



1. Application details

1.1. Permit application details

Permit application No.: 2404/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: HBJ Minerals Pty Ltd

1.3. Property details

Property: LOT 48 ON PLAN 226304 (FEYSVILLE 6431)
LOT 62 ON PLAN 101674 (FEYSVILLE 6431)
LOT 62 ON PLAN 101674 (FEYSVILLE 6431)
LOT 50 ON PLAN 226299 (FEYSVILLE 6431)
LOT 50 ON PLAN 226299 (FEYSVILLE 6431)
LOT 48 ON PLAN 226304 (FEYSVILLE 6431)
LOT 48 ON PLAN 226304 (FEYSVILLE 6431)
Local Government Area: City Of Kalgoorlie-Boulder
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
215		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 types: 9: Medium woodland; coral gum (E. torquata) & Goldfields blackbutt (E. lesouefi). 221: Succulent steppe; saltbush. 468: Medium woodland; salmon gum & Goldfields blackbutt. (SAC Bio Datasets 01/05/2008; Shepherd, 2006).	The areas under application are for clearing of 215 ha over 5 years for exploration. The proposed clearing includes 125ha within a ~5,000ha project area in Lot 48; 80ha within a ~3,200ha project area in Lot 50 and 10ha within a ~400ha project area in Lot 62. The areas are located approximately 30-40km south-east of the Kalgoorlie-Boulder town site. The vegetation within the areas in which clearing is to occur consists of 19 different vegetation habitat types (HBJ Minerals, 2008). The areas comprise predominantly Eucalypt woodlands on a variety of soils, Casuarina pauper on calcareous hardpan soils and an understorey that includes Acacia, Senna, Atriplex, Olearia and Eremophila species (HBJ Minerals, 2008).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The areas under application have been subject to a history of extensive timber cutting for firewood and livestock grazing (HBJ Minerals, 2008). Further, aerial photography shows the existing mining infrastructure, public roads and a railway line within the areas under application (project areas).

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**

The vegetation under application is predominantly common semi arid-arid species typical of the Goldfields woodland vegetation (HBJ Minerals, 2008).

Further, the areas under application have been subject to a history of extensive grazing activities and timber cutting for firewood with the vegetation to be cleared being predominantly regrowth. The areas have also been previously disturbed as they contain existing open pits, access roads, public roads and a railway line (HBJ Minerals, 2008).

Three Priority species and vegetation comprising suitable habitat for Priority flora were identified within the areas under application (HBJ Minerals, 2008). In addition, the primary fauna habitat is low hills that may support a range of common reptiles; there are records of malleefowl in the area (HBJ Minerals, 2008).

There are 96 known records of 38 Priority species within the local area (50km radius) with the closest being *Astartea* sp. Red Hill (Priority 1) located approximately 9km south and *Eremophila praecox* (P1) located approximately 14km north of the areas under application.

Flora surveys conducted in 2003/04 identified no DRF or Priority species within Lot 50 and Lot 62; three Priority species were located within Lot 48 (Western Botanical, 2004). These Priority species included:

- *Eremophila praecox* (P1),
- *Melaleuca coccinea* (P3), and
- *Allocasuarina eriochlamys* ssp. *grossa* (P3) (Western Botanical, 2004).

Given the vegetation under application on Lot 48 may be necessary for the maintenance of Priority Flora, that the vegetation may comprise significant habitat for reptiles and malleefowl in the local area, it is considered the areas under application comprise a high level of biological diversity and the proposed clearing is at variance to this Principle. To mitigate any impacts from the proposed clearing, a flora and fauna management condition will be imposed on a clearing permit if granted.

Methodology **Reference:**

- HBJ Minerals (2008)
- 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**

Biodiversity Coordination Section (BCS) (DEC 2005) advised that the following fauna 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), *Oreoica gutturalis gutturalis* (P4);
- Shy Heathwren (western ssp), *Hylacola cauta whitlocki* (P4) (historic record);
- White-browed Babbler (western wheatbelt), *Pomatostomus superciliosus ashbyi* (P4).

BCS (2005) 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 and is considered to be extinct in the Goldfields (Williams, M.R. and Williams, A.A., 2008).

A report submitted by Dioro NL (HBJ Minerals, 2008) states that there are no ranges or caves in the study area and the primary fauna habitat is low hills that may support a range of common reptiles. The report 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 (HBJ Minerals, 2008) 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.

Methodology **References:**

- Biodiversity Coordination Section, DEC (2005)
- HBJ Minerals (2008)
- Williams, M.R. and Williams, A.A. (2008).

(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 three known records of the rare flora - *Gastrolobium graniticum* - within the local area (50km radius) with the closest known record being ~40kms west of the areas under application. *Gastrolobium graniticum* is known to occur within the same vegetation complex and mapped soil complex as the vegetation under application. This species flowers from August to September and is known to occur along margins of rock outcrops, along drainage lines (Western Australian Herbarium 1998-).

Flora surveys were conducted in 2003/04 identified no DRF or Priority species within Lot 50 and Lot 62; three Priority species were located within Lot 48 (Western Botanical, 2004), but no rare flora

Therefore the proposed clearing is not likely to be at variance to this Principle.

Methodology **References:**

- HBJ Minerals (2008)
- Western Botanical (2004)
- Western Australian Herbarium (1998-)

GIS Database:

- SAC Bio Datasets 01/05/2008

(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 is one known record of an Ecological Community, being a Priority Ecological Community (Mount Belches) within the local area (50km radius). The nearest recorded TEC is located approximately 320km south-east of the areas under application of the areas under application, and it is recorded from different floristic communities.

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 TEC.

Methodology **GIS Database:**

- SAC Bio Datasets 02/05/2008

(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, 221 and 468, which have 99.7%, 99.9% 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 in the areas under application are above the recommended minimum of 30% representation.

