  
- Sightings of Malleefowl in the area are relatively recent. Malleefowl may be found in the project area.  
- Bird species such as Peregrine Falcon, White-browed Babbler, Crested Bellbird (Southern) may utilise the notified area, but as the land systems are well represented within the region the habitat present is unlikely to be 'significant' for these species.  
- It is likely that the vegetation within the notified area, particularly areas of Salmon Gum woodland, is utilised as suitable habitat and nesting hollows for a wide variety of fauna.

Salmon Gums (*Eucalyptus salmonophloia*) are identified within the following Vegetation habitat types (Western Botanical, 2007):

- Type 3.4: Broad tracts with *Eucalyptus salmonophloia*, *E. salubris* woodlands with *Sclerostegia disarticulata* on saline clay flats;
- Type 3.5: Broad tracts with *Eucalyptus salmonophloia*, *E. salubris* woodlands with *Eremophila ionantha* shrubland; and
- Type 3.6: Loamy plain with very scattered *Eucalyptus salmonophloia* with very scattered understorey.

Harmony (2007) reported that all efforts will be taken to minimise clearing and to rehabilitate at conclusion of mining to minimise any long-term impacts on habitats in the area. Management strategies to be adopted (Harmony, 2007) 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,
- Implementing a Weed Management Program,
- Retain trees (especially those with hollows) where possible, and
- Stockpiling vegetation and respreading where possible to provide habitat for fauna and to assist revegetation by providing a local seed source.

Given that the vegetation application may include significant habitat for fauna in the local area, including malleefowl, the proposed clearing may be at variance to this Proposal.

To mitigate any impacts from the proposed clearing, fauna management conditions will be imposed.

**Methodology** References:  
- Biodiversity Coordination Section, DEC (2005)  
- Harmony (2007)  
- Western Botanical (2007)

**Officer** Grace Patorniti

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Comments** **Proposal may be at variance to this Principle**

There are 36 known records of the rare flora, *Gastrolobium graniticum* within the local area (50km radius) with the closest known record being ~4.1kms west of the project area.

*Gastrolobium graniticum* is described on DEC's Florabase (WA Herbarium 1998-) as an erect, open shrub, to 2.5m high and occurs on sandy soils, granite and margins of rock outcrops, along drainage lines. Flowers are yellow, orange, and red, flowering in August to September. A recent assessment of a clearing proposal immediately south of the project area included advice from Biodiversity Coordination Section (BCS), DEC (2005). BCS (2005) advised that Vegetation habitat type 1.4 'Rocky Acacia Shrublands on outcropping gabbro, granite or schist' may be a suitable habitat type for *Gastrolobium graniticum* given the granite base.

A flora survey conducted in April 2006 by Western Botanical (2007) identified no rare flora and no priority species within the project area; however, Vegetation habitat types 1.4 and 3.1 are listed as occurring within the notified project area.

Although no rare flora or priority flora was identified during the flora survey, the flora survey was conducted in April 2006, which is outside of the flowering periods for *Gastrolobium graniticum* (Rare), *Melaleuca coccinea* (P3) and *Acacia websteri* (P1) and *Eremophila* sp Mt Jackson (P1). Therefore, the flora survey within the project area was not undertaken at an optimal time according to Guidance Statement 51 (EPA, 2004).

Given the above, it is considered that the vegetation to be cleared may include or be necessary for the continued existence of, rare flora. Therefore, the proposed clearing may be at variance to this Principle.

To mitigate any impacts from the proposed clearing, a flora management condition will be imposed.

**Methodology**   References:  
 - Biodiversity Coordination Section, DEC (2005)  
 - EPA (2004)  
 - Harmony (2007)  
 - WA Herbarium (1998-)  
 - Western Botanical (2007)  
 GIS Database:  
 - SAC Bio Datasets 14/05/2008  
**Officer**       Grace Patorniti

**(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 (TEC) within the local area (50km radius). The nearest recorded TEC (Russell Range) is located approximately 330km south-east of the project area.  
 Given the distance to the nearest threatened ecological community, it is not considered likely that the vegetation proposed to be cleared comprises the whole or part of or is necessary for the maintenance of a threatened ecological community.

