

## Appendix A2: Biodiversity Offset Strategy

### 1 Background

A strategy for biodiversity offsets is currently being developed by BMA to address the objectives of both the current State and Commonwealth legislative biodiversity offsetting requirements. An analysis has been undertaken to identify the offset requirements for potential impacts for the proposed Caval Ridge project for use in preparation of a specific Biodiversity Offset Management Plan for the project. Analysis requirements being undertaken for offsets include:

- Extent and size of offsets required to be secured;
- Ecological values required to be offset;
- Options available for pooling or consolidation of offset requirements; and
- Options for securing offsets.

Offset assessment and analysis includes the co-ordination of multiple offset requirements and is being carried out under the following policies:

- *Vegetation management offsets under the Vegetation Management Act, 1999* (Queensland);
- *Biodiversity offsets under the Draft Policy for Biodiversity Offsets 2008* (Queensland);
- *Queensland Government Environmental Offset Policy 2008*; and
- *Draft Environmental offsets under the Environment Protection and Biodiversity Conservation Act, 1999* (Commonwealth).

Further steps to be undertaken within a suitable timeframe as part of the process include:

- Identification of suitable offset options;
- Assessment of properties;
- Landholder liaison and negotiation to secure required offsets;
- Offset validation and preparation of specific Biodiversity Offset Management Plan(s); and
- Liaison to finalise contractual arrangements and covenants.

In addition to the objectives outlined above and those previously stated within the Caval Ridge EIS (Section 5.4.4), the Biodiversity Offset Management Plan will be implemented over an appropriate time frame to accomplish the following specific aims:

- Identification of suitable potential offset areas with ecological values analogous to impacted ecological communities;
- Assessment of the ecological value and equivalence of offsets to ensure suitable offset extent, species assemblage, floristic structure and ecological integrity utilising an appropriate biometric field methodology;
- Development of appropriate management prescriptions to ensure long term viability of offsets (such as pest control, livestock management, access exclusion, ameliorative plantings and fire regime management);
- Placement of appropriate covenants for future conservation and management of offsets; and



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- Development of appropriate monitoring and maintenance activities and performance review processes to ensure long term viability of the offsets.

## 2 Offset requirements for the project

### Proposed Impacts

The Caval Ridge EIS identifies two EPBC Act listed threatened ecological communities that will be impacted by the proposed action. Table 2.1 provides a summary of the extent of clearance within these two communities.

**Table 2.1 - Ecological Communities to be cleared**

Threatened Ecological Community	Corresponding Regional Ecosystems	EPBC Act Conservation Status	~Area to be cleared (ha)
Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant)	11.4.8, 11.4.9, 11.9.5	Endangered	24.5 <sup>a</sup>
Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin	11.8.11	Endangered	124.6
Total			151.4

<sup>a</sup> - an additional 3.1 ha of Brigalow community requiring clearing has existing clearing approval.

The areas of 'Brigalow (*Acacia harpophylla* dominant and co-dominant)' to be cleared were identified in the EIS as highly disturbed and in poor condition due primarily to invasion by buffel grass (*Pennisetum ciliare* previously known as *Cenchrus ciliaris*) and drought stress. Areas of 'Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin' to be cleared were generally observed to be heavily infested by parthenium (*Parthenium hysterophorus*).

The above areas proposed to be cleared have been fragmented and isolated due to historical land use of the area. The areas to be cleared are also relatively small and do not represent a significant proportion of the REs within the bioregion. The fragmented isolated nature and poor condition of these communities reduces their current ecological function and future viability.

### Grasslands

A suitable area for the offset of 'Brigalow (*Acacia harpophylla* dominant and co-dominant)' has been identified and is discussed in Section 0. A suitable area for the offset of 'Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin' has not yet been identified. Ground truthing surveys to identify further appropriate offset areas of Natural Grasslands have been scoped and are to be initiated during required seasonal conditions to ensure fertile material is present for correct identification. The engagement of the state advisory group 'Ecofund Queensland' is also being explored as an option to achieve a solution for offsetting the sparsely distributed Natural Grassland community.

