

# **APPENDIX 12**

## **Offsets Strategy**

26 July 2022

Andrew Ross

Aventuur Australia Pty Ltd  
ABN 24 643 061 250  
PO Box 910  
SOUTH FREMANTLE WA 6162

Dear Andrew,

**RE: Cockburn Surf Park – Summary of Environmental Offset Options**

Following is our assessment of a potential environmental offset package that would be suitable for the Cockburn Surf Park project.

**1 Background**

The Cockburn Surf Park site contains about 5.4ha of native vegetation. The Surf Park will clear most of the vegetation, however with an intention to retain as many mature trees as part of the landscape design where possible.

The vegetation at the lower northern end is Paperbark woodland in Degraded-Good condition. The Paperbark woodland (1.4ha) is mapped as a Multiple Use wetland which extends off-site including on Lot 802 to the north of Prinsep Road.

The vegetation in the southern upland areas is Banksia woodland and Grass Tree (*Xanthorrhoea preissii*) Shrubland in Good-Very Good condition. The Banksia woodland vegetation type has been assessed as being part of the Banksia Woodlands of the Swan Coastal Plain ecological community which is listed as a Threatened Ecological Community (TEC) under the Commonwealth EPBC Act and a Priority Ecological Community (PEC) at State level. Around 3.16ha of the Banksia Woodland TEC/PEC occurs on the site.

The Banksia woodland vegetation type contains foraging habitat for Carnaby's and Baudin's Black Cockatoos and limited foraging habitat for Forest Red-tailed Black Cockatoos. Around 3.16ha of foraging habitat occurs on the site.

A summary of the site characteristics is provided on the following table.

Feature	Significance	Area (ha)	Quality
<i>Banksia menziesii</i> / <i>B. attenuata</i> Low Open Woodland	Banksia Woodlands of the Swan Coastal Plain TEC and PEC	3.16ha	Good-Very Good <sup>1</sup>
<i>Xanthorrhoea preissii</i> Shrubland	Upland vegetation with no specific conservation significance	0.80ha	Good <sup>1</sup>
<i>Melaleuca preissiana</i> Low Open Woodland	Multiple Use Wetland	1.40ha	Degraded-Good <sup>1</sup>
<i>Banksia menziesii</i> / <i>B. attenuata</i> Low Open Woodland	Black Cockatoo Foraging Habitat, primarily Carnaby's and Baudin's Cockatoos	3.16ha	Low-Moderate <sup>2</sup> Overall score - 3 <sup>2</sup>

<sup>1</sup> – Keighery scale

<sup>2</sup> – Bamford Consulting Ecologists June 2020 *Scoring system for the assessment of foraging value of vegetation for Carnaby's Black-Cockatoo*

## 2 Offset Requirements

### 2.1 Commonwealth EPBC Act

The proposed development has been referred under the EPBC Act and deemed to be a Not a Controlled Action. As a result, no further assessment is required at Commonwealth level and no offsets are required.

### 2.2 State

#### 2.2.1 EP Act assessment

The EPA Services section of DWER has indicated in discussions with the project team that a referral under Section 38 Part IV of the *Environmental Protection Act 1986* (EP Act) should be made and that a full assessment by the EPA may be required. If a full assessment is undertaken by the EPA, an offset package to manage any residual impacts on matters deemed significant by the EPA is highly likely to be required.

#### 2.2.2 Clearing Permit

If the proposal is assessed under Part IV of the EP Act, then a clearing permit would not be required.

The EPA may decide that assessment under Part IV is not necessary and the proposed clearing could be assessed under the Part V clearing permit process. In that situation, Aventura will apply for a clearing permit that will contain an offset package to offset the impact on Banksia Woodland PEC and Black Cockatoos.

