



**PEMBROKE**

**Olive Downs Coking Coal Project**

Additional Information to the  
Environmental Impact Statement

**Section 10**

**Biodiversity Offset  
Strategy – All Stages**

## 10 BIODIVERSITY OFFSET STRATEGY – ALL STAGES

### 1. *Noting DEEs advice, provide a stand-alone draft biodiversity offset strategy (BOS) for MNES which addresses all four stages of the project.*

Pembroke has prepared a stand-alone MNES Biodiversity Offset Strategy (BOS) in Appendix F. The BOS has been prepared to provide detailed information about Stage 1 of the Project's Offset Strategy. This detailed level of information is possible because Pembroke owns the offset property. There is therefore, 100% certainty in Pembroke's ability to commit to the Stage 1 Offset Area.

Pembroke proposes to provide an offset for each stage of the Project prior to works commencing for that stage. The BOS contains information relevant to Stages 2 to 4 including broad fauna habitat type mapping. Biodiversity offsets for Stages 2 to 4 will be, at least partly, and likely wholly located on Pembroke's landholdings. Pembroke's ownership of the properties and the known ecological characteristics and values of the properties means future offsetting requirements are highly likely to be located on these properties.

Until the Stage 1 offset is approved by the State and Commonwealth Governments, it is difficult to specify the exact details of the offsets for Stages 2 to 4 (i.e. the offsets for each stage will be located on the residual areas of the properties after the preceding stage has been determined). In addition, Pembroke is likely to proceed with other property acquisitions throughout the life of the Project which will provide additional offset opportunities. In instances where assessment of the requirements for future offsets identifies a gap (i.e. relevant offset calculations identify that Pembroke's landholdings do not provide all the required values) alternative methods for provision of those values will be employed (e.g. use of an offset broker).

Pembroke also proposes to manage portions of the Iffley, Deverill and Twenty Mile properties outside the Stage 1 Offset Area. Management measures may include (but not be limited to):

- revegetation activities to increase the proportion of native vegetation;
- management of livestock grazing;
- feral animal control in accordance with the *Biosecurity Act, 2014* (particularly cats, foxes and feral pigs); and
- management of weeds in accordance with the *Biosecurity Act, 2014*.

The available area of land for potential use as biodiversity offsets for the MNES would be specified prior to the commencement of works for each stage. Of the lands currently available to Pembroke (and excluding the Stage 1 Offset proposal), some 10,000 ha of potential habitat for fauna species listed under the EPBC Act would be available for future offsets.

### 2. *In addition to the information provided for the stage 1 offset, provide following information on the offsets that will form the other three stages:*

- a) *A description of the components of the Olive Downs project, including the timeframe (in years) of construction and operation, which form each of the offset stages for the project.*

The Stage 1 disturbance extent is approximately 1,755 ha and is shown on Figure 5-1. Stage 1 includes the following works:

- construction of each of the infrastructure corridors:
  - Olive Downs Project Water Pipeline (EPBC 2017/7868);

- Olive Downs Project Electricity Transmission Line (EPBC 2017/7869);
- Olive Downs Project Rail Spur (EPBC 2017/7870); and
- Olive Downs South access road;
- construction of the mine infrastructure area (including offices, workshops, coal handling and processing plant [CHPP], run-of-mine [ROM] pad, In-line Flocculation [ILF] cells);
- development of the north-western waste emplacement;
- construction of temporary flood levees located within the Stage 1 boundary; and
- commencement of open cut mining in Pit 1.

In addition to the above, the Stage 1 disturbance boundary would facilitate approximately the first five years of mining of the Olive Downs Project Mine Site and Access Road (EPBC 2017/7867).

Stages 2 to 4 of the Project involve the ongoing construction and operations associated with the Olive Downs Project Mine Site and Access Road (EPBC 2017/7867) (i.e. from Project Year 6 onwards). The extent of disturbance and proposed timeframes associated with Stages 2 to 4 is detailed in Table 10-1.