The following sections describe the proposed 'Brigalow (*Acacia harpophylla* dominant and co-dominant)' offset and will have to be re-addressed also for the Natural Grassland offset once a suitable area has been identified following seasonal surveys.

### Offset Ratio

DEWHA's currently available Draft Policy Statement: 'Use of Environmental Offset under the EPBC Act, 1999' (DEWHA August, 2007) does not provide information guiding appropriate offset ratios, opting for a more flexible approach. The Draft policies guiding principal on this states "As a minimum, environmental offsets should be commensurate with the magnitude of the impacts of the development and ideally offer outcomes that are 'Like for like'".

DEWHA have indicated in discussion that offset ratio's calculated on a project by project basis require consideration of a number of factors including:

- Magnitude of Impact (extent and condition of impacted communities);
- Ecological condition and integrity of proposed offset;
- Extent and connectivity of proposed offset; and
- Previous land use and proposed management regime of offset.

The Queensland Government 'Policy for Vegetation Management Offsets' provides guidelines to determine the minimum offset ratio based upon a number of factors including condition of offset area, proximity to area of impact, and ecological equivalence. A review of options provided within the Policy compared with values of the proposed offset area indicates the most suitable offset option is Option 2.6 which requires a 1:2.5 (minimum) offset ratio.

Table 2.2 below provides a summary of offset Option 2.6 including comments of compliance with offset option criteria. As discussed in Section 0 this ratio relates to the proposed brigalow offset and will have to be undertaken for the Natural Grasslands offset once a suitable area has been identified.

**Table 2.2 – Offset ratio calculation under VM Act**

Requirements of proposed offset to meet offset Option 2.6	Compliance	Comments
a) be an endangered pre-clearing RE that contains similar species and habitat values to the area proposed for clearing	Yes	The regrowth areas of the proposed offset area support remnant and regrowth brigalow communities with similar species composition and habitat values to the areas to be cleared (requires site verification).
b) demonstrate ecological equivalence or better will be provided than the area proposed for clearing	Yes	The proposed offset area supports remnant vegetation that is in an equivalent or better condition and has less weed invasion than the proposed areas to be cleared (requires site verification).
c) be within the same bioregion as the area proposed for clearing	Yes	The proposed offset area occurs within the same bioregion (Brigalow Belt) as the area proposed for clearing.
d) provide strategic biodiversity protection that enhances the viability and extent of endangered remnant vegetation	Yes	The proposed offset area includes endangered remnant vegetation and significant buffer areas of regrowth vegetation.



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e) with management, attain remnant status within 5 years	TBA	Requires site assessment.
f) not require revegetation across more than 10% of the offset area	Yes	No revegetation is expected to be required within the offset area (requires site verification).

### **Proposed Offset Reserve**

#### **Extent**

In order to mitigate the impacts of the proposed vegetation clearing, an area of integral vegetation has been identified adjacent to Norwich Park Mine for use as an offset. This area is a large stand of remnant and non-remnant native vegetation that is proposed to be used as an 'offset reserve' for the offset requirements for a number of BMA projects. The Norwich Park offset area is currently being set up under a Nature Refuge Agreement. The proposed total Nature Refuge Area / Offset Area covers a total of 1,109 ha which includes 333ha of remnant brigalow communities and approximately 488 ha of regrowth brigalow communities. This total area will be managed as a single offset area, with an appropriate area delineated for the Caval Ridge offset requirement. Table 2.3 provides a summary of the offset area.

**Table 2.3 – Brigalow Ecological Communities within proposed offset reserve**

<b>Threatened Ecological Community</b>	<b>Corresponding Regional Ecosystems</b>	<b>Area<sup>1</sup> (ha) -Remnant</b>	<b>Area<sup>2</sup> (ha) -Regrowth</b>	<b>Area offset 1:2.5 (ha)<sup>3</sup></b>	<b>of at ratio</b>	<b>Proposed Offset Area (ha)</b>	<b>Effective Offset ratio</b>
Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant)	11.4.8, 11.4.9	~333	~488	61.3	100	100	1: 4.1

<sup>1</sup> – Data supplied by BMA.

