

11. PROPOSED ENVIRONMENTAL OFFSETS

11.1 INTRODUCTION

Environmental offsets are defined by the EPA as environmentally beneficial activities undertaken to negate any adverse environmental impact, to achieve 'no net environmental loss' or, aspirationally, a 'net environmental benefit' (EPA 2006a). Environmental offsets are off-site environmental management activities that, together with appropriate on-site management, can assist a project to be judged or assessed as being environmentally acceptable.

11.2 ABOUT ENVIRONMENTAL OFFSETS

Both the EPA and the DEWHA recognise the role of environmental offsets and have issued guidance on their use in various applications. The purpose of this section is to outline the policies and guidance.

11.2.1 State Government process

The EPA has published the following advice on its position and expectations in relation to environmental offsets:

- Position Statement No. 9 (EPA 2006a), which provides the overarching advice about the intent and appropriate use of environmental offsets⁶⁵
- Guidance Statement No. 19 (EPA 2008c) provides more detailed advice on the expectations of the EPA on how to address and present proposed offsets
- Environmental Protection Bulletin No. 1 (EPA 2008d), which is a summary report of the above two documents.

Determining if offsets are needed

The EPA has several criteria that need to be assessed to determine if it is appropriate to consider offsets:

- where there are significant adverse impacts to critical and high value assets⁶⁶
- where all other options for environmental mitigation (i.e. avoidance, minimisation, rectification and reduction) have been exhausted
- where the residual impacts are significantly adverse.

⁶⁵ Position Statement No. 9 is currently under review.

⁶⁶ The EPA's list of critical and high value assets is currently under review and the existing list, as presented in Position Statement No 9, is used in this assessment.

Formulating an offsets package

Where the application of offsets is considered appropriate, the EPA expects proponents to identify and develop a suitable offsets package and demonstrate that the package addresses the following principles:

- A. Environmental offsets should only be considered after all reasonable attempts to mitigate adverse impacts have been exhausted according to a mitigation hierarchy.
- B. An environmental offsets package should consider direct offsets and contributing offsets, as appropriate.
- C. Environmental offsets should ideally be 'like for like or better'.
- D. Positive environmental offset ratios should apply where risk of failure is apparent.
- E. Environmental offsets must entail a robust and consistent assessment process.
- F. Environmental offsets must meet all statutory requirements.
- G. Environmental offsets must be clearly defined, publicly registered, transparent, auditable and enforceable.
- H. Environmental offsets must ensure a long lasting benefit.

Presenting an offsets package

The EPA has a suggested format for the presentation of environmental offsets that shows how the preceding advice has been considered. Table 11-1 is consistent with this format.

11.2.2 Australian Government process

The DEWHA has published Policy Statement No. 4.1 (DEWR 2007) 'Use of environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999*'. Environmental offsets can be used under the EPBC Act to maintain or enhance the health, diversity and productivity of the environment as it relates to matters protected by the EPBC Act.

The Australian Government's position is that:

1. Environmental offsets should be targeted to the matter protected by the EPBC Act that is being impacted.
2. A flexible approach should be taken to the design and use of environmental offsets to achieve long-term and certain conservation outcomes which are cost effective for proponents.
3. Environmental offsets should deliver a real conservation outcome.
4. Environmental offsets should be developed as a package of actions - which may include both direct and indirect offsets.
5. Environmental offsets should, as a minimum, be commensurate with the magnitude of the impacts of the development and ideally deliver outcomes that are 'like for like'.
6. Environmental offsets should be located within the same general area as the development activity.
7. Environmental offsets should be delivered in a timely manner and be long lasting.
8. Environmental offsets should be enforceable, monitored and audited.

11.3 PROPOSED OFFSET PACKAGE

11.3.1 Type and value of environmental assets

Native vegetation (high)

The native vegetation of the Proposal area, of which 155 ha is proposed to be cleared and rehabilitated, is assessed as having in part high plant diversity and contains one Declared Rare Flora species. The Proposal is not considered to be at serious variance with Principle 1 of the clearing principles but nonetheless will have an impact on an area of substantial biological biodiversity.

For the purposes of considering offsets the area to be cleared will be assumed to be a high value asset i.e. vegetation that is good to excellent condition, is considered valuable by the community and/or government (EPA 2006b).

Declared Rare Flora (critical)

The Proposal area contains a sizeable portion of the northern-most occurrence of the Declared Rare Flora *Daviesia elongata* subsp. *elongata* but the implementation of the Proposal will not significantly affect the local North Whicher Scarp population.

Conservation significant fauna (high)

The Proposal area contains habitat that supports or potentially supports eight species that are considered to be conservation significant. The Proposal area does not contain significant habitat, i.e. habitat that is important for the long term survival of a species or an important population. Accordingly, the value of the environmental asset is considered to be high, as opposed to critical.