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

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregions*				
- Coolgardie	12,912,208	12,707,623	98.4	NA

Beard Vegetation types*				
9	240,509	239,898	99.7	7.8
221	63,721	63,626	99.9	17.0
468	592,023	592,023	100.0	5.1

* (Shepherd, 2006)

- Methodology** Reference:
- 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 may be at variance to this Principle

There are numerous minor non-perennial watercourses located throughout the areas under application (HBJ Minerals, 2008). Therefore, it is considered likely that some of the vegetation under application, such as the identified vegetation habitat type 3.5: Broad drainage tract with *Eucalyptus salmonophloia*, *Eucalyptus salubris* woodlands with *Eremophila ionantha*, is associated with watercourses (HBJ Minerals, 2008).

A report submitted by Dioro NL (HBJ Minerals, 2008) outlined that any disturbed areas will be progressively rehabilitated. To mitigate the potential impact on the watercourse, revegetation management conditions will be imposed on a clearing permit if granted. Therefore the proposed clearing may be at variance to this Principle.

- Methodology** Reference:
- HBJ Minerals (2008)
- GIS Database:
- 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

Eight land systems have been identified within the areas under application (DAFWA, 2007a and 2007b). These land systems include:

- Gumland land system is described as extensive pedepains 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, 2007a).
- 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, 2007a). Clearing and soil disturbance in the narrow drainage tract land units is likely to cause water erosion (DAFWA, 2007b).
- 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, 2007a).
- Red Hill land system is described as basalt hills and ridges supporting acacia shrublands and patchy eucalypt woodland with mainly non halophytic understorey. A large tract of the land system occurs in the middle of the applied area. This land system is not generally prone to soil erosion. There is some risk associated with clearing and disturbance of the red loamy earths or red duplex soils in the valley floors (DAFWA, 2007a).
- Lefroy land system is likely to be areas of saline plain and alluvial plain land units. These level plains are likely to have red brown non calcareous clays and red deep duplex soils and are subject to sheet flow and are not particularly prone to soil erosion. Several areas of this land system occur within the applied area (DAFWA, 2007a).
- Sedgman, Gundockerta and Bunyip land systems occur within the applied area, but are minor areas. These systems are not likely to be problematic from a land degradation perspective provided caution is increased in the vicinity of the drainage lines that traverse these areas (DAFWA, 2007b).

DAFWA (2007a) advised that the proposed clearing for exploration purposes is not likely 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 (HBJ Minerals, 2008) which will assist in the avoidance of long-

term land degradation.

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed on a clearing permit if granted. Therefore the proposed clearing may be at variance to this Principle.

Methodology **References:**
- DAFWA (2007a)
- DAFWA (2007b)
- HBJ Minerals (2008)

(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 areas under application with the nearest reserves, being DEC managed lands, located approximately 4km south (Kambalda Nature Reserve), 11km north (Lakeside Timber Reserve), 16km west (Karamindie Forest) and 20km south-west (Yallari Timber Reserve) of the proposed clearing.

The areas under application have 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 (HBJ Minerals, 2008).

The areas 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 not likely to have significant impact on adjacent or nearby conservation areas.

Methodology **Reference:**
- HBJ Minerals (2008)
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

The majority of the applied area is associated with rocky ranges and hills of greenstones-basic igneous rocks with chief soils of shallow calcareous loamy soils, with shallow brown and grey-brown calcareous earths; and gently undulating valley plains and pediments and some outcrop of basic rock with chief soils of alkaline red earths with limestone or limestone nodules at shallow depth (Northcote et al, 1960).

There are numerous minor non-perennial watercourses located throughout the areas under application.

DAFWA (2007) advised that areas within Lots 48, 50 and 62 associated with the Gundockerta and Moriarty land systems with their stony plains, and land associated with valley floors and drainage lines are prone to water erosion.

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.

To mitigate any impacts from the proposed clearing, revegetation management conditions will be imposed on a clearing permit if granted. Therefore the proposed clearing is may be at variance to this Principle.

Methodology **References:**
- DAFWA (2007a)
- DAFWA (2007b)
- Northcote et al (1960)
GIS Databases:
- Hydrography, linear
- Soils, Statewide

(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 250mm and an annual evaporation rate of 2,600mm there is little surface flow during normal seasonal rains. Given the areas under application occur 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
- Isohyets
- Topographic Contours, Statewide

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

Comments

The areas under application are 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 are two Aboriginal Sites of Significance listed within the areas under application, the applicant will be advised of their obligations under the Aboriginal Heritage Act 1972.

Lot 48, Lot 50 and Lot 62 are Freehold and are zoned rural under the Local Town Planning Scheme. There are two native title claims over the areas under application; 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 Principle (a) and may be at variance to Principles (b), (c) (f), (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 HD26053
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DAFWA (2007a) Land degradation advice. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. TRIM Ref ED1662
- DAFWA (2007b) Land degradation advice. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. TRIM Ref ED1658
- HBJ Minerals (2008) Dioro N.L., HBJ Minerals Pty Ltd: Purpose Permit Application, Hampton Locations 48, 50, 51 & 62, Assessment of Clearing Principles, February 2008. TRIM Ref DOC49123
- 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 01/05/2008).
- Western Botanical (2004) Flora, Vegetation and Habitats of the South Kal Mines Pty Ltd Holdings and Surrounding Area, W.A., August 2003 - February 2004. TRIM Ref DOC49123
- Williams, M.R. and Williams, A.A. (2008). Threat of habitat clearing to the Arid Bronze Azure butterfly (*Ogyris subterrestris petrina*) population bordering Barbalin Nature Reserve. Department of Environment and Conservation, Perth. Unpublished Report.

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)

