



# Biodiversity Offset Package

BODANGORA WIND FARM



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[www.nghenvironmental.com.au](http://www.nghenvironmental.com.au)

e: [ngh@nghenvironmental.com.au](mailto:ngh@nghenvironmental.com.au)

**Bega - ACT and South East NSW**  
suite 1, 216 carp st (po box 470)  
bega nsw 2550 (t 02 6492 8333)

**Sydney Region**  
18/21 mary st  
surry hills nsw 2010 (t 02 8202 8333)

**Canberra - NSW SE & ACT**  
8/27 yallourn st (po box 62)  
fyshwick act 2609 (t 02 6280 5053)

**Brisbane**  
8 trawalla st  
the gap qld 4061 (t 07 3511 0238)

**Newcastle - Hunter and North Coast**  
7/11 union st  
newcastle west nsw 2302 (t 02 4929 2301)

**Wagga Wagga - Riverina and Western NSW**  
suite 1, 39 fitzmaurice st (po box 5464)  
wagga wagga nsw 2650 (t 02 6971 9696)

**Bathurst - Central West and Orana**  
35 morrisset st (po box 434)  
bathurst nsw 2795 (t 02 6331 4541)

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# 1 EXECUTIVE SUMMARY

This Biodiversity Offset Package (BOP) has been developed as per condition C7 of the consolidated Conditions of Approval (Table 1-1) and in consultation with the OEH to offset the impact to native vegetation (as per Section 5 of this BOP). The Final V1 BOP was approved by the Secretary and is available on the proponent's website. This updated Final V2 has been prepared to confirm the offset obligation has been met, through payment into the Biodiversity Conservation Trust (BCT).

The sequence for calculating and fulfilling the offsetting requirements to meet the conditions of consent occurred as follows:

- Iberdrola Australia developed the approved Biodiversity Offset Package (BOP) under the Biobanking Scheme which concluded the project needed 40 credits of PCT281 and 73 credits of PCT266 (PCT = plant community type)
- Initially Iberdrola Australia was going to enter-into a Biobanking agreement and establish an offset area within 'Glen Oak' to offset the credit requirement
- In 2017 the change in legislation meant the Biobanking Assessment Methodology (BBAM) was replaced by the Biodiversity Assessment Method (BAM)
- Iberdrola Australia (Tim Maddever) then consulted with OEH and chose to pay into the Biodiversity Conservation Fund (BCF) under BAM rather than enter into the biobanking agreement
- OEH then calculated a 'reasonable equivalence' of biodiversity credits and decided that 40 credits of PCT281 and 56 credits of PCT266 was needed to be offset for the project
- Iberdrola Australia paid the into the BCT for this offset obligation (\$254,451.42 on 31/8/2018)

This report thus concludes that through the above process the offset obligation has been met; no further action is required; the development is Considered Compliant.

The following sections of this BOP have been edited/added to in this updated Final V2. Sections: 1, 2, 3, 5, 12 and Appendix C.

Therefore sections 4, 6-13 and Appendix A & B are not directly relevant to the updated offset obligation pathway but include previous biodiversity assessment conducted by NGH and describe on-going planning and consultation between Iberdrola Australia and the Office of Environment and Heritage. A 'Superseded' title has been added to each of these headings/sections to avoid any confusion.

# 2 BACKGROUND

Bodangora Wind Farm Pty Ltd (BWFPL), a subsidiary of Iberdrola Australia, received planning approval for the construction and operation of a wind farm and ancillary infrastructure at Bodangora, in central west New South Wales, approximately 12 kilometres (km) north east of Wellington. The wind farm will consist of 33 turbines. Each turbine has a maximum height of 150 metres (m) to blade tip. The turbines are proposed to be located at elevations between 480 to 640 m above sea level.

The development will occupy only a small part of each property, and the existing land use will be preserved. Other elements required for the project include:

- A 33/132 kilovolt (kV) substation plus switchyards and transformers to provide a connection to the existing TransGrid 132 kV Wellington – Beryl transmission line, located in the centre-east part of the project area;
- An operation and maintenance centre in the south-west of the project area;
- 39 kilometres (km) of new and upgraded access tracks;

- Around 37 km of underground (or overhead) 33 kV cabling to provide connections between the wind turbines within the project area, located along access tracks as far as possible;
- Around 8.2 km overhead (or underground) 33 kV transmission line, providing connection between the wind farm and the proposed substation; and
- Temporary and permanent wind monitoring masts.

Bodangora Wind Farm was assessed as a Major Project under Part 3A of the *Environmental Planning and Assessment Act* (EP&A Act). The initial biodiversity assessment was undertaken by Kevin Mills and Associates to assess biodiversity constraints associated with the wind farm site, in accordance with the Director-Generals Requirements dated 12 November 2010. The project was determined and approved in August 2013, and there have been two modifications made to the approval, with the latest in December 2016. Condition C7 of the consolidated Conditions of Approval includes the requirement that;

- Following the final design, and prior to commencement of construction in areas requiring native vegetation clearing, that a Biodiversity Offset Package be prepared. The Biodiversity Offset Package needs to be developed in consultation with the OEH. Table 2-1 demonstrates conditions required to be addressed within this BOP.

This BOP has been updated to Final V2 to confirm that condition f in Table 1-1 below has been addressed.

Table 2-1 Condition C7 of the consolidated Conditions of Approval

Condition	Requirement	Addressed	Section
a	Identify the extent and types of habitat that would be lost or degraded	Yes	4.1.3 and Section 5
b	Identify the objectives and biodiversity outcomes to be achieved (including 'improve or maintain' biodiversity values), and assess the adequacy of the proposed offset considered	Yes	Section 3, Section 8 and Section 9
c	Develop the final suite of the biodiversity offset measures selected and secured, including how they will be secured, details of relative communities on the offset site, and proposed management actions and expected gains	Yes	Section 8, Section 9 and Section 10
d	Detail the monitoring requirements for compensatory habitat works and other biodiversity offset measures proposed	Yes	Section 10
e	Include timing and responsibilities for the implementation of the provisions of the Package	Yes	Section 9 and Section 10
f	Provide evidence that the offset(s) has been acquired/secured	Yes	Section 1 and Appendix C
g	Describe how securing the site addresses the residual impacts of the action on threatened species	Yes	Section 7
h	Describe the proposed long term funding for management actions as well as roles and responsibilities	Yes	Section 8
i	Provide key milestones, performance indicators, corrective actions and timeframes for the completion of all actions outlined in the Package	Yes	Section 9, Section 10 and Section 11

Further, conditions C1 and E21 of the consolidated Conditions of Approval require that the proponent;

- Ensure that no more than 1.32 hectares (ha) of native vegetation is cleared for the Project, unless the Secretary agrees otherwise;
- That baseline mapping of vegetation communities be prepared in consultation with OEH as part of the Construction Biodiversity Management Plan, and

Based on the identified 1.32 ha of native vegetation removal, an area of remnant vegetation within the Glen Oak property (Lot 63/DP754320) was identified to potentially contain the required 5.28 ha<sup>1</sup> (as stated within Section 9.4.1 of the Environmental Assessment and lodged with original planning application) of vegetation required as an offset. NGH Environmental has been engaged by BWFPL to develop a Biodiversity Offset Package as per condition C7 of the project approval.

<sup>1</sup> This identified offset area is no longer relevant to the Bodangora Wind Farm.

### 3 OBJECTIVES OF THIS BOP

The objective of this updated Biodiversity Offset Package (BOP) (Final V2) is to confirm the generated offset obligation for the proposal has been met.

The aim of the superseded revision Final V1 was to identify and match the offset requirements for the project in accordance with the Framework for Biodiversity Assessment (FBA) to ensure that biodiversity values of the offset site are improved. This initial aim has been kept in this report for continuity and the BOP therefore includes:

- Identification of impact areas (Section 3)
- Requirement to offset (Section 4)
- Identification of suitable offsets (Section 5 and Section 6)
- Provide clear management strategies and actions for implementation at the offset site (Section 7)
- Outline monitoring, performance and reporting requirements (Section 8 and Section 9).

Previously Under the FBA (now replaced by the Biodiversity Assessment Method (BAM)), ecosystem and species credit requirements identified for the project could be offset in a number of ways, including:

- a) Retiring credits via a BioBanking agreement
- b) Contributing money to supplementary measures
- c) Contributing money to a BioBanking Fund.