<sup>2</sup> – To be revised following detailed site assessment.

<sup>3</sup> – Based upon application of 1:2.5 offset ratio from Queensland Government 'Policy for Vegetation Management Offsets'

#### **Ecological Condition of Proposed Offset**

The 'Biodiversity and Threatened Species Action Plan for Norwich Park Mine' (EcoServe, 2005) prepared for BMA identifies the area of the proposed offset as having a "very high" habitat value ranking. The action plan identifies the following rare, threatened or otherwise significant fauna species (including migratory fauna) that have been observed in the proposed offset area or adjacent areas: ornamental snake, squatter pigeon, little pied bat, koala, short-beaked echidna, rainbow bee-eater, caspian tern, cattle egret, cotton pygmy goose, dollarbird, great egret, Latham's snipe, restless flycatcher and white-throated needletail.

The action plan also identifies the following rare, threatened or otherwise significant fauna species (including migratory fauna) as having the potential to be present within the proposed offset area: brigalow scaly-foot, short-necked work skink, large-eared pied bat, greater long-eared bat, golden-tailed gecko, Dunmall's snake, yakka skink, fork-tailed swift, sharp-tailed sandpiper, curlew sandpiper, red-necked stint, white-winged black tern, black-necked stork, grey falcon, white-bellied sea eagle, glossy Ibis, rufous fantail, marsh sandpiper and oriental cuckoo.



In regards to the flora, only one species of conservation significance *Dichanthium setosum* was identified as having a reasonable probability of occurring either in or adjacent to the proposed offset area particularly in REs 11.4.13 and 11.4.11.

The proposed offset area includes a waterway and contributes to a habitat corridor through the region. All endangered REs within the proposed offset area have State significance and the remainder of the remnant REs have Regional significance as they provide wildlife refugia, contain poorly conserved RE's and/or generally lie adjacent to Endangered RE's.

The proposed offset area of 100 ha (calculated to exceed minimum offset area of 1:2.5 ratio) required from the 1,109 ha offset area would allow the remainder of the offset area to be used for future offsets resulting in substantial area of high value vegetation to be securely protected.

### 3 Summary

- DEWHA have indicated that offset requirements for the project need to account for a number of considerations for impacts and offset condition;
- Baseline surveys indicate that the ecological condition of communities to be impacted is relatively poor, as they are highly disturbed by previous land use practices and heavily weed infested;
- Vegetation communities to be impacted are isolated, fragmented and relatively small in extent, reducing potential for future viability;
- The offset reserve identified adjacent to Norwich Park Mine has been identified as an area of high habitat value with relatively high ecological condition and integrity;
- The extent proposed for offset for the Caval Ridge project is comprised of both contiguous remnant and regrowth vegetation that will be managed to attain remnant status;
- The proposed offset area forms part of a significantly larger contiguous extent of integral vegetation that will also be managed to provide offsets for other projects under a Nature Refuge Agreement;
- The management of the offset reserve maximises biodiversity gains by providing an overall larger extent of contiguous and integral vegetation with habitat for a number of conservation significant species;
- The proposed offset reserve is contiguous with adjoining alluvial communities and provides localised riparian connectivity;
- The proposed offset reserve will be managed in accordance with aims outlined above (Section 1) to ensure future viability as an area with high ecological values;
- State offset legislative requirements are aligned with the guiding principals outlined by DEWHA for appropriate offsets. Both consider extent of proposed impacts; and condition; extent; and distance of proposed offset from impact;
- State offset legislative requirement based on the brigalow belt VM codes, indicate an offset ratio requirement of 1:2.5 for brigalow communities of the Caval Ridge project; and

The proposed Caval Ridge Offset Area of 100 ha of brigalows communities provides a number of clear biodiversity gains outlined above and also ensures a better than 'like for like' outcome with a 1:4.1 ratio.