A clearing permit for the Paperbark vegetation should not require an offset. The clearing permit granted in 2019 for the construction of Prinsep Road, (CPS 8386/1) approved the clearing of 1.8ha of vegetation from the same wetland as occurs on the Surf Park site. No offset was required as a condition of that clearing permit. The vegetation in the road reserve was mapped as the same vegetation type and condition as the area on the Surf Park site in the survey undertaken by Focussed Vision (2018). PGV Environmental's understanding of the State Offset Calculator is that only wetlands

of conservation significance need to be offset. The wetland on the site is not mapped as Conservation Significant or has the values of a Conservation Significant wetland.

### **3 Offset Options**

There are several different strategies that can be included in an offset package and include:

- Purchase of unreserved land containing the matters of significance that require offsetting and ceding the land free of cost to the Conservation Commission. The land should be suitable to be incorporated into the conservation estate. Uncleared rural land adjacent to existing conservation reserves or National Parks are favoured for this approach;
- Funding the management of existing conservation reserves to improve their overall condition. The conservation reserve needs to contain the matters that require offsetting, and the works need to demonstrate an improvement in the condition of the matters being offset. Importantly any funds proposed need to be additional to management costs being expended by a State agency or local government authority;
- Change the zoning of an area of bushland that contains the matters required to be offset from non-reserved to a conservation reservation of some sort;
- Apply a Conservation Covenant on a private area of bushland that contains the matters required to be offset; or
- A mix of the above four options.

It is possible to offset two or more matters with one site. For example a Banksia Woodland TEC also contains Black Cockatoo foraging habitat. You do not have to purchase or manage one site to offset the Banksia Woodland TEC and another site to offset the Black Cockatoos, one site would do. This is the case with the Cockburn Surf Park site.

The area of land that needs to be acquired and/or managed under the options above is determined using the DWER offset calculator.

### **4 Offset Calculator Results**

The DWER offset calculator is a spreadsheet where some numbers are input by the operator and others are calculated by the spreadsheet algorithm. There is some subjectivity in several of the numbers that the operator needs to input, for example the 'confidence in result' boxes, 'time until ecological benefit' and 'quality of the area to be cleared' and 'quality of the offset site'. Apart from the quality of the area to be cleared and offset site, for the calculations that follow we have used numbers that have been accepted on other projects we have been involved with.

The quality of the area to be cleared is based on the description of the site and the quality of any offset sites to be purchased or managed is an initial assessment based on aerial photographs which can be backed up by on-site assessment. The objective in the calculator is to achieve at least a 100% offset.

The offset calculator spreadsheets for the various options are provided in Attachment 1. The results are as follows:

#### ***Banksia Woodland PEC***

Using the DWER Offset Calculator, to achieve at least a 100% offset to clear 3.16ha of Banksia Woodland PEC will require the following:

- Purchase of an offset site, most likely in the Shire of Gingin close to the Moore River National Park – 18.3ha
- Regenerate a degraded portion of a nearby local conservation reserve. In discussions with the City of Cockburn, Aventura has identified an area of 1ha in the Rose Shanks Reserve that would benefit from regeneration. Rose Shanks Reserve is managed by the City and contains native vegetation as well as areas previously cleared for sand mining and other activities. Regenerating 1ha of the Reserve will achieve 22.5% of the offset. The regeneration would require the planting of appropriate locally endemic species as well as management of weeds and pest fauna to ensure that the regenerated areas match the environmental values of the remainder of the reserve. To achieve the full 100% offset target will require additional offset options including purchase of an offset site. The Offset Calculator indicates that the residual offset requirement after the regeneration of 1ha of Rose Shanks Reserve will require the purchase of a 14.2ha offset site.

### ***Carnaby's Black Cockatoos***

Using the DWER Offset Calculator, to achieve at least a 100% offset to clear 3.16ha of Black Cockatoo foraging habitat will require the following:

- Purchase an offset site. There are options to purchase sites with foraging habitat on the Swan Coastal Plain in the Shire of Gingin and in close proximity to the Moore River National Park – 8ha (assumes a high-quality site with an 8 out of 10 rating. A lower quality site would not usually be considered as suitable to be an offset which would be added to the conservation estate)
- Revegetating 1ha of Rose Shanks Reserve would achieve 47.3% of the offset. To achieve the full 100% offset will require the purchase of a further 14.2ha offset site.