This BOP previously provided demonstrated that the vegetation retained on site should be representative of like for like and provide an adequate offset for the unavoidable impacts to native vegetation generated by the proposal. It was considered precautionary in that it considers all PCTs listed in the credit profile, however it is noted that under the rules of the FBA only EECs and threatened species habitat require offsets (Section 9.4 FBA 2014):

*9.4.1.1 The assessor is not required to determine an offset for the impacts of development on PCTs that are:*

*(a) in a vegetation zone with a site value score of <17, and the PCT has not been identified as a CEEC or EEC*

*(b) not associated with threatened species habitat according to Section 6.4, and are not identified as a CEEC or EEC.*

Where possible, the BOP will match ecosystem and species credits on a 'like for like' basis through the retirement of biodiversity credits, in accordance with the credit profiles provided in the project's credit report.

## 4 SUPERSEDED - IDENTIFICATION OF IMPACT AREAS

### 4.1.1 Vegetation Mapping

Consultation with the Office of Environment and Heritage (OEH) was undertaken on the 9<sup>th</sup> February 2017 regarding the agreed methodology and approach to baseline mapping of vegetation following the Environmental Assessment submitted with the original Development Application in May 2012. Through this consultation, OEH supported the following approach to the vegetation mapping.

The baseline map for field validation was prepared using high resolution digital aerial imagery interpreted in a 3D digital GIS environment and using the methodology described in Maguire et al (2012). The baseline mapping field set was augmented utilising data contained within Kevin Mills & Associates (2011) and focussed on the 'development envelope'. In general terms, the 'development envelope' includes a 200 metre radius from development components of the project and defined within this report as the project area.

The following vegetation descriptors were utilised in preparation of the field map site;

1. The following parameters, taken from Kevin Mills & Associates (2011 pages 4 & 5) were utilised;
  - a) Forest: a community of relatively closely spaced trees (projective foliage cover >30%) growing taller than 10 metres.
  - b) Woodland: a community of well-spaced trees (projective foliage cover 10-30%) growing to a height of 4 to 30 metres.
  - c) Open Woodland: a community of scattered trees (projective foliage cover <10% growing to a height of 4 to 30 metres.
  - d) Grassland: vegetation dominated by grasses and forbs, with <10% tree and/or shrub cover.
2. Each vegetation community was classified utilising the relevant NSW Plant Community Type (PCT). Understorey is identified as either native, exotic, sown pasture or cropland;
3. Crown Cover % (CCP) Class (Woody Veg only);
4. Understorey type and condition – includes where an overstorey is not present;
  - a) Exotic - where >75% of species and cover are composed of exotic plants.
  - b) Poor - where native and exotic ground cover species are present however, where exotic species occupy >50%, but <75% of both cover and species present.
  - c) Native moderate/good - >50% of species and cover are composed of native plants.

Following further consultation with OEH on 5<sup>th</sup> May 2017, it was agreed that the following vegetation would be assessed as 'non-native' where any 'PCT';

1. Has an exotic understorey which is consistent with Kevin Mills definition of 'exotic' vegetation included within the original environmental assessment.
2. Is of 'low quality vegetation' in accordance with BioBanking Methodology. That being,
  - a. woody native vegetation with native over-storey percent foliage cover less than 25% of the lower value of the over-storey percent foliage cover benchmark for that vegetation type, and where either:

- less than 50% of ground cover vegetation is indigenous species, or
- greater than 90% of ground cover vegetation is cleared; OR
- b. native grassland, wetland or herbfield where either:
  - less than 50% of ground cover vegetation is indigenous species, or
  - more than 90% of ground cover vegetation is cleared: OR
- c. native vegetation in degraded condition that can be unviable or have low viability. Degraded condition means vegetation in the where at least half of the site attributes are less than 50% of benchmark without the vegetation being in low condition.

#### **4.1.2 Field Survey**

Site surveys were undertaken by two (2) NGH ecologists between the 6-8<sup>th</sup> March 2017 and accompanied by Owen Maguire (API consultant). The aims of the site surveys were as follows:

- a) Determine vegetation communities present (PCT) within the project area, their condition and extent.
- b) Determine the composition and condition of understorey as per definitions set in Kevin Mills & Associates (2011) and in section 3.1.

Additionally, further surveys were undertaken on the 10<sup>th</sup>-11<sup>th</sup> April 2017 by two (2) ecologists to further validate areas identified within the initial mapping and undertake targeted threatened flora searches.

The following survey methods were utilised during the survey/s:

- Complete floristics via biometric vegetation plots (17 plots)
- Rapid assessment of dominant flora species (22 sites)
- API mapping validation field points<sup>2</sup> (96 points).
- Targeted threatened flora searches.
- General observation.

In total, data was collected from 135 sites across the project area encompassing all identified PCTs.

#### **4.1.3 Plant Community Types (PCTs)**

The majority of the land within the project area has been utilised extensively for agricultural purposes over an extended period, and has included cropping and grazing (cattle and sheep). Much of the area is completely cleared of tree cover, however poorly connected patches of remnant woodland vegetation as well as isolated paddock trees occur throughout the site.

PCTs were identified from data collected via biometric vegetation plots, as mentioned in Section 3.2, with floristic data entered into the Vegetation Information System tool (VIS classification 2.1). In total, eight (8) PCTs were identified as being within the project area and described in Table 4-1:

Table 4-1 PCT within the development envelope

PCT no.	Plant community type (PCT)	EEC	Condition class	No of Plots
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland (TSC Act)	Poor to Moderate/ Good	5
461	Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	Not an EEC	Moderate/ Good	3
78	River Red Gum riparian tall woodland / open forest wetland in the Nandewar Bioregion and Brigalow Belt South Bioregion	Not an EEC	Poor	1
279	Blakely’s Red Gum - White Cypress Pine woodland on footslopes of hills in central part of the NSW South Western Slopes Bioregion	White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland (TSC Act)	Poor	1
358	Mugga Ironbark - Red Box - White Box - Black Cypress Pine tall woodland on rises and hills in the northern NSW South Western Slopes Bioregion	Not an EEC	Moderate to Good	1
345	Red Box - Tumbledown Gum - Red Stringybark - Long-leaved Box dry woodland, upper NSW South Western Slopes Bioregion	Not an EEC	Moderate to Good	1
274	White Box - Rough-barked Apple alluvial woodland of the NSW central western slopes including in the Mudgee region	Not an EEC	Poor	1
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland (TSC Act)	Moderate to Good	1
-	Exotic Grassland	Not an EEC	Poor	3

Following the final design of the development and in consultation with the OEH, it was assessed that of the PCTs identified with the impact area, only two met the requirement to be offset, and is discussed further in Section 4.

#### 4.1.4 Limitations

The majority of the project area was easily accessible during the survey inspection/s of the impact areas and allowed for a thorough search of the impact areas. The initial surveys were undertaken in early March, and therefore the flora species lists reflect plant species detectable at this time. It is noted that conditions over most recent summer within the Wellington region was very hot with limited rainfall (21.6 mm since Jan 2017 to 6<sup>th</sup> March 2017). This therefore provided very dry conditions limiting availability of both exotic

and native grasses and the confidence of identification. Typically, this increases the abundance of the hardier native grasses in areas of pasture.

Additionally, due to these weather conditions, both exotic and native grasses had been heavily impacted by grazing and it was noted that supplementary feeding (via hay) was common on all properties. This time of survey is in contrast to when the original surveys by Kevin Mills & Associates (2011) was completed (October 2010 and July 2011) when exotic or temperate improved pasture species would have been more prevalent. However, the flora list obtained are considered sufficient to identify PCT present within the project area, but the abundance of native flora is likely to be higher at the time of this survey.

Additional rapid surveys and validation of the original mapping were undertaken in April following substantial rainfall with the region. Conditions for identification of floristics had improved in some of areas to allow further verification of some vegetation zones and changes to the original mapping were appropriate.

## 5 REQUIREMENT TO OFFSET

The Conditions of Approval allowed up to 1.32 ha of native vegetation to be cleared for the development of Bodangora Wind Farm. Vegetation mapping, as discussed in Section 3, identified that the maximum clearance of 1.32 ha of native vegetation included two PCTs. These are listed in Table 5-1 below. A total of 49 ecosystem credits<sup>3</sup> was required to be offset for the project. No species credits were required to be offset for the project.