**Methodology**   GIS Database:  
 - SAC Bio Datasets 14/05/2008  
**Officer**       Grace Patorniti

**(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 vegetation under application is mapped within Beard Vegetation types 9, 123, 125, 936 and 1294, which have 99.7%, 100%, 94.2%, 96.7% and 100% of pre-European vegetation extent remaining respectively (Shepherd, 2006).  
 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 (Commonwealth of Australia, 2001). The vegetation types within the area under application are above the recommended minimum of 30% representation.  
 Given the high representation of the vegetation types identified with the project area, the vegetation under application is not considered to be significant as a remnant in an extensively cleared area.  
 However, it is noted that the Beard vegetation types are not well represented in secure tenure.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregions* - Coolgardie	12 912 208	12 707 623	98.4	
Beard Vegetation types*				
9	240 509	239 898	99.7	7.8
123	9 090	9 090	100.0	0.0
125	3 491 833	3 287 864	94.2	7.0
936	698 753	675 658	96.7	3.6
1294	6 295	6 295	100.0	1.8

\* (Shepherd 2006)

**Methodology** References:  
- Commonwealth of Australia (2001)  
- Shepherd (2006)  
GIS Databases:  
- Pre-European Vegetation  
- Interim Biogeographic Regionalisation of Australia  
- SAC Bio Datasets 01/05/2008

**Officer** Grace Patorniti

**(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 at variance to this Principle**

There are several minor non-perennial watercourses, including Italian Gully, and a non-perennial salt lake, Brown Lake, located within the ~5,900ha project area. Therefore, it is considered likely that some of the vegetation under application is associated with waterbodies.

Western Botanical (2007) conducted a flora survey within the project area and identified vegetation growing in association with the drainage foci and broad drainage tracts land type. The vegetation identified within this land type includes Jam thickets and Eucalyptus Salmonophloia, Eucalyptus salubris woodlands (Western Botanical, 2007).

Given that some of the native vegetation to be cleared is growing in an environment associated with water bodies the clearing as proposed is at variance to this Principle.

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed.

**Methodology** Reference:  
- Western Botanical (2007)  
GIS Databases:  
- Geodata, Lakes  
- Hydrography, linear

**Officer** Grace Patorniti

**(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**

The landscape of the project area and surrounds can be described as:

- Predominantly rocky ranges and hills of greenstones-basic igneous rocks; the chief soils seem to be shallow calcareous loamy soils with shallow brown and grey-brown calcareous earths below which weathered rock occurs at shallow depths.
- Salt lakes and their associated areas; the common soils are gypseous and saline loams together with gypseous and saline soils on the lake beds.
- Gently undulating valley plains and pediments with some outcrop of basic rock; the chief soils are alkaline red earths with limestone or limestone nodules at shallow depth on gently sloping slightly concave plains with low gentle rises (Northcote et al, 1960).

Nineteen vegetation habitat types have been identified within the ~5,900ha project area (Western Botanical, 2007). These habitat types have been grouped into four land types: Low hills; Non-saline plains and low gentle rises; Drainage foci; and Saline plains, low rises and associated drainage tracts (Western Botanical, 2007). The soils of the drainage foci and drainage tracts land types are susceptible to erosion if the soil is disturbed or the natural surface water flow regime is altered.

Given the risk of erosion associated with the removal of native vegetation, the proposed clearing may be at variance to this Principle.

Management actions to be undertaken include utilising existing tracks and creek crossings and the immediate rehabilitation of cleared areas which will assist in the avoidance of long-term land degradation (Harmony, 2007).

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed.

**Methodology** References:  
- Harmony (2007)  
- Northcote et al (1960)  
- Western Botanical (2007)  
GIS Database:

Officer - Soils, Statewide  
Grace Patorniti

**(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 project area with the nearest reserves being DEC managed lands, located approximately 4.8km west south-west (Kangaroo Hills Timber Reserve), 8.8km east south-east (Karamindie Forest), 9.8km north-east (Kurrawang Nature Reserve), 9.9km south south-east (Yallari Timber Reserve) and 12.1km south (Scahill Timber Reserve) of the project area.

