



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2499/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: The Griffin Coal Mining Company Pty Ltd

### 1.3. Property details

Property: Collie Coal (Griffin) Agreement Act 1979, Coal Mining Lease 12/774  
Local Government Area: Shire Of Collie  
Colloquial name: Laterite Mining Project

### 1.4. Application

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

## 2. Site Information

### 2.1. Existing environment and information

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

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard vegetation associations have been mapped at 1:250,000 scale for the whole of Western Australia, and are a useful tool to examine the vegetation extent in a regional context. One Beard vegetation association is located within the area proposed to be cleared (GIS Database):</p> <p><b>Beard vegetation association 3</b> - Medium forest; jarrah-marri.</p> <p>A flora survey of the application area was undertaken by Bennett Environmental Consulting (2008) in November 2007. As a result of the survey the following vegetation associations were identified within the application area:</p> <p><b>High Ground Vegetation Unit:</b> Low Woodland A of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>, <i>Allocasuarina fraserina</i>, <i>Persoonia longifolia</i>, <i>Banksia grandis</i>, <i>Corymbia calophylla</i> and <i>Xylomelum occidentale</i> over Dwarf Scrub C dominated by <i>Styphelia tenuifolia</i> and <i>Bossiaea omata</i> over Tall Sedges dominated by <i>Tetraria octandra</i> and <i>Tetraria capillaries</i> in grey sand with 10-20% laterite.</p> <p><b>Low Ground Vegetation Unit:</b> Open Low Woodland A of <i>Corymbia calophylla</i> and <i>Melaleuca pressiana</i> over Open Low Scrub B of <i>Asartea scorparia</i> and <i>Acacia extensa</i> over Low Heath C dominated by <i>Hypocalymma angustifolium</i> over Low Grass and Herbs of mixed taxa in grey sand with tailings slurry over the surface.</p>	<p>Griffin Coal has applied to clear up to 5.6 hectares for the purposes of mining laterite (Griffin Coal, 2008). Clearing will be undertaken progressively according to Griffin Coal's gravel requirements.</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p>	<p>The vegetation of the application area has previously been cleared for the purpose of laterite extraction, and now comprises regrowth of native vegetation (Bennett Environmental Consulting, 2008).</p> <p>During the flora and vegetation survey Bennett Environmental Consulting (2008) noted that the vegetation within the application area is in good condition with no weed species recorded or any evidence of <i>Phytophthora</i> dieback present.</p>

### 3. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

##### Comments

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

The proposed clearing is located within the Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and the Southern Jarrah Forest IBRA sub-region (GIS Database). The Jarrah Forest IBRA bioregion is dominated by a duricrusted plateau of the Yilgarn craton, and characterised by jarrah-marri forest on laterite gravels and, in the eastern part, by marri-wandoo woodlands on clayey soils (Hearn et al., 2002). Hearn et al. (2002) state that the rare features of the Southern Jarrah Forest are similar to the Northern Jarrah Forest in that they both have extensive native forest cover, but that the biota is patchy considering geological and geomorphic uniformity. The dominant land use of the subregion is mainly grazing (improved pastures) and dry land agriculture, forestry and conservation (Hearn et al., 2002).

A flora and vegetation survey was undertaken by Bennett Environmental Consulting in the months of October and December 2007. There were no Declared Rare Flora (DRF) recorded, however, there was one Priority four flora species *Pultenaea skinneri* which was recorded in the north-eastern corner of the application area (Bennett Environmental Consulting, 2008). Griffin Coal (2008) has committed to avoid the entire population of *Pultenaea skinneri* recorded in the north-eastern corner of the application area.

An inspection of the application area was undertaken by Bamford Consulting Ecologists (2008) on 22 September 2008. As a result of the inspection there were no significant habitats identified within the application area. Additionally, Bamford Consulting Ecologists (2008) have noted that the regrowth habitat present within the application area is of no higher value than that of surrounding forested areas.