Table 5-1 Impact and Offset Credit Summary

Plant Community Type		Impact area / Credits generated by clearing	
Number	Name	Area (Ha)	Credits
266	White Box grassy woodland in the upper slopes sub region of the NSW South Western Slopes Bioregion	1.0 (estimate)	37
281	Rough Barked Apple-Red Gum-Yellow Box woodland on alluvial clay to loam soils on valley flats in the norther NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	0.32 (estimate)	12
	<b>Total</b>	<b>1.32*</b>	<b>49</b>

\* Note: this is based on designs at the time of the BOP being developed impacting upon a maximum of 1.32 hectares. Following this, after consultation between Iberdrola Australia and OEH (see section 1), OEH determined a 'reasonable equivalence' of this impact area to equate to 40 credits of PCT281 and 56 credits of PCT266.

<sup>3</sup> This credit number is no longer relevant to the Bodangora Wind Farm, alternatively OEH calculated a 'reasonable equivalence' of biodiversity credits and decided that 40 credits of PCT281 and 56 credits of PCT266 was needed to be offset for the project.

## **6 SUPERSEDED - IDENTIFICATION OF SUITABLE OFFSETS**

A preliminary BioBanking Assessment has been undertaken to provide certainty to the OEH that a suitable quantum of ecosystem credits for an offset in relation to the impact on native vegetation are available within the nominated offset site.

### **6.1.1 Field Survey**

As discussed in Section 3, validation of vegetation communities and mapping of the project area was conducted in March and April 2017. Data obtained during compilation of the BioMetric plots within the impact area were in accordance with the Biobanking Assessment Methodology (OEH, 2014). This informed the identification of Plant Community Types (PCT) through the NSW Vegetation Information System Database (OEH, 2016).

Approximately 341 ha of vegetation within and surrounding the Glen Oak property was identified to contain a potential offset area. Rapid assessment points identifying dominant canopy were undertaken within the potential offset areas, with BioMetric plots undertaken following this in June 2017. Vegetation communities were mapped accordingly with potential offset areas identified and discussed in Section 6. The dominant Mitchell Landscape within the proposed offset area is Mullion Slopes (93% cleared).

The potential offset areas were walked on foot and mapped using a handheld GIS mapping device. Photographs were taken within each identified vegetation community to provide evidence of the dominant canopy species. Existing mapping and aerial imagery was also interpreted to assess boundaries of vegetation communities and community extents within the proposed offset area. The required number of BioMetric plots were obtained within the relevant vegetation zones.

### **6.1.2 Biobanking Assessment**

Preliminary BioBanking credit calculations have been completed to determine the quantum of ecosystem credits potentially available within the potential offset areas. The potential offset sites have been subjected to previous historical clearing and agricultural land use regimes, albeit not as heavily as the vast majority of vegetation within the impact areas, and therefore is a better condition than vegetation located within the impact areas.

## 7 SUPERSEDED - PRELIMINARY RESULTS

### 7.1.1 Field Survey

Vegetation communities with potential to provide the required offsets areas within the Glen Oak property were mapped and BioMetric plot data obtained, with a total of 341.02 ha mapped. The area of the mapped vegetation communities is summarised in Table 7-1 below, and are shown on Figure 7-1 below.

Table 7-1 Areas of vegetation communities mapped during field survey

Plant Community Type	Community	Area (ha)
266	White Box grassy woodland of the upper slopes sub region of the NSW South Western Slopes Bioregion	29.29
266	White Box grassy woodland of the upper slopes sub region of the NSW South Western Slopes Bioregion – Derived grassland	24
277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	3.16
403	Dapper Mugga Ironbark - Western Grey Box - Blakely's Red Gum - Black Cypress Pine grass shrub hill woodland (southern Brigalow Belt South Bioregion)	33.98
461	Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	14.90
358	Mugga Ironbark - Red Box - White Box - Black Cypress Pines tall woodland on rises and hills in the northern NSW South-western Slopes bioregion	195.99
345	Red Box – Tumbledown Red Gum - -Red Stringybark – Long leaved Box dry woodland, upper NSW South Western Slopes Bioregion	39.7
	<b>Total</b>	<b>341.02</b>

Of the total areas mapped (Figure 7-1), an offset site was identified and is available and can be secured in perpetuity as offsets for the project Figure 7-2. These are summarised further in Table 7-3.

### 7.1.2 Threatened species

One threatened species, the Grey-crowned babbler *Pomatostomus temporalis temporalis* (approximately 10 individuals) were observed within the identified offset area. It is considered likely that the population of this species occurring within the locality would utilise this potential offset area as a foraging and roosting habitat resource. Additionally, two threatened species were observed within vegetation surrounding the offset area, the Superb parrot *Polytelis swainsonii*, which was identified foraging on the ground, and Little lorikeets *Glossopsitta pusilla*, which were foraging within the nearby flowering Mugga Ironbark *Eucalyptus sideroxylon*. It is considered likely that the population of these species occurring within the locality would utilise the proposed offset area as a foraging and roosting habitat resource regularly. No species credits listed species will be impacted by the proposed works and therefore require offsetting.

Table 7-2 Predicted threatened species to occur in potential offset sites

Common name	Scientific name	TS offset multiplier
Black-chinned Honeyeater (eastern subspecies)	<i>Melithreptus gularis</i> subsp. <i>gularis</i>	1.3
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus</i> subsp. <i>victoriae</i>	2
Bush Stone-curlew	<i>Burhinus grallarius</i>	2.6
Corben's Long-eared Bat	<i>Nyctophilus corbeni</i>	2.1
Diamond Firetail	<i>Stagonopleura guttata</i>	1.3
Flame Robin	<i>Petroica phoenicea</i>	1.3
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	2
Gilberts Whistler	<i>Pachycephala inornata</i>	1.3
Glossy Black Cockatoo	<i>Calyptorhynchus lathami</i>	1.8
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis</i> subsp. <i>temporalis</i>	1.3
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata</i> subsp. <i>cucullata</i>	1.7
Little Eagle	<i>Hieraaetus morphnoides</i>	1.4
Little Lorikeet	<i>Glossopsitta pusilla</i>	1.8
Little Pied Bat	<i>Chalinolobus picatus</i>	2.1
Little Whip Snake	<i>Suta flagellum</i>	2.3
Major Mitchells Cockatoo	<i>Lophochroa leadbeateri</i>	1.9
Malleefowl	<i>Leipoa ocellata</i>	2.6
Masked Owl	<i>Tyto novaehollandiae</i>	3
Painted Honeyeater	<i>Grantiella picta</i>	1.3
Powerful Owl	<i>Ninox strenua</i>	3
Scarlet Robin	<i>Petroica boodang</i>	1.3
Speckled Warbler	<i>Chthonicola sagittata</i>	2.6
Spotted Harrier	<i>Circus assimilis</i>	1.4
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	2.6
Square-tailed Kite	<i>Lophoictinia isura</i>	1.4
Swift Parrot	<i>Lathamus discolor</i>	1.3
Turquoise Parrot	<i>Neophema pulchella</i>	1.8
Varied Sitella	<i>Daphoenositta chrysoptera</i>	1.3
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	2.2

