



**PEMBROKE**

**Olive Downs Coking Coal Project**

Additional Information to the  
Environmental Impact Statement

**Section 11**

**Biodiversity Offset Strategy  
– Stage 1**

## 11 BIODIVERSITY OFFSET STRATEGY – STAGE 1

1. ***For the Stage 1 offset area provide robust justifications and supporting evidence (e.g. from site-specific field surveys), against the Offsets Assessments Guide for each relevant MNES.***

As demonstrated in Section 10 (Table 10-3) the Stage 1 Offset Area contains all matters that require offsetting as part of Stage 1 of the Project and is suitably sized to satisfy the requirements of the *EPBC Act Environmental Offsets Policy* (DSEWPC, 2012a).

Robust justifications and supporting evidence for the values entered into the *EPBC Act Offsets Assessment Guide* is provided in Attachment 1 of the BOS.

2. ***This includes, but not limited to:***

- a) ***an outline of the attributes of quality categories for the habitat for each relevant MNES (i.e. stocking rate, site context, site condition, etc.) to inform offset area/s context***
- b) ***correlate the impact site/s, and start and future quality of the offset area/s, with the above categories***
- c) ***identify quantifiable ecological improvements to the offset area/s to attain future quality***
- d) ***ensure start and future quality are informed by EPBC Act listing advice/criteria***
- e) ***the provision of scientific evidence and/or agreement substantiating the confidence in result values for time until ecological benefit/future quality and risk of loss values used in the Offsets Assessment Guide.***

Attachment 1 of the BOS provides a detailed justification for the values entered into the EPBC Act Offsets Assessment Guide for the Ornamental Snake, Australian Painted Snipe, Squatter Pigeon (Southern), Koala and Greater Glider. The justification provides the following for each MNES:

- an outline of the attributes of quality categories for the habitat for each relevant MNES.
- estimates for the start and future quality of the habitat within the impact and offset site relevant to each MNES (and a correlation between the two).
- Identification of ecological improvements (i.e. proposed management measures) and the associated gain in habitat quality as informed by the relevant SPRAT profile, EPBC Act listing advice/criteria and threat abatement plans.
- Justification for the confidence in the inputs for each MNES (including the time until ecological benefit, future quality values and risk of loss) is provided using scientific evidence.

3. ***The draft BOS must include a schedule of conservation commitments required to establish and manage the Stage 1 offset area/s, and to monitor the effectiveness of interventions to achieve future quality. The schedule must include:***

- a) ***a process and timeframes for securing, under a legally binding instrument, the offset area/s for biodiversity conservation purposes***

Table 11-1 provides a schedule of conservation commitments which would be implemented by Pembroke within the Stage 1 Offset Area.

Section 4.4 of the BOS provides a detailed description of the management measures required to establish and manage the Stage 1 Offset Area and monitor the effectiveness of interventions to achieve the future quality scores in the EPBC Act Assessment Guide.

**Table 11-1**  
**Stage 1 Offset Area Management Schedule**

Action	How the Activity will be Undertaken	Timing	Responsibility
Preparation of Stage 1 Offset Area Management Plan	Detailed offset management plan will be prepared and submitted to DEE for approval.	1 year from Project commencement	Pembroke
Legal Protection of Stage 1 Offset Area	Protection of Stage 1 Offset Area via gazettal as a protected area (e.g. a nature refuge) under the NC Act.	2 years from Project commencement	Pembroke
Management of Feral Animals	As required, depending on pest animal, in consideration with animal ethics.	Annual	Pembroke / Appropriately Qualified Person(s)
Management of Environmental Weeds / Restricted Invasive Plants	Physical removal, chemical application.	Annual, spring to early summer	Pembroke / Appropriately Qualified Person(s)
Installation of Nest Boxes	As required, depending on advice from the suitably qualified expert.	During initial set-up of the offset areas	Pembroke / Appropriately Qualified Person(s)
Removal of Barbed Wire	Physical removal of barbed wire.	Upon control of grazing	Pembroke
Management of Livestock	Controlled grazing through the installation of fencing and locked gates.	Ongoing	Pembroke
Bushfire Management	Preventative measures (e.g. fire track maintenance, controlled grazing to reduce ground fuel loads).	Ongoing	Pembroke
Annual Monitoring Reports	Suitably qualified ecologist/s will be engaged to undertake ecological monitoring of the Stage 1 Offset Area and evaluate effectiveness of management actions.  Results of monitoring will be summarised in an annual report.	Annual	Pembroke

Pembroke would seek to legally secure the Stage 1 Offset Area via gazettal as a protected area (e.g. a nature refuge) under the NC Act within 2 years of Project commencement (Section 4.5 of the BOS).

***b) an outline of the short, medium and long-term management arrangements for the offset area/s to achieve future quality***

Pembroke proposes to implement management measures within the Stage 1 Offset Area, once established to improve ecological condition and reduce threats. A brief summary of management measures is provided below, including:

- managing natural regeneration of regrowth vegetation (medium to long term);
- feral animal control to reduce habitat degradation (particularly by Feral Pigs) (short to medium term);

- weed control to reduce weed cover, avoid introduction of any new weed species (reducing indirect threats that affect habitat quality) and reduces competition with native species regeneration (short to medium term);
- addition of species-specific Greater Glider nest boxes (to improve sheltering habitat) (medium to long term);
- removal of barbed wire fencing (short to medium term);
- implementation of controlled livestock grazing regimes to encourage natural regeneration of native vegetation and prevent further degradation of habitat whilst assisting to reduce fuel load (short to medium term); and
- fuel management to avoid high intensity bushfires (short to medium term).