A consideration in determining the offset value of revegetating Black Cockatoo foraging habitat is the offset calculator assumes that the density of Banksias to be planted is the same as the density to be cleared. The density of Banksia trees on the Surf Park site is very low. The 3.16 ha of Banksia woodland contains only 231 Banksia trees, as counted using the surveyor's (MNG) Feature Survey (29 Oct 2021). That gives a density of 73 trees/ha. In comparison the density of Banksia trees in a typical Banksia woodland on the Gnarara Mound commonly ranges from 400-1400 stems/ha.

The revegetation in Rose Shanks Reserve would be undertaken to reflect a more typical Banksia Woodland, resulting in at least double the number of Banksias planted and therefore double the food resources for Carnaby's Black Cockatoo compared to the proposed clearing. The offset calculator does not have the functionality to give a result for a higher density of trees being planted in an offset revegetation site. However, if planting at the same density as the area being cleared gives a 47.3% offset for revegetating 1ha, planting at a density of 154 Banksias per hectare, should result in a 100% offset.

Planting at a higher density of Banksia trees, however, does not affect the Banksia Woodland PEC offset calculations as a Banksia woodland with 73 trees per hectare is considered the same as a Banksia woodland with a higher density of trees.

**DWER – Black Cockatoo Foraging Habitat**

Strategy	Proposed Clearing	Area to be Offset	Size of Offset Site	Ratio	% Offset achieved	Location of Proposed Offset	Cost
<ul style="list-style-type: none"> <li>Purchase Offsite</li> </ul>	Black Cockatoo Forging Habitat	3.16ha	8ha	2.5	100.9%	Gingin Area	\$/ha tbd 10 years management \$100,000 @ \$5,000/yr
<ul style="list-style-type: none"> <li>Regenerate 1ha Habitat and Purchase Offsite</li> </ul>	Black Cockatoo Forging Habitat	3.16ha	Regenerate 1ha Purchase 4.2ha		47.3% regenerate 53.0% purchase = 100.3%	Rose Shanks Reserve Gingin Area	\$50,000 @ \$50,000/ha + purchase price of 4.2ha and 10 yr mgt

**DWER – Banksia Woodland PEC**

Strategy	Proposed Clearing	Area to be Offset	Size of Offset Site	Ratio	% Offset achieved	Location of Proposed Offset	Cost
<ul style="list-style-type: none"> <li>Purchase Offsite</li> </ul>	Banksia Woodland PEC	3.16ha	18.3ha	5.8	100%	Gingin Area	\$/ha tbd
<ul style="list-style-type: none"> <li>Regenerate 1ha PEC and Purchase Offsite</li> </ul>	Banksia Woodland PEC	3.16ha	Regenerate 1ha and purchase 14.2ha		22.5% regenerate 77.6% purchase = 100.1%	Rose Shanks Reserve Gingin Area	\$60,000 @ \$60,000/ha + purchase price of 14.2ha and 10 yr mgt

## 5 Conclusions

The simplest offset option would be the purchase of an offset site that contains Banksia Woodland PEC and also functions as Carnaby's Black Cockatoo foraging habitat. According to the DWER Offset Calculator results the Banksia Woodland PEC requires more land to be purchased than Black Cockatoo habitat with 18.3ha required using the DWER calculator compared to the purchase of 8ha of Carnaby's Black Cockatoo habitat.

Revegetation of a degraded portion of the Rose Shanks Reserve near to the Surf Park site has merit in demonstrating replacement of foraging habitat and Banksia Woodland PEC in close proximity to the site. However, the cost of successful regeneration is far higher per hectare than the cost of purchasing an offset site. A mix of regeneration and purchase of an offset site would lower the cost of the offset package but may add more complexities with regards to compliance, with two separate components to manage potentially over different timeframes. Revegetation as part of the offset package should give credit should be applied to planting Banksia trees at a higher density than that cleared.

Please contact me if you require any clarification of this advice.