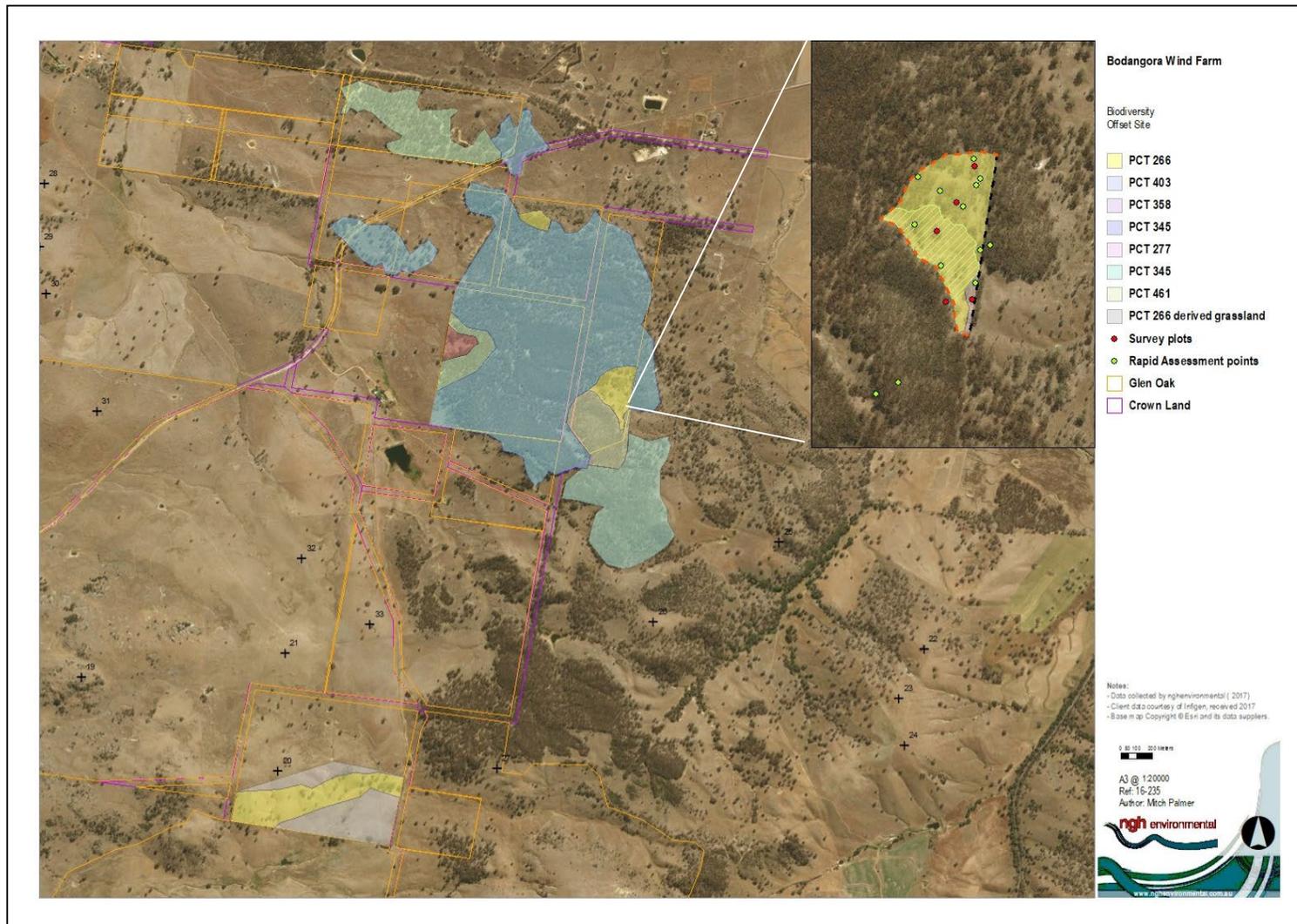


Figure 7-1 – Vegetation mapped and identified offset area within the Glen Oak property



Figure 7-2 – Location of offset area



Plate 1 – PCT 266 White box woodland with a high diversity of native groundcover and regeneration



Plate 2 – PCT 266 White box woodland with a high diversity of native groundcover and regeneration

### 7.1.3 Ability to meet offset requirement

One of the two PCTs that are required to be offset were found to be within areas surveyed. Approximately 29.29 ha of PCT 266 is available within areas surveyed.

The identified offset (Figure 7-2) identified three (3) PCTs within the broader site which included the like for like offset of PCT 266. Vegetation within the area surveyed was in good condition with a high abundance and diversity of native species with minimal influence of exotic flora. As previously stated in section 6.1.2, a number of the vulnerable listed Grey-crowned babbler *Pomatostomus temporalis temporalis* were observed utilising White Box vegetation at this site during the site surveys. Hectares available in relation to the relevant vegetation zone within the identified offset area and credits generated are summarised below in Table 7-3.

Table 7-3 Impact and Offset Credit Summary

Plant Community Type		Impact		Offset	
Number	Name	Area (Ha)	Credits	Area (Ha)	Credits
266	White Box grassy woodland in the upper slopes sub region of the NSW South Western Slopes Bioregion	1.0 (estimate)	37	6.82	76
281	Rough Barked Apple-Red Gum-Yellow Box woodland on alluvial clay to loam soils on valley flats in the norther NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	0.32 (estimate)	12	-	-
<b>Total</b>		<b>1.32</b>	<b>49</b>	<b>16.93</b>	<b>76</b>

6.82 ha of good condition vegetation identified at the offset site generates a total of 76 credits of PCT 266 White Box grassy woodland and therefore satisfies the offset required of the development. Credits generated from this site are above the required 49 credits for PCT 266 and PCT 281 and would be in surplus of 27 credits. A summary of the floristics within the offset area is shown in Table 7-4 with BioMetric plot data including cover and abundance scores within the offset area located in Appendix B.

Table 7-4 PCT description within the offset area

Plant Community Type		Description
266	White Box grassy woodland in the upper slopes sub region of the NSW South Western Slopes Bioregion	Remnant grassy woodland with sparse mid-storey and dominated by native perennial grasses and forbs.  <b>Dominant Canopy</b> – <i>Eucalyptus albens</i> (White box) <b>Dominant midstorey</b> – <i>Acacia decora</i> (Golden wattle) <b>Dominant groundcover</b> – <i>Aristida ramosa</i> (Purple wiregrass), <i>Elymus scaber</i> (Wheatgrass), <i>Hydrocotyle laxiflora</i> (Stinking pennywort)

## 8 SUPERSEDED - MANAGEMENT ACTIONS AND RESPONSIBILITIES

BWFPL is committed to formalising a Biobanking agreement with the offset site landowner. A provisional agreement had been agreed between BWFPL and the landowner previously (February 2012). Upon approval of the BOP, the Biobanking agreement will be formalised with detailed credit value and process for retirement of credits, total fund deposit and detailed management action costings.

### 8.1.1 Objectives of management actions

The core objective of the management actions are to improve biodiversity values within the offset site. Management actions and improvement strategies have been developed that ensure overall objectives and targets for the offset area are met or exceeded and are listed below and demonstrated further within Table 9-1;

- *Fencing/Signage* - Restrict all impacts from adjacent agricultural activities, improve biodiversity values, protect cultural heritage values and notify the presence of the offset area and conservation values of the site
- *Habitat features* - Increase extent of habitat within the offset area and allow for regeneration and natural recruitment of native flora
- *Erosion and soil management* - Improve/maintain soil profile, promote natural regeneration and protect heritage values
- *Weeds management* - Minimise the occurrence of weeds within the site, reducing weed infestations
- *Feral and pest animal management* - Reduce presence of feral animals and overabundant native herbivores within the Offset site to improve/maintain biodiversity values and promote natural regeneration
- *Fire management* - Regulate a fire regime for the offset area to maintain and improve biodiversity values and protect natural recruitment.

### 8.1.2 Fencing and signage

Fencing should be stock proof and also exclude illegal access for dumping of rubbish or collection of firewood. Minimum construction standards for fencing include a seven (7) wire fence line, comprising the following:

- 1.57mm HT top barbed wire;
- lines 2.5mm HT wire;
- 5 metre steel picket spacing's (165cm);
- 5 strainers per kilometre;
- One stay per strainer.

The majority of existing fence lines and gates are in reasonable condition with only minor repair required. Signage will be installed to notify that the area is a conservation area and contact number for emergencies and further information should be provided.

### **8.1.3 Habitat features and assisted regeneration**

The clearing of native vegetation, whether remnant or regrowth, is not permitted within the offset area. The landholder is to retain regrowth and/or natural regeneration of native plant species and no planting or spreading of non-native vegetation and farming practices that use mechanical cultivation can occur at any time. No apiaries are allowed to be installed within the offset area. As discussed further in Section 8 natural regeneration will be encouraged and monitored and it is expected that the offset area has a high natural recovery potential and therefore assisted natural regeneration will be facilitated. The key actions in facilitating natural regeneration is via strict control on grazing activities and weed and pest management. This is discussed further in Section 7.1.5 and 7.1.6. Active revegetation will only occur if natural regeneration is deemed not optimal in meeting performance criteria listed in section 8. Where possible, the clearing of vegetation within the impacts areas should be stockpiled and redistributed within the offset area to enhance habitat features.