The application area has previously been cleared for the purpose of laterite extraction (Griffin Coal, 2008), and now comprises regrowth of native vegetation species. The regrowth vegetation has been degraded from the presence of vehicle tracks (Bennett Environmental Consulting, 2008), and is adjacent to current mining operations to the north, west and south (Griffin Coal, 2008). It is likely that the impacts of this disturbance and the nearby mining activities have had a deleterious effect on the biodiversity within the application area. Therefore, the application area is not likely to represent an area of outstanding biodiversity in the subregion, in comparison to the remaining native vegetation in the local area.

Based on the above, the proposal is not likely to be at variance to this Principle.

##### Methodology

Bennett Environmental Consulting (2008).  
Griffin Coal (2008).  
Hearn et al., (2002).  
GIS Databases:  
- Interim Biogeographic Regionalisation of Australia  
- Interim Biogeographic Regionalisation of Australia (subregions)

#### (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

##### Comments

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

An inspection of the application area was undertaken by Bamford Consulting Ecologists on 22 September 2008. The aim of the inspection was to determine whether, in terms of fauna, the application area was representative of other habitat in the region and if the fauna values discussed in previous reports are also applicable to this site (Bamford Consulting Ecologists, 2008).

During the inspection the application area was traversed by foot and a detailed habitat search was undertaken (Bamford Consulting Ecologists 2008). There were several conservation significant species that were identified in previous desktop assessments of Griffin Coals leases, these include: Short-billed (Carnaby's) Black-Cockatoo (*Calyptorhynchus latirostris*), Long-billed (Baudin's) Black Cockatoo (*Calyptorhynchus baudinii*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Quenda (*Isodon obesulus*). Bamford Consulting Ecologists (2008) searched for evidence of these species activities within the application area, which included looking for tracks, droppings, diggings, feeding signs, burrows, nesting signs, etc.

As a result of the inspection, Bamford Consulting Ecologists (2008) found that the vegetation within the application area comprised young regrowth of Jarrah/Marri woodland with a small area of dampland vegetation. The majority of vegetation was young (with a Diameter at Breast Height of most trees less than 100 millimetres), whilst there were one or two larger Jarrah trees that may potentially bear nesting hollows for Black Cockatoos, however, no apparent hollows were noted during the inspection (Bamford Consulting Ecologists, 2008).

During the inspection, Bamford Consulting Ecologists (2008) discovered some evidence of foraging (old Marri nuts with feed marks) by Red-tailed Black-Cockatoos and Baudin's Cockatoos. It is likely that these species would occasionally utilise the area for foraging and not as nesting habitat as no significant hollows were sighted during the inspection (Bamford Consulting Ecologists, 2008).

In summary, Bamford Consulting Ecologists noted that the application area is small in comparison with other mining disturbance in the region, has been previously cleared in recent times, is bounded on three sides by existing mine infrastructure and does not appear to form part of a significant wildlife corridor through the landscape (Bamford Consulting Ecologists, 2008). Additionally, Bamford Consulting Ecologists (2008) state that whilst some conservation significant species may utilise the application area for foraging, it is a small area of regrowth habitat (5.6 hectares) with little or no linkage function and is, therefore, of lower value for fauna than any equivalent area of intact forest nearby. Based on this, it is unlikely the vegetation within the application area comprises significant habitat for fauna species in comparison to surrounding forested areas.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Bamford Consulting Ecologists (2008).  
GIS Database:  
- Declared Rare and Priority Flora List

**(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**

A flora and vegetation survey of the application area was undertaken by Bennett Environmental Consulting (2008) between 10-14 October, with additional surveys on 25 October and between 10-12 December 2007. The flora and vegetation survey included a detailed database search and a reconnaissance survey to verify the results of the database search.