**Table 10-1  
Approximate Disturbance Extent for Stages 1 to 4**

Project Stage	Approximate Disturbance Extent (ha)	Percentage of Overall Project Impact
Stage 1 (2019 to 2024)	1,755	11%
Stage 2 (2025 to 2030)	4,250	26%
Stage 3 (2031 to 2050)	7,435	45%
Stage 4 (2051 to end of mine)	2,860	18%

Further information on the offset staging is provided in Section 3 of the BOS, including a description of the components of the Project, and the timeframe of construction and operation, which form the basis for each of the offset stages for the Project.

- b) detail on the type (based on the habitat definitions) and amount (in ha) of habitat for each relevant MNES that requires an offset for each of the offset stages. This should consider the revised habitat descriptions and mapping, impact estimates and assessment of cumulative impacts***

Table 10-2 details the amount of habitat for each relevant MNES that requires an offset for each for the four stages, in consideration of the revised habitat mapping and impact assessment conclusions outlined in Section 7.

**Table 10-2**  
**Residual Significant Impact on MNES**

MNES	Approximate Area of Clearance in Stage 1 (ha)					Stage 2	Stage 3	Stage 4	Total Project Impact	Significant Residual Impact Likely?
	Mine Site and Access Road	Water Pipeline*	Project ETL*	Rail Spur*	Total Stage 1					
Brigalow EEC	0	0	0	0	0	0	13	0	13	Yes
Ornamental Snake	461.5	7	10.5	27	506	1,596	3,916	1,648	7,666 <sup>1</sup>	Yes
Australian Painted Snipe	14	1	0	6	21	24	50	25	120 <sup>2</sup>	Yes
Squatter Pigeon	743	23	14	43	823	1,757	2,284	746	5,610 <sup>3</sup>	Yes
Koala	743	28.5	12	43	826.5	1,762	2,261	734	5,583.5 <sup>4</sup>	Yes
Greater Glider	743	28.5	12	43	826.5	1,762	2,261	734	5,583.5 <sup>5</sup>	Yes

Source: DPM Envirosciences (2018a and b).

<sup>1</sup> This is comprised entirely of 'Important Habitat' for the Ornamental Snake.

<sup>2</sup> This is comprised entirely of potential breeding habitat for the Australian Painted Snipe.

<sup>3</sup> This is comprised of approximately 3,628 ha of breeding habitat, approximately 1,822 ha of foraging and approximately 160 ha of dispersal habitat.

<sup>4</sup> This is comprised entirely of 'Critical Habitat' for the Koala.

<sup>5</sup> This is comprised entirely of potential breeding/foraging habitat for the Greater Glider.

Further to this, Sections 3 and 4.2 of the BOS provide a description of the areas of habitat available for each relevant MNES within the Stage 1 Offset Area. This includes a breakdown of the types of habitat (e.g. breeding, foraging, dispersal) available for each species.

**c) Information on the proposed offset delivery method/s (i.e. direct and indirect measures).**

The Stage 1 offset would comprise a land-based proponent-driven offset which provides an appropriate outcome for 100% of the offset requirements for Stage 1. As mentioned in response to Item 1 above, in instances where assessment of the requirements for future offsets identifies a gap (i.e. relevant offset calculations identify that Pembroke’s landholdings do not provide all the required values) alternative methods for provision of those values will be employed (e.g. an offset broker).

Section 4 (in particular Sections 4.1 to 4.3) of the BOS describes the proposed offset delivery method.

**d) For direct measures include information on:**

**i. the type (based on the habitat definitions) and amount (in ha) of habitat for each relevant MNES that is available for offsets for each of the offset stages**

Table 10-3 provides a reconciliation of the Stage 1 Project offset requirements against the ecological values of the Stage 1 Offset Area.

As demonstrated in 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).