### **8.1.4 Erosion and soil management**

There is no evidence of any current erosion or soil management issues however, monitoring will be undertaken of areas of potential issues with temporary measures such as sediment controls implemented should it be required.

### **8.1.5 Weed Management**

The offset area is relatively free of noxious weeds and with only a minor occurrence of environmental weeds. However, further weed mapping is required and will be obtained during the first monitoring event. As the offset area is relatively weed free, a weed containment control program will be implemented and to limit the spread of priority and environmental weeds into the offset area. Ongoing monitoring and inspections as demonstrated in Section 9 will identify extent of weed infestations that may occur during the management of the offset area and assess the ongoing effectiveness of the control methods implemented.

### **8.1.6 Feral and pest animal management**

Feral animal control activities will be undertaken when inspections or monitoring indicate it is required however feral animal control activities should be undertaken as a coordinated approach with surrounding landholders in the region and in conjunction with Local Land Services (LLS) where practicable. Rabbits are present onsite. Control activities may include methodologies such as baiting, trapping, warren ripping and shooting with the control activities to be undertaken in accordance with NSW and Federal legislative requirements.

A number of large groups of macropods were observed within and surrounding the offset area. Native macropods numbers will be monitored and management of potential issues discussed with OEH prior to undertaking any management action.

### **8.1.7 Fire management**

Bushfire management of the offset area should be incorporated in the existing Bushfire Management Plan for the Bodangora Windfarm. Where possible, bushfire management will facilitate the exclusion of fire from regeneration (and revegetation areas if applicable) to allow the juveniles to mature to a stage where

they are able to withstand bushfire and regenerate naturally following such an event (a minimum of 15 years).

**8.1.8 Responsibilities**

It is proposed that the BWFPL would be responsible for the management of the offset site during the operational life of the wind farm. BWFPL would finance the retiring of credits generated which in turn funds the offset site landowner to undertake management actions (such as fencing and weed control). This provides surety that the actions will be undertaken, as the requirement to offset to the long term funding and management of the offset package, as well as subject to auditing and reporting processes under approval conditions.

At the decommissioning stage, the ongoing management would be the responsibility of the landowner. It is expected that by this time the majority of the required management actions would have been undertaken and ongoing management tasks will largely coincide with routine agricultural activities. Land use restrictions will remain in place on the offset site in perpetuity so that any activities undertaken on the offset site must be compatible with the site’s overall function: to improve biodiversity values. Management actions and measures are included below in Table 8-1.

Table 8-1 Roles and responsibilities

Monitoring and reporting event	Responsibility
<p>Monitor site condition against biometric benchmark and baseline data</p> <p>Report on management actions conducted and their effectiveness. Recommend if changes are required to monitoring or management actions to better meet objectives</p> <p>Implement corrective actions if the offset site is meeting performance targets PCT 266.</p>	<p>Proponent/operator</p> <p>External consultants</p> <p>Landowner</p>
<p>Record management actions undertaken and their effectiveness. Recommend if changes are required to monitoring or management actions to better meet objectives for the next year</p> <p>Report unauthorised access by stock or vehicles.</p>	<p>Proponent/operator</p> <p>Landowner</p>
<p>Ensure that sufficient time and resources are allocated to allow for the implementation of biodiversity management and monitoring strategies as outlined in the BOP.</p>	<p>Proponent/operator for life of project</p>

## 9 SUPERSEDED - PERFORMANCE

As stated in Section 2 and 7.1.1, the core objective of the BOP is to improve biodiversity values within the offset area and facilitate the long term conservation of the site. In order to achieve this objective, and determine the ongoing success of management actions implemented, both short term and long performance criteria is proposed. The performance criteria are preliminary and are intended to apply to the initial 3 years of the BOP implementation. Following the initial 3 year period, they will be assessed and redeveloped as appropriate in response to monitoring outcomes and the success of the management actions implemented. This is discussed further in Section 9.

The offset area is currently in moderate to good condition but is expected with the above mentioned management actions implemented, the offset area will improve toward a high condition state. The performance targets following on from the site value score obtained at Year 0 are proposed for offset area and shown in Table 9-1. The performance targets would be monitored and revised as per Table 9-1 and Table 10-1.

Table 9-1 Performance targets to achieve the proposed high ecological condition state

Period (Year)	Performance Target (Site Value Score)	NSR	NOC	NMS	NGCG	NGCS	NGCO	EC	NTH	OR	FL
0	59	20	6	1	51	0	9	1	1	1	12
1-5	>63	20	6	1-25	55	2	9	1	1	1	15
6-10	>68	>25	10	1-25	60	3-5	10	1	1	1	25
11-15	>74	>25	12-35	1-25	60-70	3-5	10-20	1	1	1	>50
16-20	>78	>25	12-35	1-25	60-70	3-5	10-20	1	1	1	>66

### 9.1.1 Short term performance

The following performance criteria are used to assess the success of the management actions implemented and demonstrate initial progress to achieving targets set out in Table 9-1. Following the initial 3 year period, these will be reviewed and revised accordingly;

- Finalisation of biobanking agreement and management actions
- Install boundary fence and signage
- Salvage and redistribution of habitat resources from impact area to the offset site
- That monitoring indicates natural regeneration is occurring
- That monitoring indicates flora and fauna diversity is increasing
- That monitoring indicates exotic cover is not increasing
- That monitoring indicates no increase in bare ground or erosion issues
- The demonstration that accurate records of all activities and monitoring is being maintained.

### 9.1.2 Long term performance

The monitoring program is designed for collection of relevant data, and track progress over time. This would allow the land manager to initiate adaptive management practices where performance targets are not being met. It is proposed that more specific criteria in achieving long term goals (stem counts per hectare, canopy cover percentage for example) will be developed following Year 3 of monitoring and when sufficient data has been collected. As mentioned in Section 8.1.1, while ensuring quality conservation and restoration outcomes, the long term objectives must be achievable. The preliminary long term objectives are as follows;

- An increase in natural regeneration to increase average canopy cover from 6% to 12-35%
- An increase in native grass cover from 51% to 60-70%
- Continual increase in native species richness
- An increase in coarse woody debris from 12m to >66m
- No increase in weed species cover
- If natural regeneration of overstorey species is not being achieved and revegetation works following Year 3 is required, more than 75% of overstorey trees planted within the offset area are to survive to ensure an average canopy cover increase as mentioned above.

## 10 SUPERSEDED - MONITORING & IMPLEMENTATION

BioMetric plots have been conducted according to the BioBanking Assessment Methodology (BBAM) to collect baseline data on vegetation structure and quality (Appendix B). Monitoring plot data was entered into the BioBanking Credit Calculator (BBCC) to obtain a baseline site value score for each survey point and vegetation zone. Replication of these plots would be undertaken annually for the operational life of the wind farm and following commencement of the offset area. This will provide annual information about the improvement (or deterioration) of the offset site against key condition parameters such as native species diversity, weed infestation, fallen logs and assist in determining whether predicted improvements in habitat quality scores are achieved according to the values detailed in Table 9-1.

Management actions and their outcomes will be reported annually to the Department of Planning and OEH for the duration of the project (up to 25 years) to demonstrate that a 'maintain or improve' outcome has been met in accordance with core objectives of the BOP. The annual report would detail works undertaken within the offset area during the previous year and an evaluation against the performance criteria demonstrated in Table 9-1 and Section 8. The monitoring and reporting schedule is demonstrated in Table 10-1 however may be altered to reflect the results of monitoring and in consultation with OEH.