A search of the Department of Environment and Conservation (DEC) databases conducted by Bennett Environmental Consulting (2008), revealed a total of six DRF species and 29 Priority flora species, with the potential to occur within the application area, based on known distributions.

During the reconnaissance survey there were no DRF species recorded, however, there was one Priority flora species *Pultenaea skinneri* (Priority four) which was recorded in the north-western corner of the application area (Bennett Environmental Consulting, 2008). *Pultenaea skinneri* is a slender shrub which is an opportunistic species, approximately one-two metres high, which is known to occur on sandy or clayey soils and in winter wet depressions (Western Australian Herbarium, 2008). During the flora and vegetation survey a significant population of this species was noted as occurring in a low lying area within the north-western corner of the application area. In regards to this species, Griffin Coal (2008) have committed to avoid the entire population of *Pultenaea skinneri* recorded in the north-western corner of the application area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Bennett Environmental Consulting (2008).  
Griffin Coal (2008)  
Western Australian Herbarium (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 Threatened Ecological Communities (TECs) found within the application area or within a 40 kilometre radius of the application area (GIS Database). Given that there are no TECs in close proximity to the proposed clearing, and the small size of clearing required (5.6 hectares), it is unlikely that there will be any significant impacts to the environmental values of any TECs as a result of this proposal.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** GIS Database:  
- Threatened Ecological Communities - CALM

**(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 application area is located within the Jarrah Forest IBRA bioregion (GIS Database). There is approximately 53.8% of vegetation remaining within this bioregion, of which approximately 25.5% is located within conservation reserves (Shepherd et al., 2001). In addition, there is approximately 50.2% of vegetation remaining within the Southern Jarrah Forest IBRA sub-region, of which 32.8% remains in conservation estate. There is approximately 84.9% of vegetation remaining within the Shire of Collie (Shepherd, 2001).

The vegetation of the application area is classified as Beard vegetation association 3 - Medium forest; jarrah-marri (GIS Database). This vegetation association is well represented within conservation estate and on a state, bioregional and sub-regional level (Shepherd et al., 2001). The loss of 5.6 hectares is not likely to significantly

impact on the extent of this vegetation type either on a regional or sub-regional level.

Based on the information above, the vegetation proposed to clear does not represent a significant remnant of vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion – Jarrah Forrest	4,506,675	2,426,080	53.8	Least concern	14.0 (25.5)
IBRA Subregion – Southern Jarrah Forest	2,607,875	1,308,941	50.2	Least concern	16.8 (32.8)
Local Government – Collie	170,223	144,442	84.9	Least concern	N/A
<b>Beard veg assoc. – State</b>					
3	2,661,515	1,863,983	70.0	Least concern	18.4 (26.2)
<b>Beard veg assoc. – Bioregion</b>					
3	2,390,535	1,661,219	69.5	Least Concern	16.3 (23.3)
<b>Beard veg assoc. – Subregion</b>					
3	1,482,495	913,332	61.6	Least concern	18.7 (30.2)

\* Shepherd et al. (2001) updated 2005

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

<u>Options to select from:</u> Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)	
Presumed extinct	Probably no longer present in the bioregion
Endangered*	<10% of pre-European extent remains
Vulnerable*	10-30% of pre-European extent exists
Depleted*	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area
* or a combination of depletion, loss of quality, current threats and rarity gives a comparable status	

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Department of Natural Resources and the Environment (2002)  
Shepherd et al. (2001)  
GIS Database  
- Interim Biogeographic Regionalisation of Australia (IBRA)

**(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 no watercourses or wetland areas found within the application area (GIS Database). There is a minor, non-perennial drainage line located approximately 180 metres to the west of the application area (GIS Database). Given the distance between the application area and this watercourse, it is unlikely there will be any significant impacts to vegetation associated with watercourses or wetlands as a result the proposed clearing.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** GIS Database:  
- Geodata, Lakes  
- Hydrography, Linear  
- Rivers 250K - GA

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
The application area is characterised by low relief laterite and hill landscapes (Griffin Coal, 2008). The application area is located on sloping ground undulating from the south-east of the application area towards the

north-west (GIS Database). There is a 10 metre gradient between the south-east and the north-west of the application area (GIS Database). The geology of the application area is described as grey sandy soils, with approximately 10-20% of scattered laterite found amongst grey sandy soils in the north-west of the application area (Bennett Environmental Consulting, 2008). It is likely that the soils of the application area would be prone to erosion if the vegetation cover is removed.