A detailed description of the short, medium and long-term management arrangements for the offset areas to attain the future quality score in the EPBC Act Assessment Guide is provided in Section 4.4 of the BOS.

**c) *commitments to engage qualified ecologists/appropriate experts to conduct ecological monitoring, survey and performance evaluation activities***

Table 11-1 indicates that Pembroke will engage qualified ecologists/appropriate experts to conduct monitoring, survey and performance evaluations.

**d) *an approach to monitoring and detecting change in environmental condition due to offset management actions, whilst accounting for climatic variability, that can demonstrate attainment of future quality.***

As outlined in Table 11-1, Pembroke would engage suitably qualified ecologist/s to undertake ecological monitoring of the Stage 1 Offset Area and evaluate effectiveness of management actions to assist in demonstrating the attainment of future offset quality scores. The results of the monitoring events will be summarised in an annual report.

**4. *Offsets for wetlands should be considered against the Commonwealth framework in the first instance as wetlands are captured by the water trigger under the EPBC Act. The capacity of the offset sites to deliver wetland offsets requires detailed consideration.***

Impacts to a water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E) is considered to be relevant to all water sources (groundwater and surface water) in relation to the Mine Site and Access Road. The other components of the Project (i.e. the rail spur, water pipeline and ETL) were not determined to be a Controlled Action with respect to a water resource, and as such, it is concluded that the impacts to watercourses and wetlands associated with these components of the Project would not result in a significant impact to any water resources (including wetlands).

The Project would result in the removal of 120 ha of ephemeral palustrine and lacustrine wetlands, all of which could provide potential habitat for the Australian Painted Snipe. As such, Pembroke proposes to offset the removal of these wetlands through the implementation of an offset for the Australian Painted Snipe in accordance with the *EPBC Act Environmental Offsets Policy* (DSEWPC, 2012a) and *EPBC Act Offsets Assessment Guide* (DSEWPC, 2012b). The Australian Painted Snipe potential habitat is conservatively considered to include all wetlands in the Project area.

Further to the above, the Mine Site and Access Road is not expected to result in a significant impact to any water resources downstream of the Project area given:

- no watercourses are proposed to be removed by the Project (Section 6.2 of Appendix E);
- no significant impacts to potential GDEs are predicted as a result on groundwater drawdown or contamination (Section 5 of Appendix E);
- the final landform is unlikely to lead to an increase in sediment transport downstream of the Project that would result in adverse impacts on water resources (Section 6.3 of Appendix E);
- no measurable impacts on water resources are likely to occur from discharge of mine-affected waters (Section 6.3 of Appendix E);
- the Project is unlikely to result in leaks/spills that would eventuate in serious environmental harm to water resources (Section 6.3 of Appendix E); and
- the Project would not result in a significant reduction in the catchments for the water resources downstream (Section 6.4 of Appendix E).

**5. Include an assessment of Stage 1 (and Stage 2 offsets if possible) against the Offsets Assessments Guide for each relevant MNES.**

Table 10-3 demonstrates how the Stage 1 offset area meets the requirements of the *EPBC Act Offsets Assessment Guide* for each relevant MNES. For subsequent stages of the Project (Stages 2 to 4), a biodiversity offset would be provided before the commencement of each stage (Section 5 of the BOS). This is consistent with the requirements of the *EPBC Act Environmental Offsets Policy*.

**6. Offsets for waterways providing for fish passage should also be considered in the BOS.**

It should be noted that 'waterways that provide for fish passage' is an MSES (not an MNES). As requested by DEE (refer to Section 10, Item 1), the BOS has been prepared for MNES only. As such, it does not include discussion regarding this MSES.

Notwithstanding, Table 4-6 of the draft EIS outlines that the Project would not result in a significant impact on waterways providing for fish passage because:

- waterway crossings would be constructed with consideration of the Accepted Development Requirements for Operational Work that is Constructing or Raising Waterway Barrier Works (DAF, 2017b) so as not to create a barrier to fish movement; and
- the diversion of Ripstone Creek would be designed to replicate natural features and provide similar conditions to the original waterway, including stream hydraulics, geomorphology, instream habitat, bank profiles and bank vegetation, which, consequently, will provide habitat and refuge for fish inhabiting or passing through the diversion of Ripstone Creek.

Further, the Surface Water Assessment provided in the draft EIS concludes that the Project is unlikely to result in a significant reduction to the extent, frequency and duration of flows encountered in waterways around the Project area. As such, a biodiversity offset for waterways that provide for fish passage is not required for the Project.

It should also be noted that the Project does not involve any off-lease watercourse crossings that would result in an impact to fish passage. The Project water pipeline would require a crossing of Cherwell Creek, however to avoid direct impacts to Cherwell Creek, the pipeline crossing would be constructed using horizontal directional drilling, rather than excavating a trench and laying the pipeline through the watercourse itself.