Table 10-1 Monitoring, implementation and reporting schedule

Management actions and timeframe for implementation	
Actions	Required Timeframe
Finalisation of biobanking agreement	Signed biobanking agreement prior 30 <sup>th</sup> June 2018
Install boundary fence and signage	Completed by Year 1 (July 2018)
Salvage and redistribution of habitat resources	Completed as required and ensuring no impact on biodiversity values

<b>Management actions and timeframe for implementation</b>	
Undertake weed mapping and weed control	Weed mapping completed by Year 1 (July 2018). Weed control ongoing. Annually review and revise accordingly
Undertake feral animal control	Baseline data completed by Year 1 (July 2018). Feral animal control ongoing. Annually review and revise accordingly
Undertake over abundant herbivore control	Annually review and seek advice and necessary permits from OEH
Undertake erosion and soil management activities	Instigate remediation works following on from annual monitoring results
Revegetation	Initiate revegetation if increase in canopy species is not greater than numbers contained in Year 0 site value score by Year 3
<b>Monitoring actions</b>	
Routine maintenance inspections of fencing, erosion issues, weed abundance and feral animal activity	Biannual (twice yearly) inspections and following significant storm events (fencing only). Maintenance as required.
Monitor natural regeneration	Annually. Initiate revegetation if increase in canopy species is not greater than numbers contained in baseline/Year 0 by Year 3
Monitor revegetation	Annually, following any revegetation works
Ecological monitoring	Annually. Biometric plot surveys in comparison with Year 0 site value score Spring woodland bird surveys
Development of long term performance criteria	Completed following Year 3 monitoring event.
<b>Monitoring actions</b>	
Maintain accurate records of all management activities undertaken	Ongoing from year 1
Annual monitoring report containing inspection undertaken, results, monitoring and corrective actions	Annually. Complete Year 1 report by July 2018
Ecological monitoring report	Biannual report Year 1 to 3. Annually from Year 3 to operational end
Bushfire management plan	Completed by Year 1 (July 2018)
Revision of BOP	Every 3 years following approval of the BOP

## 11 SUPERSEDED - ADAPTIVE MANAGEMENT

### 11.1.1 Adaptive management process and review

Adaptive management of the BOP will be receptive to any new and relevant data that may arise through the monitoring set out in Table 10-1 and is key to the successful implementation of the BOP. This will allow ongoing flexibility to manage objectives, allow for relevant feedback and modifications to the BOP. The BOP will undergo a review and revision every 3 years in order to assess that the performance targets are being achieved and make improvements accordingly.

### 11.1.2 Corrective actions

Specific responses will need to be implemented for management actions that are not proven to be effective. Table 11-1 below provides a Trigger, Action and Response Plan (TARP) for the offset area for key corrective actions that may be required.

Table 11-1 Summary of corrective action following the Trigger, Action, Response Plan

Trigger	Action	Response
<b>Fencing</b>		
Annual monitoring indicates damage to boundary and/or internal fencing	Undertake fencing repairs as soon as practicable	Ongoing monitoring and routine maintenance as required. Justification for any lengthy delays with fencing will be required in the annual report
Storm events	Undertake monitoring of fencing within one (1) week of significant storm events to check potential damage from fallen trees/limbs	Undertake fencing repairs if required as above action
<b>Revegetation</b>		
Natural regeneration or recruitment is not greater than numbers contained at Year 0	Engagement with a revegetation specialist or bush regenerator to identify appropriate revegetation actions	Ongoing monitoring of revegetation areas and engagement of specialist advice as required
<b>Erosion</b>		
Routine monitoring indicates an increase in erosion or sedimentation	Immediately undertake temporary erosion control measures. Investigate erosion repair, maintenance and revegetation of disturbed areas as soon as practicable	Ongoing monitoring of effectiveness of works undertaken. Justification for any lengthy delays with remediation works will be required in the annual report
<b>Weed control</b>		

Routine monitoring indicates an increase in target weed species	<p>Adapt weed management program and modify strategies accordingly</p> <p>Adjust control methods and frequency of control.</p> <p>Investigate suitability of strategic conservation grazing for weed suppression</p>	Ongoing monitoring of effectiveness of weed management and adaption of control methods and frequency
Feral animal and pest control		
Annual monitoring indicates an increase in feral animal abundance	<p>Adapt pest management program and modify strategies accordingly</p> <p>Consultation with biosecurity officers at Local Land Services to identify appropriate actions and coordinated baiting program.</p>	Ongoing monitoring of actions implemented following specialist advice as required
Annual monitoring indicates an over abundance of native herbivore	Consult with OEH on appropriate actions	Ongoing monitoring of actions implemented following advice from OEH
Ecological monitoring		
Annual monitoring indicates performance targets are not being met	<p>Assess fencing and ensure there is no un-authorised stock access</p> <p>Adapt weeds and pest animal management strategies to reduce competition</p> <p>Engagement with a revegetation specialist or bush regenerator to identify appropriate remediation actions</p> <p>Consider the requirement for active revegetation</p>	Ongoing monitoring of remediated areas following engagement of specialist advice as required

## 12 CONCLUSION

Consultation with OEH, and procurement of a reasonable equivalence (See Appendix D) for conversion of the FBA credit obligation listed in the conditions of consent to the equivalent BAM credits was undertaken. Following this, Iberdrola Australia opted to retire 40 credits of PCT 281 and 56 credits of PCT 266 through paying directly into the BCF. The total offset obligation of **\$254,451.42** was paid on 31/8/2018, and evidence of this has been provided in Appendix C. This confirms the offset obligation has been met, no further action is required, and the development is Considered Compliant with the Conditions of Consent.

## 13 REFERENCES

Kevin Mills & Associates (2011). *Flora and Fauna Assessment*, Bodangora Wind Farm, Shire of Wellington.

Maguire O, Armstrong RC, Benson JS, Streeter R, Patterson C, McDonald P, Salter N, East E, Webster M, Sheahan M and Young D (2012) *Using high resolution digital aerial imagery interpreted in a 3-D digital GIS environment to map plant communities in central-southern New South Wales*. *Cunninghamia* 12, 247-266.

NSW Office of Environment and Heritage (OEH) 2014a *Framework for Biodiversity Assessment - NSW Biodiversity Offsets Policy for Major Projects*

NSW Office of Environment and Heritage (OEH) 2014b *NSW Biodiversity Offsets Policy for Major Projects*

NSW Office of Environment and Heritage (OEH) 2014c *BioBanking Assessment Methodology*

NSW Office of Environment and Heritage (OEH) 2016 *NSW Vegetation Information System: Classification 2.1*

## **APPENDIX A SUPERSEDED - BIOBANKING REPORTS**

Overleaf

## Bodangora Credit impact



### BioBanking Biodiversity Banking and Offsets Scheme

#### Assessment details

Assessment details	Proponent details	Landscape value	Vegetation zone	Geographic / habitat feature	Site survey details	Site values	Threatened species survey results	Credits
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\* indicates a mandatory item.

**Assessment type** Major project  
**Proposal ID** 222/2017/4382MP  
**Proposal version** 1  
**Proposal name** Bodangora Wind Farm  
**Major Catchment Area** Central West  
**Street address** Gillinghall Road Bodangora

#### Ecosystem credits

PC type code	Plant community type name	Management zone area (ha)	Loss in LandScape Value	Loss in site value score	EEC Offset Multiplier	Credits req for TS	TS with highest credit req	TS offset multiplier	Ecosystem credits required
CW216	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	1.00	12.00	44.67	3.0	28	Yellow-bellied Sheath-tail-bat	2.2	37
CW111	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	0.32	12.00	44.67	3.0	10	Bush Stone-curlew	2.6	12

#### Species credits

There are no species credits available for the assessment.

## Potential offset credits



### BioBanking Biodiversity Banking and Offsets Scheme

#### Assessment details

Assessment details	Proponent details	Landscape value	Vegetation zone	Geographic / habitat feature	Site survey details	Site values	Threatened species survey results	Credits
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\* indicates a mandatory item.