In regards to this, Griffin Coal (2008) has stated that during the project gravel will be mined according to gravel requirements for operational purposes and that this is likely to be in stages. As a result, progressive clearing will be undertaken during the life of the project. Additionally, progressive rehabilitation will be undertaken as land becomes available (Griffin Coal, 2008). These measures will reduce the amount of land open to erosional forces at any given time.

In regard to the potential for topsoil stockpiles to be eroded, Griffin Coal (2008) have stated that topsoil stockpiles will be kept at a low height (no more than 2 metres) and will be stabilised by the use of seed, mulch or an appropriate soil stabilising chemical where required.

Griffin Coal are required to conduct rehabilitation in accordance with the *Collie Coal (Griffin) Agreement Act 1979* (Griffin Coal, 2008). The rehabilitation standards and procedures are developed and approved by the Collie Coal Mines Environmental Committee (CCMEC), of which the DEC and Department of Mines and Petroleum (DMP) are members of (Griffin Coal, 2008).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Bennett Environmental Consulting (2008).  
Griffin Coal (2008).  
GIS Databases:  
- Hydrography, linear (medium scale, 250k GA)  
- Topographic Contours, 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 at variance to this Principle**

The application area is located within the 'Class A' Collie State Forest area (GIS Database). This State Forest is managed for multiple purposes, including conservation. *Phytophthora* dieback is known to occur within the Collie State Forest (Griffin Coal, 2008) and therefore, should a permit be granted, it is recommended that conditions be imposed for the purposes of *Phytophthora* dieback management.

The *Collie Coal (Griffin) Agreement Act 1979* (WA) permits Griffin entry into State Forest for the purposes of exploration, clearing of timber and undergrowth and mining. A condition of this Act is that Griffin will give prior notice to the Conservator of Forests (now the Forest Products Commission (FPC)) that clearing is to take place. Griffin Coal (2008) has provided a letter from the FPC which indicates that the FPC are currently and will continue to be involved in the salvage of saleable timber resources within areas of State Forest covered by the Ewington Mining lease and clearing permits. The FPC has previously inspected nearby areas within the area covered by the *Collie Coal (Griffin) Agreement Act 1979* and found there to be no salvageable timber (Griffin Coal, 2008). The application area consists of regrowth vegetation and therefore, it is not expected that there would be any salvageable timber within the application area. In addition, the DEC has stated that there is no stockpiled timber within the application area (Griffin Coal, 2008).

The Yallatup Nature Reserve is located approximately 8.5 kilometres to the east of the application area (GIS Database). Based on the distance between these two areas, it is unlikely that the proposed clearing will have any significant impact upon this nature reserve.

Based on the above, the proposed clearing is at variance to this Principle. However, should the permit be granted it is recommended that conditions be placed on the permit for the purposes of *Phytophthora* dieback management.

**Methodology** Griffin Coal (2008)  
GIS Database:  
- CALM Managed Lands and Waters - CALM

**(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**

There are no watercourses or wetlands within the areas applied to clear (GIS Database). The nearest watercourse is a minor, non-perennial watercourse, located approximately 180metres to the west of the application area (GIS Database). The area between the application area and the watercourse is heavily vegetated and due to this buffer the proposed clearing is unlikely to result in increased sedimentation of this or any other watercourse.