Yours sincerely



Paul van der Moezel  
Managing Director

Attachment 1: Offset Calculator Spreadsheets

## **Offsets Calculator Spreadsheets**

**DWER – Black Cockatoo Foraging Habitat**



## Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores (Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1"> <tr> <td>Description</td> <td style="background-color: yellow;">Carnaby's Black Cockatoo</td> </tr> <tr> <td>Type of environmental value</td> <td style="background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td>Conservation significance of environmental value</td> <td style="background-color: #f4a460;">Rare/threatened species - endangered</td> </tr> <tr> <td>Conservation significance score</td> <td style="background-color: #cccccc;">1.2%</td> </tr> </table>	Description	Carnaby's Black Cockatoo	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - endangered	Conservation significance score	1.2%
Description	Carnaby's Black Cockatoo								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - endangered								
Conservation significance score	1.2%								

Please select <i>area</i> or <i>feature</i> for the calculations	Area
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## Step 2: Calculating significant residual impact

**Key:**

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo
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**Area (impact site)**

Part A: Significant impact calculation <i>Area</i>		
	Description	Quantum of impact
Significant impact	Significant impact (hectares)	3.16
	Quality (scale)	3.00
	Total quantum of impact	0.95

Part B: Rehabilitation credit calculation <i>Area (onsite)</i>					
	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
Rehabilitation Credit					
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation <i>Area</i>		
	Description	Quantum of impact
Significant residual impact	Total quantum of impact	0.95
	Rehabilitation credit	0.00
	Significant residual impact	0.95

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Camaby's Black Cockatoo	Significant impact (step 2, part A)	3.16
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	0.95

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	8.00	Duration of offset implementation (maximum 20 years)	20.00	Offset value	0.96
		Current quality of offset site (scale)	8.00	Time until offset site secured (years)	1.00		100.9%
		Future quality WITHOUT offset (scale)	7.00	Risk of future loss WITHOUT offset (%)	10.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	5.0%		
		Time until ecological benefit (years)	1.00				
		Confidence in offset result (%)	90.0%				
						<b>OFFSET ADEQUATE?</b>	<b>NO</b>

## Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores  
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Description</td> <td style="padding: 5px; background-color: yellow;">Carnaby's Black Cockatoo</td> </tr> <tr> <td style="padding: 5px;">Type of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td style="padding: 5px;">Conservation significance of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Rare/threatened species - endangered</td> </tr> <tr> <td style="padding: 5px;">Conservation significance score</td> <td style="padding: 5px; background-color: #cccccc;">1.2%</td> </tr> </table>	Description	Carnaby's Black Cockatoo	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - endangered	Conservation significance score	1.2%
Description	Carnaby's Black Cockatoo								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - endangered								
Conservation significance score	1.2%								

Please select <i>area</i> or <i>feature</i> for the calculations	Area
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## Step 2: Calculating significant residual impact

**Key:**

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo
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**Area (impact site)**

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Banksia Woodland TEC	Significant impact (hectares)	3.16
		Quality (scale)	3.00
		Total quantum of impact	0.95

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	0.95
	Rehabilitation credit	0.00
	Significant residual impact	0.95

### Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Camaby's Black Cockatoo	Significant impact (step 2, part A)	3.16
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	0.95

**Area (offset site)**

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	1.00	Duration of offset implementation (maximum 20 years)	10.00	Offset value	0.45
	Revegetate Rose Shanks Reserve	Current quality of offset site (scale)	1.00	Time until offset site secured (years)	1.00		47.3%
		Future quality WITHOUT offset (scale)	1.00	Risk of future loss WITHOUT offset (%)	10.0%		
		Future quality WITH offset (scale)	7.00	Risk of future loss WITH offset (%)	5.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	90.0%				<b>OFFSET ADEQUATE?</b>

## Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores  
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Description</td> <td style="padding: 5px; background-color: yellow;">Carnaby's Black Cockatoo</td> </tr> <tr> <td style="padding: 5px;">Type of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td style="padding: 5px;">Conservation significance of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Rare/threatened species - endangered</td> </tr> <tr> <td style="padding: 5px;">Conservation significance score</td> <td style="padding: 5px; background-color: #cccccc;">1.2%</td> </tr> </table>	Description	Carnaby's Black Cockatoo	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - endangered	Conservation significance score	1.2%
Description	Carnaby's Black Cockatoo								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - endangered								
Conservation significance score	1.2%								

Please select <i>area</i> or <i>feature</i> for the calculations	Area
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## Step 2: Calculating significant residual impact

**Key:**

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo
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**Area (impact site)**

Part A: Significant impact calculation <i>Area</i>		
	Description	Quantum of impact
Significant impact	Significant impact (hectares)	3.16
	Quality (scale)	3.00
	Total quantum of impact	0.95

Part B: Rehabilitation credit calculation <i>Area (onsite)</i>					
	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
Rehabilitation Credit					
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation <i>Area</i>		
	Description	Quantum of impact
Significant residual impact	Total quantum of impact	0.95
	Rehabilitation credit	0.00
	Significant residual impact	0.95



WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Camaby's Black Cockatoo	Significant impact (step 2, part A)	3.16
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	0.95

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	4.20	Duration of offset implementation (maximum 20 years)	20.00	Offset value	0.50
		Current quality of offset site (scale)	8.00	Time until offset site secured (years)	1.00		53.0%
		Future quality WITHOUT offset (scale)	7.00	Risk of future loss WITHOUT offset (%)	10.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	5.0%		
		Time until ecological benefit (years)	1.00				
		Confidence in offset result (%)	90.0%				
						<b>OFFSET ADEQUATE?</b>	<b>NO</b>

# **Offsets Calculator Spreadsheets**

**DWER – Banksia Woodland PEC**

## Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores (Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1"> <tr> <td>Description</td> <td style="background-color: yellow;">Banksia Woodland PEC</td> </tr> <tr> <td>Type of environmental value</td> <td style="background-color: #f4a460;">Ecological community</td> </tr> <tr> <td>Conservation significance of environmental value</td> <td style="background-color: #f4a460;">Priority ecological community</td> </tr> <tr> <td>Conservation significance score</td> <td style="background-color: #cccccc;">0.1%</td> </tr> </table>	Description	Banksia Woodland PEC	Type of environmental value	Ecological community	Conservation significance of environmental value	Priority ecological community	Conservation significance score	0.1%
Description	Banksia Woodland PEC								
Type of environmental value	Ecological community								
Conservation significance of environmental value	Priority ecological community								
Conservation significance score	0.1%								

Please select area or feature for the calculations	Area
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## Step 2: Calculating significant residual impact

**Key:**

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia Woodland PEC
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**Area (impact site)**

Part A: Significant impact calculation Area		
	Description	Quantum of impact
Significant impact	Significant impact (hectares)	3.16
	Quality (scale)	7.00
	Total quantum of impact	2.21

Part B: Rehabilitation credit calculation Area (onsite)				
	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)	
Rehabilitation Credit				
	Current quality of rehabilitation site (scale)			Confidence in rehabilitation result (%)
	Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
	Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
	Description	Quantum of impact
Significant residual impact	Total quantum of impact	2.21
	Rehabilitation credit	0.00
	Significant residual impact	2.21

### Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia Woodland PEC	Significant impact (step 2, part A)	3.16
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	2.21

**Area (offset site)**

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	18.30	Duration of offset implementation (maximum 20 years)	20.00	Offset value	2.21
		Current quality of offset site (scale)	8.00	Time until offset site secured (years)	1.00		100.0%
		Future quality WITHOUT offset (scale)	7.00	Risk of future loss WITHOUT offset (%)	10.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	5.0%		
		Time until ecological benefit (years)	1.00				
		Confidence in offset result (%)	90.0%				<b>OFFSET ADEQUATE?</b>

## Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores (Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1"> <tr> <td style="background-color: #cccccc;">Description</td> <td style="background-color: yellow;">Banksia Woodland PEC</td> </tr> <tr> <td style="background-color: #cccccc;">Type of environmental value</td> <td style="background-color: #f4a460;">Ecological community</td> </tr> <tr> <td style="background-color: #cccccc;">Conservation significance of environmental value</td> <td style="background-color: #f4a460;">Priority ecological community</td> </tr> <tr> <td style="background-color: #cccccc;">Conservation significance score</td> <td style="background-color: #cccccc;">0.1%</td> </tr> </table>	Description	Banksia Woodland PEC	Type of environmental value	Ecological community	Conservation significance of environmental value	Priority ecological community	Conservation significance score	0.1%
Description	Banksia Woodland PEC								
Type of environmental value	Ecological community								
Conservation significance of environmental value	Priority ecological community								
Conservation significance score	0.1%								

Please select area or feature for the calculations	Area
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## Step 2: Calculating significant residual impact

**Key:**

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia Woodland PEC
---------------------------------	----------------------

### Area (impact site)

Part A: Significant impact calculation Area				
Significant impact	Description	Quantum of impact		
	Banksia Woodland TEC	Significant impact (hectares)	3.16	
		Quality (scale)	7.00	
		Total quantum of impact	2.21	

Part B: Rehabilitation credit calculation Area (onsite)						
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)		
		Current quality of rehabilitation site (scale)			Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)			Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)				

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	2.21
	Rehabilitation credit	0.00
	Significant residual impact	2.21

### Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia Woodland PEC	Significant impact (step 2, part A)	3.16
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	2.21

**Area (offset site)**

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	1.00	Duration of offset implementation (maximum 20 years)	10.00	Offset value	0.50
	Revegetate Rose Shanks Reserve	Current quality of offset site (scale)	1.00	Time until offset site secured (years)	1.00		22.5%
		Future quality WITHOUT offset (scale)	1.00	Risk of future loss WITHOUT offset (%)	10.0%		
		Future quality WITH offset (scale)	7.00	Risk of future loss WITH offset (%)	5.0%		
	Time until ecological benefit (years)	10.00				OFFSET ADEQUATE?	NO
	Confidence in offset result (%)	90.0%					



## Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores (Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1"> <tr> <td>Description</td> <td style="background-color: yellow;">Banksia Woodland PEC</td> </tr> <tr> <td>Type of environmental value</td> <td style="background-color: #f4a460;">Ecological community</td> </tr> <tr> <td>Conservation significance of environmental value</td> <td style="background-color: #f4a460;">Priority ecological community</td> </tr> <tr> <td>Conservation significance score</td> <td style="background-color: #cccccc;">0.1%</td> </tr> </table>	Description	Banksia Woodland PEC	Type of environmental value	Ecological community	Conservation significance of environmental value	Priority ecological community	Conservation significance score	0.1%
Description	Banksia Woodland PEC								
Type of environmental value	Ecological community								
Conservation significance of environmental value	Priority ecological community								
Conservation significance score	0.1%								

Please select area or feature for the calculations	Area
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## Step 2: Calculating significant residual impact

**Key:**

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia Woodland PEC
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**Area (impact site)**

Part A: Significant impact calculation Area		
	Description	Quantum of impact
Significant impact	Significant impact (hectares)	3.16
	Quality (scale)	7.00
	Total quantum of impact	2.21

Part B: Rehabilitation credit calculation Area (onsite)					
	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
Rehabilitation Credit					
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
	Description	Quantum of impact
Significant residual impact	Total quantum of impact	2.21
	Rehabilitation credit	0.00
	Significant residual impact	2.21

### Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia Woodland PEC	Significant impact (step 2, part A)	3.16
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	2.21

**Area (offset site)**

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	14.20	Duration of offset implementation (maximum 20 years)	20.00	Offset value	1.72
		Current quality of offset site (scale)	8.00	Time until offset site secured (years)	1.00		77.6%
		Future quality WITHOUT offset (scale)	7.00	Risk of future loss WITHOUT offset (%)	10.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	5.0%		
		Time until ecological benefit (years)	1.00				
		Confidence in offset result (%)	90.0%				<b>OFFSET ADEQUATE?</b>