**Assessment type** Biobank  
**Proposal ID** 222/2017/4380B  
**Proposal version** 1  
**Proposal name** Bodangora WF offset  
**Major Catchment Area** Central West  
**Street address** Gillinghall Rd Bodangora NSW

#### Ecosystem credits

Veg code	Vegetation name	Management zone	Management zone area (ha)	LandScape Value score	Current site value	Future site value	Gain in site value	Averted loss in site value	Number of ecosystem credits created
CW112	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	1	3.97	12.80	86.44	96.00	9.56	8.28	30
CW271	Dapper Mugga Ironbark - Western Grey Box - Blakely's Red Gum - Black Cypress Pine grass shrub hill woodland (southern Brigalow Belt South Bioregion)	1	2.53	12.80	86.46	100.00	13.54	8.08	22

#### Species credits

Management actions

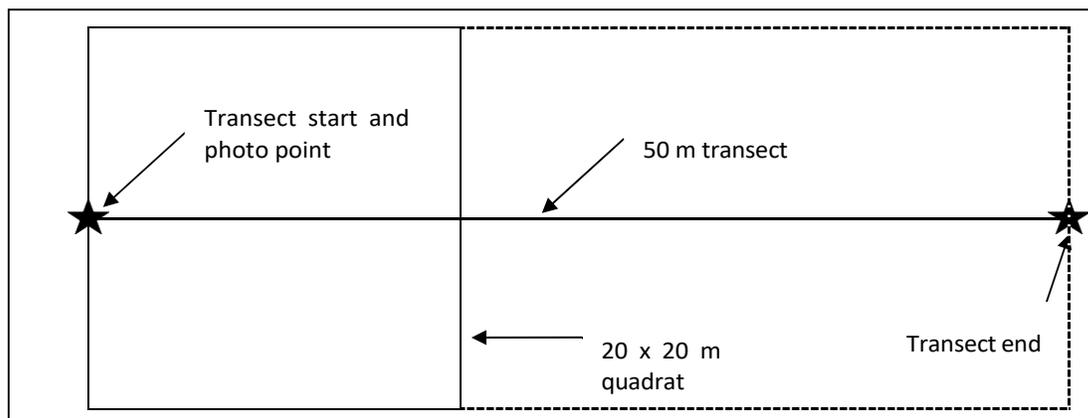
Scientific name	Common name	Number of species credits created
<input type="radio"/> <i>Glossopsitta pusilla</i>	Little Lorikeet	46
<input type="radio"/> <i>Polytelis swainsonii</i>	Superb Parrot	46

## APPENDIX B SUPERSEDED - MONITORING PLOTS

Coordinates for each of the monitoring plots

Site	Easting	Northing	Description	Image
BOP 10	698009	6414144	White Box Grassy Woodland PCT 266 Direction 110 SE	
BOP11	698058	6414209	White Box Grassy Woodland PCT 266 Direction 300 NW	
BOP12	698100	6414291	White Box Grassy Woodland PCT 266 Direction 205 SW	

Monitoring plot layout



Offset Area Plot data – PCT 266

PlotName	NPS	NOS	NMS	NGCG	NGCS	NGCO	EPC	NTH	OR	FL
BOP10	21	4	2	60	0	10	2	1	1	10
BOP11	20	7.5	0	38	0	8	2	1	1	7
BOP12	20	5.5	0	54	0	8	0	1	1	20

Full floristic data – PCT 266 only

Flora quadrat/random meander data sheet					
<b>Project:</b>	Bodangora WF				
<b>Survey date:</b>	20/06/2017				
<b>Quadrat/RM ID:</b>	BOP10				
<b>GPS location:</b>	698009	6414144			
Family	Exotic	Scientific Name	Common Name	Cover%	#individuals
Apiaceae		<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	10	500
Asteraceae	*	<i>Centaurea solstitialis</i>	St Barnabys Thistle	1	10
Asteraceae	*	<i>Arctotheca calendula</i>	Capeweed	2	50
Brassicaceae	*	<i>Brassica spp.</i>	Brassica	1	1
Campanulaceae		<i>Wahlenbergia luteola</i>	Bluebell	1	5
Chenopodiaceae		<i>Einadia nutans</i>	Climbing Saltbush	1	1
Convolvulaceae		<i>Dichondra repens</i>	Kidney Weed	5	100
Fabaceae (Faboideae)		<i>Glycine clandestina</i>	Twining glycine	5	50
Fabaceae (Faboideae)		<i>Desmodium varians</i>	Slender Tick-trefoil	2	50
Fabaceae (Mimosoideae)		<i>Acacia decora</i>	Western Silver Wattle	3	1
Fabaceae (Mimosoideae)		<i>Acacia implexa</i>	Hickory Wattle	1	1

Goodeniaceae		<i>Goodenia pinnatifida</i>	Scrambles Eggs	1	1
Myrtaceae		<i>Eucalyptus albens</i>	White Box	30	5
Myrtaceae		<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	5	1
Phyllanthaceae		<i>Phyllanthus hirtellus</i>	Thyme Spurge	1	1
Plantaginaceae		<i>Plantago varia</i>		1	2
Poaceae		<i>Austrostipa scabra</i>	Speargrass	2	10
Poaceae		<i>Austrostipa nodosa</i>	A Speargrass	2	10
Poaceae		<i>Aristida ramosa</i>	Purple Wiregrass	5	50
Poaceae		<i>Austrostipa setacea</i>	Corkscrew Grass	2	10
Poaceae		<i>Aristida vagans</i>	Threawn Speargrass	5	50
Poaceae		<i>Bothriochloa macra</i>	Red Grass	10	100
Pteridaceae		<i>Cheilanthes sieberi</i>	Rock Fern	10	100
Rosaceae		<i>Acaena novae-zelandiae</i>	Bidgee-widgee	1	5

Flora quadrat/random meander data sheet					
<b>Project:</b>	Bodangora WF				
<b>Survey date:</b>	20/06/2017				
<b>Quadrat/RM ID:</b>	BOP11				
<b>GPS location:</b>	698058	6414209			
Family	Exotic	Scientific Name	Common Name	Cover%	#individuals
Apiaceae		<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	20	500
Apiaceae		<i>Daucus glochidiatus</i>	Native Carrot	1	5
Asteraceae		<i>Vittadinia cuneata</i>	A Fuzzweed	1	3
Convolvulaceae		<i>Dichondra repens</i>	Kidney Weed	2	50
Fabaceae (Faboideae)		<i>Glycine clandestina</i>	Twining glycine	2	50

Fabaceae (Faboideae)		<i>Desmodium varians</i>	Slender Tick-trefoil	1	50
Fabaceae (Mimosoideae)		<i>Acacia implexa</i>	Hickory Wattle	1	1
Fabaceae (Mimosoideae)		<i>Acacia decora</i>	Western Silver Wattle	10	7
Geraniaceae		<i>Geranium retrorsum</i>	Cranesbill Geranium	1	10
Juncaceae	*	<i>Juncus bufonius</i>	Toad Rush	1	5
Juncaceae		<i>Juncus subsecundus</i>	Finger Rush	2	20
Myrtaceae		<i>Eucalyptus albens</i>	White Box	50	15
Oxalidaceae		<i>Oxalis perennans</i>		1	50
Phyllanthaceae		<i>Phyllanthus hirtellus</i>	Thyme Spurge	1	3
Plantaginaceae		<i>Plantago varia</i>		1	10
Poaceae		<i>Austrostipa scabra</i>	Speargrass	5	50
Poaceae		<i>Aristida vagans</i>	Threeawn Speargrass	5	50
Poaceae		<i>Aristida ramosa</i>	Purple Wiregrass	5	50
Poaceae		<i>Rytidosperma caespitosum</i>	Ringed Wallaby Grass	5	10
Pteridaceae		<i>Cheilanthes sieberi</i>	Rock Fern	5	50
Rubiaceae		<i>Asperula conferta</i>	Common Woodruff	1	20

### Flora quadrat/random meander data sheet

<b>Project:</b>	Bodangora WF				
<b>Survey date:</b>	20/06/2017				
<b>Quadrat/RM ID:</b>	BOP12				
<b>GPS location:</b>	698100	6414291			
<b>Family</b>	<b>Exotic</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>Cover%</b>	<b>#individuals</b>
Apiaceae		<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	5	100
Asteraceae	*	<i>Conyza spp.</i>	A Fleabane	1	10