The application area is found within the Wellington Dam catchment area which is a Public Drinking Water Supply Area (PDWSA) (GIS Database). In addition the application area is found within the Zone 'A' *Country Area Water Supply (CAWS) Act 1947* catchment area (GIS Database). According to Department of Water (DoW), Zone 'A' refers to the category of 'Extreme Management/Government Works'. Under this Act, broadacre clearing within a Zone 'A' area is generally granted on the condition that an area of equivalent size to the clearing area, is reforested (Griffin Coal, 2008).

Advice was received from the DoW on 3 July 2008 regarding the location of the application area within the Wellington Dam catchment and the Zone 'A' CAWS catchment area, and the potential groundwater effects from the proposed clearing. The advice stated that "under DoW policy and guidelines for the administration of *Country Areas Water Supply Act 1947* clearing controls, applications for broad acre clearing in Zone 'A' in the category of 'Extreme Management/Government Works' are normally granted on condition that an equivalent area is reforested" (DoW, 2008). However, the DoW have decided that as the proposed clearing is in close proximity to the Muja pit where dewatering operations are carried out, the proposed clearing is unlikely to cause significant salinisation of water resources. Consequently, DoW has stated that Griffin Coal are not required to plant an offset for the proposed clearing of 5.6 hectares of native vegetation for this project.

Additional advice was received from the DoW on 4 February 2008 regarding the risk of salt mobilisation with increased rainfall in the proposed borrow pit. DoW believes that salinity impacts from the proposal would predominantly discharge toward and into the Muja pit (DoW, 2009). DoW (2009) recommend taking the following actions to minimise these impacts:

- reduce rainfall infiltration in the borrow pit by removing any surface accumulations;
- prevent any surface runoff into the borrow pit; and
- revegetate the borrow pit in the shortest possible timeframe (winter of 2011 latest).

Groundwater quality within the application area is classified as fresh to saline at approximately 1000 - 3000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** DoW (2008).  
DoW (2009).  
GIS Database:  
- Groundwater Salinity, Statewide  
- Hydrography, Linear  
- Public Drinking Water Source Areas  
- Rivers 250K - GA

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

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

The topography of the application area is described as gently undulating hills, from the south-eastern corner towards the north-west with a gradient of 10 metres between both of these areas (GIS Database). During heavy rainfall periods which predominantly occur during winter (BoM, 2008), runoff is likely to move from the south-eastern corner to the north-western corner of the application area. Given the slope present, it is unlikely that runoff during excessive rainfall events would pool and collect as it would be moving down gradient.

The application area is situated within the Wellington Dam-Collie River Catchment which covers an area of approximately 282,909 hectares (GIS Database). Given the small size of the proposed clearing (5.6 hectares) in relation to the size of the Wellington Dam-Collie River Catchment (282,909 hectares); it is unlikely that the proposed clearing will significantly increase the incidence or intensity of flooding within the application area (GIS Database).

Additionally, it should be noted that the application area is made up predominantly of grey sandy soils (Bennett, 2008). It is likely that rainfall would penetrate these soils easily and move into the groundwater below.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** BoM (2008).  
GIS Database:  
- Hydrographic Catchments - Catchments.  
- Topographic Contours, Statewide

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

**Comments** The clearing permit application was advertised on 2 June 2008, inviting submissions from the public. One public

submission was received on 26 June 2008, raising concerns regarding the clearing of regrowth native vegetation. The concerns of the direct interest party have since been addressed in this assessment.

The assessing officer has liaised with the Environmental Protection Authority (EPA) in regards to this application. The application is within a PDWSA as well as a CAWS catchment area which would generally require referral to the EPA under the Memorandum of Understanding (MoU) between the EPA and DMP. However, the EPA stated that the activities proposed under this clearing permit are not significant enough to warrant referral to the EPA in this instance (Griffin Coal, 2008).