Priority flora (critical)

There are five Priority flora recorded within the Proposal area:

- *Acacia flagelliformis* (P4)
- *Boronia humifusa* (P1)
- *Logania wendyae* (P1)
- *Platytheca anasima* (P2)
- *Stylidium barleei* (P3).

There are also eight Priority flora that may be present within the Proposal area, but have not as yet been recorded:

- *Boronia tenuis* (P4)
- *Hypolaena robusta* (P4)
- *Lomandra whicherensis* (P1)
- *Stenanthemum sublineare* (P2)
- *Stylidium striatum* (P4)

- *Synaphea hians* (P3)
- *Synaphea hypericoides* (P3)
- *Tetratheca parvifolia* (P3).

The impact on these priority species will not be significant but the presence of these species in native vegetation in the Proposal area adds to the designated high value for this vegetation.

11.3.2 Summary of potential significant impacts

In a worst-case situation, i.e. before the application of management controls, the Proposal could result in the following inherent impacts during mining:

- loss of 155 ha of native vegetation of the diverse and regionally significant Whicher Scarp, out of a total remainder of 9,600 ha
- a reduction of 50% in northwards habitat of the Declared Rare Flora *Daviesia elongata* subsp. *elongata*
- a 155 ha reduction in foraging habitat for the conservation significant Black Cockatoos and in habitat for at least four confirmed conservation significant mammals: Brush wallaby, Brush-tailed Phascogale, Chuditch and Quenda, out of total area of continuous native vegetation of >10,000 ha (Argyle forest block)
- a reduction in the current occurrence and habitat for a confirmed five priority plant taxa and up to nine potential priority taxa
- a negligible reduction in the extent of flora values of the Whicher Range Area.

11.3.3 Summary of mitigation measures

As listed in each of the relevant preceding sections and described in the attached management plans, the Proponent will implement a range of mitigation measures to avoid or reduce the significance of any permanent environmental impacts. The principle measures are:

- restricting clearing of native vegetation in State Forest to mine voids, access corridors, vegetation stockpiles, safety buffers and a noise bund
- examining all alternatives to clearing native vegetation outside of State Forest areas
- establishment of separation buffers to the creeklines and enhancement of vegetation and habitat values of the creeklines (that run the full extent across the Proposal area)
- full and best practice rehabilitation of the disturbance area, to agreed end points, including abiotic factors, rare and priority species and foraging plants and habitat for conservation significant animals
- clearing protocols and other fauna safeguards.

11.3.4 Residual impacts before applying offsets

The Proponent considers that the Proposal may potentially result in two potentially residual impacts of most interest:

- a permanent or long-term change in the ecological processes and habitat attributes of the 155 ha of native vegetation following rehabilitation, which has the potential to change (alter or reduce) the existing biological diversity and productivity of the site, particularly for the 74 ha of mine pits and those areas currently uninfested with dieback
- initial loss of *D. elongata* subsp. *elongata* plants in the Proposal area with some uncertainty over whether this species can be successfully re-established as a self-perpetuating colony in rehabilitation areas
- an increase in population pressure (fauna) for the surrounding bushland.

11.3.5 Proposed offsets

Direct offsets

To offset the clearing and alteration of 155 ha of native vegetation containing Declared Rare Flora species *Daviesia elongata* subsp. *elongata* and four priority species, the Proponent will dedicate 216 ha of native vegetation, in good to excellent condition on private land that is not protected, to nature conservation, either by placing covenant restrictions over the areas or transferring the land title(s) to the State Government. The vegetation (Figure 11-1) is predominantly of the same vegetation complexes and structural types as the Proposal area and includes 37 ha of the Whicher valley vegetation complex and 3 ha of Cartis vegetation complex, both of which are currently inadequately represented in conservation reserves. The offset area also includes Lot 107 (69 ha), situated between the State Forest and the Gwindinup Nature Reserve and considered important in the connectivity between the two (one of the conservation recommendations of Keighery et al. 2008). While these areas have been mapped to a vegetation community level, additional studies are scheduled for spring 2009 to assess the presence of Priority Flora and other significant plant taxa.

To offset the potential increase in fauna population pressure in the surrounding Argyle forest block, the Proponent will undertake the following management measures:

- revegetation of 14 ha of abandoned gravel quarries and access tracks in the State Forest surrounding the Proposal area
- feral fox control in surrounding areas of State Forest and private land, as described in the Fauna Management Plan
- feral bee control and installation of nesting boxes, as described in the Fauna Management Plan.