Asteraceae	*	<i>Carthamus lanatus</i>	Saffron Thistle	1	1
Chenopodiaceae		<i>Einadia nutans</i>	Climbing Saltbush	2	50
Convolvulaceae		<i>Dichondra repens</i>	Kidney Weed	2	50
Dilleniaceae		<i>Hibbertia riparia</i>		1	5
Fabaceae (Faboideae)		<i>Glycine clandestina</i>	Twining glycine	2	100
Fabaceae (Faboideae)		<i>Desmodium varians</i>	Slender Tick-trefoil	1	20
Fabaceae (Mimosoideae)		<i>Acacia decora</i>	Western Silver Wattle	2	2
Fabaceae (Mimosoideae)		<i>Acacia implexa</i>	Hickory Wattle	1	1
Geraniaceae		<i>Geranium retrorsum</i>	Cranesbill Geranium	5	100
Juncaceae		<i>Juncus subsecundus</i>	Finger Rush	2	20
Juncaceae	*	<i>Juncus bufonius</i>	Toad Rush	1	5
Myrtaceae		<i>Eucalyptus albens</i>	White Box	40	9
Myrtaceae		<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	2	2
Phyllanthaceae		<i>Phyllanthus hirtellus</i>	Thyme Spurge	1	2
Poaceae		<i>Elymus scaber</i>	Common Wheatgrass	10	50
Poaceae		<i>Aristida ramosa</i>	Purple Wiregrass	1	20
Poaceae		<i>Austrostipa scabra</i>	Speargrass	5	50
Poaceae		<i>Rytidosperma caespitosum</i>	Ringed Wallaby Grass	1	5
Poaceae		<i>Bothriochloa macra</i>	Red Grass	5	50
Pteridaceae		<i>Cheilanthes sieberi</i>	Rock Fern	1	50
Rosaceae		<i>Acaena novae-zelandiae</i>	Bidgee-widgee	1	2

## **APPENDIX C STATEMENT CONFIRMING PAYMENT INTO THE BIODIVERSITY CONSERVATION FUND**

Overleaf

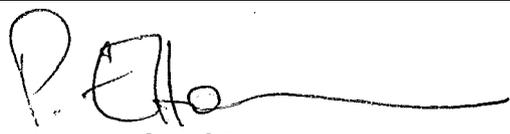


## Statement confirming payment into the Biodiversity Conservation Fund for an offset obligation

Pursuant to section 6.33 of the *Biodiversity Conservation Act 2016*, the NSW Biodiversity Conservation Trust confirms that the following payments have been made into the Biodiversity Conservation Fund under section 6.30(1) of the Act to satisfy an obligation to retire biodiversity credits.

<b>Payment made by</b>	Bodangora Wind Farm Pty Ltd			
<b>Date received</b>	31 October 2018			
<b>Existing statutory obligation reference<sup>1</sup></b>	MP10 0157 Mod 4			
<b>BCT Reference</b>	BCF012			
<b>Biodiversity credit retirement obligations satisfied by payment to the Biodiversity Conservation Fund:</b>				
<b>Biodiversity credit ID number</b>	<b>Biodiversity credit name</b>	<b>Number of credits</b>	<b>Cost per credit</b>	<b>Total payment per credit type</b>
PCT 281/CW111	Rough-Barked Apple- Red Gum- Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion.	40	\$2,409.58	\$96,383.11
PCT 266/CW216	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	56	\$2,409.58	\$134,936.36
<b>Total (incl GST)</b>				<b>\$254,451.42</b> <i>GST of \$23,131.95 is included in this amount</i>

Paul Elton

  
**Executive Director and Chief Executive**

Date: 5.11.18

<sup>1</sup> This refers to either; a development application number for a development consent under Part 4 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*, a State significant infrastructure approval under the previous Part 5.1 (now Part 5, Division 5.2) of the EP&A Act, a decision of a determining authority to carry out or approve the carrying out of an activity under Part 5 of the EP&A Act, or a biobank statement number or biodiversity certification number.

## **APPENDIX D REASONABLE EQUIVALENCE**

Overleaf

## Statement of assessment of reasonable equivalence of biodiversity credits

A delegate of the Chief Executive of the Office of Environment and Heritage has determined that the number of biodiversity credits required to be retired under the *Threatened Species Conservation Act 1995 (TSC Act)* as part of the development consent listed in Part 1, are reasonably equivalent to the number and class of biodiversity credits under the *Biodiversity Conservation Act 2016 (BC Act)* set out in Part 2.

This document outlines that determination, made in accordance with clause 22(3) of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*.

### Part 1 Existing statutory obligation to retire credits

<b>Request made by:</b>	Bodangora Wind Farm Pty Limited (ABN 79 134 443 904)
<b>Date received</b>	3 <sup>rd</sup> August 2018
<b>Development Consent number</b>	MP10_0157 MOD 4
<b>Development name</b>	Bodangora Wind Farm Project

Existing statutory obligation reference	Biodiversity credit name (Plant Community Type name and ID, or threatened species name)	IBRA sub region	Number of credits
MP10_0157 MOD 4	Rough-Barked Apple - Red Gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion PCT 281 (CW111)	Inland Slopes (of NSW South Western Slopes) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs	<b>40</b>
MP10_0157 MOD 4	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion PCT 266 (CW216)	Inland Slopes (of NSW South Western Slopes) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs	<b>73</b>

## Part 2 Determination of reasonable equivalence

The number and class of biodiversity credits that are reasonably equivalent under the BC Act are:

### Ecosystem Credits

- 1. Name of Plant Community Type:** Rough-Barked Apple - Red Gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion PCT 281 (CW111)

<b>Number of ecosystem credits required</b>	40 <sup>1</sup>
<b>Offset trading group</b>	White Box Yellow Box Blakely's Red Gum Woodland_
<b>Vegetation class</b>	Western Slopes Grassy Woodlands
<b>Vegetation formation</b>	Grassy Woodlands
<b>Containing hollow bearing trees</b>	NA
<b>IBRA<sup>2</sup> subregion</b>	Inland Slopes (of NSW South Western Slopes) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs or any IBRA subregion that is within 100 kilometres of the outer edge of the impacted site

- 2. Name of Plant Community Type:** White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion PCT 266 (CW216)

<b>Number of ecosystem credits required</b>	56
<b>Offset trading group</b>	White Box Yellow Box Blakely's Red Gum Woodland
<b>Vegetation class</b>	Western Slopes Grassy Woodlands
<b>Vegetation formation</b>	Grassy Woodlands
<b>Containing hollow bearing trees</b>	NA
<b>IBRA<sup>3</sup> subregion</b>	Inland Slopes (of NSW South Western Slopes) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs or any IBRA subregion that is within 100 kilometres of the outer edge of the impacted site

<sup>1</sup> Matching BBAM credits available, see Attachment A.

<sup>2</sup> Interim Biogeographic Regionalisation for Australia

<sup>3</sup> Interim Biogeographic Regionalisation for Australia

This statement was issued on 3 October, 2018.

Authorised by:



*Sonya Errington*

A/Director, Conservation Programs  
Conservation and Regional Delivery  
Office of Environment and Heritage

## Attachment A

As per the process for determining reasonable credit equivalence outlined on OEH's website (<https://www.environment.nsw.gov.au/biodiversity/reasonable-equivalence-assessment.htm/>), where matching biodiversity credits are issued or pending on the public BioBanking Credit Register, a ratio of 1:1 is applied.

In the case of Rough-Barked Apple - Red Gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion (PCT 281 (CW111)), matching credits are available from BioBanking Agreement 146 in the form of Blakely's Red Gum - White Box - Yellow Box - Black Cypress Pine box grass/shrub woodland on clay loam soils on undulating hills of central NSW South Western Slopes Bioregion (PCT 282 (CW209)).

CW209 is listed as a suitable offset option for CW111 on the Credit Report for MP10\_0157 MOD 4, within the same IBRA sub-region as the development, or any adjoining IBRA sub-regions. BioBanking Agreement 146 occurs within the adjoining Hill End IBRA sub-region.

As at 19 September 2018, BioBanking Agreement 146 has 1,866 CW209 credits available.

## Search results for ecosystem credits



Plant community type - CW209/Blakely&

Credit status - Issued/Pending

matched 2 records

Credit owner(s)	Email	Agreement ID	Plant Community Code	IBRA sub-region	Vegetation Formation	Credit Status	Credits
Orange City Council	<a href="mailto:Biobanking@environment.nsw.gov.au">Biobanking@environment.nsw.gov.au</a>	146	CW209	Hill End	GRW	Issued	1,492
Orange City Council	<a href="mailto:Biobanking@environment.nsw.gov.au">Biobanking@environment.nsw.gov.au</a>	146	CW209	Hill End	GRW	Issued	374

- End -

N/A - Credits with the status of pending are attached to a draft biobanking agreement. A biobanking agreement is only available on the BioBanking public register once it has been finalised and reached agreement issued status.