Griffin Coal has liaised with the DoW regarding the clearing of native vegetation for this proposal. The application area is located in a Zone 'A' *Country Area Water Supply (CAWS) Act 1947* catchment area (GIS Database). Under this Act, broadacre clearing within a Zone 'A' area is generally granted on the condition that an area of equivalent size to the clearing area, is reforested, however DoW has concluded that this is not necessary for this proposal (DoW, 2009). This is due to the relatively small clearing envelope, dewatering of the Muja pit which has been occurring for a number of years, as well as the condition of the vegetation within the application area which is relatively new regrowth vegetation (DoW, 2009). The DoW (2009) has however made the following recommendations regarding the native vegetation clearing proposal:

- reduce rainfall infiltration in the borrow pit by removing any surface accumulations;
- prevent any surface runoff into the borrow pit; and
- revegetate the borrow pit in the shortest possible timeframe (winter of 2011 latest).

DEC has recommended rehabilitation conditions to be placed on the permit, however, after liaising with the proponent the assessor has found that the DEC recommended conditions duplicate Griffin Coal's State Agreement Act rehabilitation conditions. It has also been found that the State Agreement Act rehabilitation conditions are more comprehensive and thorough than the DEC recommended rehabilitation conditions (Griffin Coal, 2008). The assessor has therefore determined that future rehabilitation of the site can be effectively managed through Griffin Coal's more comprehensive State Agreement Act rehabilitation requirements (Griffin Coal, 2008).

There is one known Native Title claim over the area under application (WC98/058) (GIS Database). The mining tenement 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*.

There is one known registered Site of Aboriginal Significance (site ID: 4735) located 350 metres to the north of the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with DEC and the DoW to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

**Methodology** DoW (2009)  
Griffin Coal (2008)  
GIS Database:  
- Native Title Claims  
- Sites of Aboriginal Significance DIA

#### 4. Assessor's comments

##### Comment

The proposal has been assessed against the Clearing Principles and the proposal is at variance to Principle (h) and is not likely to be at variance to Principles (a), (b), (c), (d), (e), (f), (g), (i) and (j).

Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed and dieback management, record keeping and permit reporting.

#### 5. References

- Bamford Consulting Ecologists (2008) Inspection of Griffin Coal's Muja laterite extraction area, August 2008. Unpublished report prepared for Griffin Coal. Perth, Western Australia.
- Bennett Environmental Consulting (2008) Laterite Area - Griffin Coal, unpublished report prepared for Griffin Coal.
- BOM (2008) Climate of Perth. Bureau of Meteorology. URL: [http://www.bom.gov.au/weather/wa/perth\\_airport/climate.shtml](http://www.bom.gov.au/weather/wa/perth_airport/climate.shtml)
- 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.
- DoW (2008) Public Drinking Water Source Area (PDWSA) Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Environment, Western Australia.
- DoW (2009) Potential Salinity Risk Associated with Clearing. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP). Department of Environment, Western Australia.

- Griffin Coal (2008) Clearing Permit Application Supporting Documentation. September 2008.
- Hearn, R., Williams, K., Comer, S. and Beecham, B. (2002) Jarrah Forest 2 (JF2 - Southern Jarrah Forest subregion) in Bioregional Summary of the 2002 Biodiversity Audit for Western Australia, Department of Conservation and Land Management, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Western Australian Herbarium (2008). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>

## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEC</b>	Department of Environment and Conservation
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DMP</b>	Department of Mines and Petroleum, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	Threatened Ecological Communities.

### Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4** **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R** **Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-



- Schedule 1**    **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2**    **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3**    **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4**    **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1**            **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2**            **Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3**            **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4**            **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5**            **Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

**Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)**

- EX**            **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)**        **Extinct in the wild:** A native species which:  
 (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or  
 (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR**            **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN**            **Endangered:** A native species which:  
 (a) is not critically endangered; and  
 (b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU**            **Vulnerable:** A native species which:  
 (a) is not critically endangered or endangered; and  
 (b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD**            **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.