Indirect offsets

To offset the remaining residual impacts, the following indirect offsets are proposed:

- to offset the lack of certainty of outcome in regards to the re-establishment of *D. elongata* subsp. *elongata*, the Proponent will commission further studies into the biology of the plant, its susceptibility to dieback, changes in fire regime and rehabilitation in consultation with DEC
- to offset the threat of dieback spread into uninfested areas within the Proposal area, the Proponent will contribute \$50,000 over three years to support the recently established Centre for Excellence for Climate Change and Tree Decline (which has links to the Dieback Working Group and is looking into the decline in a number of important southwest tree species)

11.4 PREDICTED ENVIRONMENTAL OUTCOME

The above proposed offsets satisfy the principles of both the EPA and the EPBC Act and greatly surpass the 1 for 1 or like for like balance. The offsets include both direct and indirect or contribution offsets and will result in increased reservation of Whicher Scarp vegetation, including a community that is under-represented in the conservation estate, increased knowledge of a rare plant and increased resources for tackling the threatening processes of climate change and dieback. All of the offsets are auditable and will result in a long-term environmental benefit.

Environmental Review

Table 11-1 Summary of proposed environmental offsets package

Environmental asset	Potential significant impacts	Mitigation measures	Potential residual impacts	Proposed offset
Native vegetation of high diversity (Table 8-1), high value asset	Will potentially affect 155 ha of native vegetation of Whicher Scarp, noted for its diversity of landforms, flora and fauna (46% or 9600 hremains in vegetated state). Area has been heavily logged and is 50% dieback infested.	Minimise disturbance, avoid creeklines, highly detailed and prescriptive soil management, rehabilitation.	Unavoidable alteration of soil structure. Uncertainty of outcomes in rehabilitation of such diverse vegetation. Unavoidable increase in dieback spread.	<p>Direct:</p> <ul style="list-style-type: none"> conservation of 230 ha of Whicher Scarp vegetation, including 37 ha of under-reserved Whicher Valleys (WCv) vegetation complex and 120 ha of WC vegetation complex revegetation of 14 ha of abandoned quarries and tracks in State Forest. <p>Indirect:</p> <ul style="list-style-type: none"> support for local conservation efforts, including Centre for Excellence/Dieback Working Group to the value of \$50,000.
Declared Rare Flora – <i>Daviesia elongata</i> subsp. <i>elongata</i> (Table 5-8 and Table 5-9), critical asset	Will disturb ~50% of available habitat of sub- local population of <i>D. elongata</i> subsp. <i>elongata</i> , which is at northern end of its known range.	Minimise disturbance, rehabilitation to agreed end-points.	No demonstrated outcomes in recruitment of <i>D elongata</i> subsp. <i>elongate</i> in rehabilitation. Some uncertainty remains as to productivity of sub- local population, although viability should not be an issue, as only ~50% habitat will be affected of sub-local population.	<p>Direct:</p> <ul style="list-style-type: none"> conservation of 230 ha of Whicher Scarp vegetation, including 37 ha of under-reserved Whicher Valleys (WCv) vegetation complex and 120 ha of WC vegetation complex. <p>Indirect:</p> <ul style="list-style-type: none"> research into biology of <i>D. elongata</i> subsp. <i>elongata</i>, in consultation with DEC. Support for development of species' recovery program support for local conservation efforts, including Centre for Excellence/Dieback Working Group to the value of \$50,000.
Habitat for significant fauna (Section 6.3.4), high value asset	Will reduce forage and shelter for fauna, including Black Cockatoo species but this habitat is not considered significant habitat critical for survival of these species.	Minimise disturbance, retain corridors, implement clearing procedures, rehabilitation, off-site habitat enhancement, fox baiting.	Reduction in grazing area for Black Cockatoos species, until rehabilitation is sufficiently progressed.	<p>Direct:</p> <ul style="list-style-type: none"> proposed off-site mitigation measures, e.g. fox and feral bee control, nest boxes, land conservation, revegetation, etc. are considered as offsets under EPBC Act revegetation of 14 ha of abandoned quarries and tracks in State Forest

Environmental Review

Happy Valley Titanium Minerals Project

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Environmental asset	Potential significant impacts	Mitigation measures	Potential residual impacts	Proposed offset
Priority species (Table 5-10), critical asset	Will disturb recorded occurrences of seven priority flora, none restricted to the Proposal area.	Minimise disturbance, rehabilitation to agreed end-points.	Minor reduction in local occurrences.	Direct: <ul style="list-style-type: none"> • conservation of 230 ha of Whicher Scarp vegetation, including 37 ha of under-reserved Whicher Valleys (WCv) vegetation complex. 120 ha of WC vegetation complex and 3 ha of CSs vegetation complex • revegetation of 14 ha of abandoned quarries and tracks in State Forest, Indirect: <ul style="list-style-type: none"> • support for local conservation efforts, including Centre for Excellence/Dieback Working Group to the value of \$50,000.
Places of heritage significance - Whicher Range Area (ID 9400, pre 1991) (Section 4.2.3), high value asset	Will disturb 155 ha of native vegetation – principle reason for listing. Vegetation is not constrained to Proposal area.	Minimise disturbance, rehabilitation to agreed end-points.	No significant residual impacts.	Refer above.