Timber Reserves were originally established as Sandalwood Reserves and are now managed as conservation estate for flora and fauna (DEC, 2007).

The ~5,900ha project area is not considered to contribute to, provide a buffer for, or provide an ecological linkage to any of these conservation areas. Given this and the distance to the reserves, the clearing as proposed is not likely to have an impact on local conservation values.

Methodology Reference:  
- DEC (2007)  
GIS database:  
- DEC Managed Lands and Water

Officer Grace Patorniti

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

There are several minor non-perennial watercourses, including Italian Gully, and a non-perennial salt lake, Brown Lake, located within the ~5,900ha project area.

Nineteen vegetation habitat types have been identified within the project area (Western Botanical, 2007). These habitat types have been grouped into four land types: Low hills; Non-saline plains and low gentle rises; Drainage foci; and Saline plains, low rises and associated drainage tracts (Western Botanical, 2007). The soils of the drainage foci and drainage tracts land types are susceptible to erosion if the soil is disturbed or the natural surface water flow regime is altered.

Whilst the proposal is to clear 200ha within a ~5,900ha project area, the proposed clearing may result in water erosion particularly in drainage tracts and areas of stony plains. Water erosion of these soils and drainage into nearby surface water bodies may result in the deterioration of water quality. Therefore the proposed clearing is may be at variance to this Principle.

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed.

Methodology Reference:  
- Western Botanical (2007)  
GIS Databases:  
- Geodata, Lakes  
- Hydrography, linear

Officer Grace Patorniti

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

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

With an average annual rainfall of approximately 250mm and an annual evaporation rate of approximately 2,600mm there is little surface flow during normal seasonal rains. Given there is little surface flow, the proposed clearing of 200 ha within a ~5,900ha project area is not likely to cause or increase the incidence or intensity of flooding.

Methodology GIS Databases:  
- Evaporation Isopleths  
- Isohyets

Officer Grace Patorniti

## **Planning Instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, 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; however, this proposal of mineral exploration is not associated with groundwater abstraction.

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 are two Aboriginal Sites of Significance listed within the ~5,900ha project area, the applicant will be advised of their obligations under the Aboriginal Heritage Act 1972.

The zoning for Lot 103 on Plan 40395 (previously Part Lot 59 On Plan 226332) is rural / mining. Lot 103 on Plan 40395 is Freehold land.

There are two native title claims over the project area; however, since the land is privately owned the Native Title has been extinguished under the Native Title Act. Therefore the clearing is considered to be a secondary approval and not a future act under the Native Title Act 1993.

### **Methodology**

GIS databases:

- Aboriginal Sites of Significance
- Native Title Claims
- RIWI Act, Groundwater Areas -
- RIWI Act, Surface Water Areas
- Town Planning Scheme Zones

### **Officer**

Grace Patorniti

## **5. Assessor's recommendations**

### **Comment / recommendation**

The assessable criteria have been addressed and the clearing as proposed is at variance to Principles (a) and (f) and may be at variance to Principles (b), (c), (g) and (i).

## **6. 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 IN25055
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC (2007) Goldfields Regional advice, Department of Environment and Conservation. TRIM Ref ED1814
- EPA (2004) Guidance for the Assessment of Environmental Factors - terrestrial flora and vegetation surveys for Environmental Impact Assessment in Western Australia. Report by the EPA under the Environmental Protection Act 1986. No 51 WA.
- Harmony (2007) South Kal Mines Pty Ltd - Purpose Permit Application, Location 59 North, Assessment of Clearing Principles, May 2007, Harmony Gold (Australia) Pty Ltd, Western Australia. TRIM Ref DOC30231
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2006). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 12/05/2008).
- Western Botanical (2007) Flora and Vegetation of Location 59: Harmony Gold-South Kal Mines, April 2006, Prepared for Harmony Gold Kambalda-South Kal Mines, Western Botanical, Western Australia. TRIM Ref DOC30231