**Table 10-3  
Stage 1 Offset Area Reconciliation**

Relevant Matter of National Environmental Significance	Stage 1 Impact (ha)*	Area within the Stage 1 Offset Area (ha)*	Percentage of Offset Liability Satisfied <sup>1</sup>	Offset Requirement Satisfied <sup>1</sup>
Ornamental Snake	506 <sup>2</sup>	854 <sup>2</sup>	103.78%	Yes
Australian Painted Snipe	21 <sup>3</sup>	86 <sup>3</sup>	131.35%	Yes
Squatter Pigeon (southern)	823 <sup>4</sup>	3,561 <sup>5</sup>	113.25%	Yes
Koala	826.5 <sup>6</sup>	2,736 <sup>7</sup>	100.59%	Yes
Greater Glider	826.5 <sup>8</sup>	2,736 <sup>9</sup>	100.61%	Yes

\* Approximately 90% of these areas is associated with the Mine Site and Access Road, 3% is associated with the Water Pipeline, 2% is associated with the Project ETL and 5% is associated with the Rail Spur and Loop.

<sup>1</sup> In accordance with the *EPBC Act Offsets Assessment Guide* (DSEWPC, 2012b).

<sup>2</sup> This is comprised entirely of 'Important Habitat' for the Ornamental Snake.

<sup>3</sup> This is comprised entirely of potential breeding habitat for the Australian Painted Snipe.

<sup>4</sup> This is comprised of 661 ha of 'breeding habitat', 140 ha of foraging habitat, and 22 ha of dispersal habitat for the Squatter Pigeon (southern).

<sup>5</sup> This is comprised of 1,811 ha of 'breeding habitat', 1,452.5 ha of foraging habitat, and 297.5 ha of dispersal habitat for the Squatter Pigeon (southern).

<sup>6</sup> This is comprised entirely of 'Critical Habitat' for the Koala.

<sup>7</sup> This is comprised of 1,601 ha of 'Critical Habitat' and 1,135 ha of regrowth habitat for the Koala.

<sup>8</sup> This is comprised entirely of potential breeding/foraging habitat for the Greater Glider.

<sup>9</sup> This is comprised of 1,601 ha of potential foraging habitat and 1,135 ha of regrowth habitat for the Greater Glider.

As described in response to Item 1 above, for Stages 2 to 4 of the Project, a biodiversity offset would be provided before the commencement of each stage. It is likely that the residual significant adverse impacts can be offset given the following:

- The native vegetation communities/fauna habitats to be cleared during the life of the Project (including the Brigalow EEC) all occur more extensively in the surrounding landscape and subregions, as demonstrated by the availability of broad fauna habitats types shown on Figure 6 of the BOS.
- The Ornamental Snake, Squatter Pigeon [southern], Australian Painted Snipe, Greater Glider and Koala (and their habitats) are widely distributed in the surrounding landscape and region, as demonstrated by the availability of broad fauna habitats types shown on Figure 6 of the BOS.
- Wetland habitats are mapped as occurring widely in the surrounding locality as shown on Figure 6 of the BOS.

Sections 4.2 and 4.3 of the BOS provide further detailed description of the habitat available (including a description of the habitat type and amount) for each MNES within the Stage 1 offset area. Sections 2.2 and 5 of the BOS detail the habitat available for each MNES to be used as potential offset for Stages 2 to 4 of the Project.

- ii. a description of the proposed offset area/s and how the offset area/s compensate for all residual significant impacts as a result of the Olive Downs project. This should include information about the location, tenure and connectivity with other relevant habitats and biodiversity corridors, their capacity to meet multiple offset requirements and potential for inclusion in the nature conservation reserve system.*

As demonstrated in 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).

Section 4.1 of the BOS details the location (including tenure) of the proposed Stage 1 Offset Area. Section 4.2 of the BOS describes that the offset area would result in an increase in connectivity of habitat for each MNES with surrounding vegetation and riparian corridors. Section 4.5 of the BOS describes that Pembroke would seek to secure the offset area via gazettal as a protected area (e.g. a nature refuge) under the NC Act.

As outlined in response to Item 1, Pembroke also proposes to manage portions of the Iffley, Deverill and Twenty Mile properties outside the Stage 1 Offset Area. Management measures may include (but not be limited to):

- revegetation activities to increase the proportion of native vegetation;
- management of livestock grazing;
- feral animal control in accordance with the *Biosecurity Act, 2014* (particularly cats, foxes and feral pigs); and
- management of weeds in accordance with the *Biosecurity Act, 2014*.