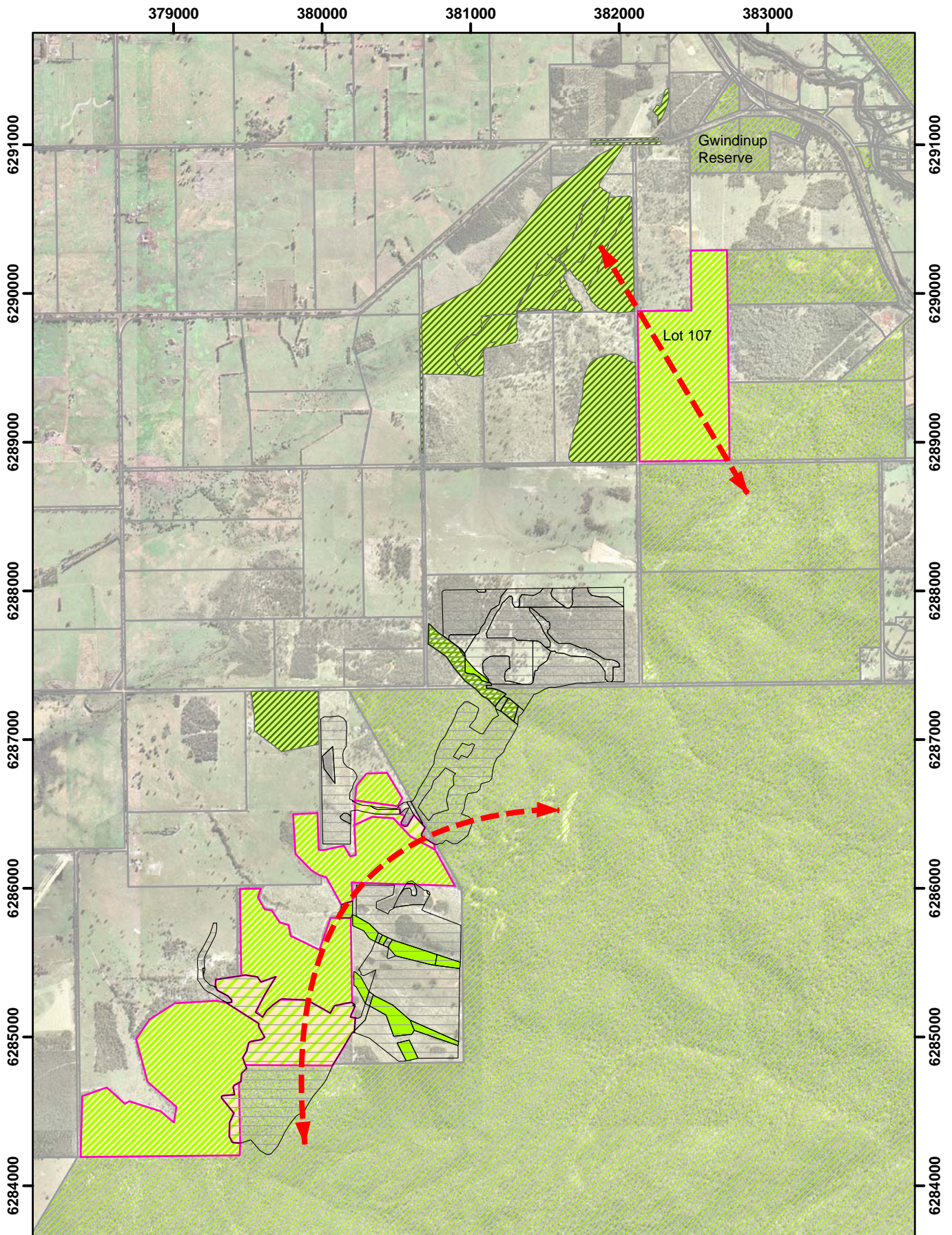
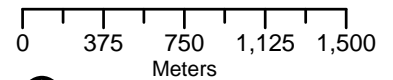


Figure 11-1:
Proposed vegetation (direct) offsets

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|---------------------------------|---|
| Direct Offset | Disturbance Areas |
| Rehabilitation Offset | State Forest & Reserves |
| Native Vegetation (Revegetated) | Existing and Future Conservation Areas. |
| Native Vegetation (Enhanced) | Ecological Linkage |



Datum: GDA 1994 MGA Zone 50
 Drawn: DH
 Date: 6/8/09



