WA Environmental Offsets Calculator

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	**Description**	Baudin's cockatoo (Zanda baudinii) foraging habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Baudin's cockatoo (Zanda baudinii) foraging habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation that comprises significant foraging habitat for Baudin's cockatoo.	Significant impact (hectares)	20.38
		Quality (scale)	3.00
		Total quantum of impact	6.11

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	6.11
	Rehabilitation credit	0.00
	Significant residual impact	6.11

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Baudin's cockatoo (Zanda baudinii) foraging habitat	Significant impact (step 2, part A)	20.38
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	6.11

***Area* (offset site)**

Offset calculation
Area

Offsets calculation

Description		**Proposed offset (area in hectares)**	52.10	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**6.11**
Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for Baudin's cockatoo (Zanda baudinii)		**Current quality of offset site (scale)**	5.00	**Time until offset site secured (years)**	1.00		**100.0%**
		Future quality WITHOUT offset (scale)	4.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		Future quality WITH offset (scale)	5.00	**Risk of future loss WITH offset (%)**	5.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	90.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Baudin's cockatoo (Zanda baudinii) foraging habitat		The proposed clearing will impact on 20.38 hectares of significant foraging habitat for Baudin's cockatoo.
Type of environmental value	Species (flora/fauna)		Baudin's cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened species - endangered		Baudin's cockatoo is listed as Endangered under both the state BC Act and the Commonwealth EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of foraging habitat in hectares.
Significant impact			
Description	Clearing of native vegetation that comprises significant foraging habitat for Baudin's cockatoo.		Native vegetation that comprises significant foraging habitat for Baudin's cockatoo is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	20.38		Based on the vegetation mapping (Biota, 2021), the application area contains 20.38 hectares of native vegetation that provides foraging habitat for Baudin's cockatoo. This corresponds with the recorded L3, P1, P2, P5 and P7 vegetation types (Biota, 2021).
Quality (scale) / Number	3.00		Based on the vegetation mapping (Biota, 2021), the Baudin's cockatoo foraging habitat in the application area includes marri low open woodland (vegetation types L3 and P2) (2%), Allocasuarina and Banksia woodland (P1) (74%), jarrah open forest over Xanthorrhoea (P5) (10%), and jarrah and Banksia woodland over Xanthorrhoea (P7) (14%). The vegetation is in a Excellent-Very Good (25%), Very Good (20%), Very Good to Good (11%), Good (23%) and Degraded (21%) (Keighery, 1994) condition (Biota, 2021). The application area includes a small patch of preferred foraging habitat (being the marri woodland) (2%) with the remaining foraging habitat comprising species that Baudin's cockatoo may opportunistically feed on. There are no known breeding or roosting sites in the local area. No evidence of foraging was identified on site. Noting the site context and that most of the application does not provide preferred foraging habitat, a moderate to low value of '3' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for Baudin's cockatoo (Zanda baudinii)		The acquisition and conservation in perpetuity of native vegetation within Lot 331 on Deposited Plan 424430 (Crown Reserve 54323), Crossman, that comprises significant foraging habitat for Baudin's cockatoo, to be ceded to the Department of Biodiversity Conservation and Attractions (DBCA).
Proposed offset (area in hectares)	52.10		A total of 52.1 hectares of native vegetation within the site will be used to counterbalance impacts to Baudin's cockatoo foraging habitat as part of project works under CPS 9448/1. This would address 100% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	5.00		The offset area is in Excellent (58%) to Good (42%) (Keighery, 1994) condition (AECOM, 2023) and provides Baudin's cockatoo foraging habitat in the Shire of Boddington. The area includes a mix of closed Allocasuarina forest with Eucalyptus wandoo (wandoo) (55%), wandoo open woodland (37%), and jarrah / marri open woodland (8%). Foraging species foilage for Baudins cockatoo was recorded as 28% across the site (AECOM, 2023). The area is part of a much larger remnant of native vegetation. No evidence of this species breeding or roosting has been recorded in the local area. However, foraging evidence was identified within the offset area (AECOM, 2023). A value of '5' has therefore been given, noting that there is on average a higher density of both preferred and secondary foraging habitat, and evidence of foraging, when compared to the application area.

Future quality WITHOUT offset (scale) / Future number WITHOUT offset	4.00		The Crossman offset site is bordered by intensive agricultural land use (cropping and stock grazing). Information from MRWA indicates that portions of the site are not fenced, and therefore access into the offset site is not restricted. Noting the surrounding threatening land use, the quality of the Baudin's cockatoo foraging habitat in the offset area may reduce slightly over time without fencing and appropriate management.
Future quality WITH offset (scale) / Future number WITH offset	5.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality and prevent degradation.
Time until ecological benefit (years)	10.00		Based on the management measures proposed, it is estimated that it will take 10 years of management for the benefit of future quality WITHOUT offset vs future quality WITH offset to be realised.
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding of the site to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Banksia Woodlands of the Swan Coastal Plain ecological community (Banksia Woodlands)
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Threatened ecological community - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Banksia Woodlands of the Swan Coastal Plain ecological community (Banksia Woodlands)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description	Quantum of impact	
Significant impact	Clearing of native vegetation representative of the Banksa Woodlands community	Significant impact (hectares)	14.94
		Quality (scale)	6.00
		Total quantum of impact	8.96

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	None proposed.	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	8.96
	Rehabilitation credit	0.00
	Significant residual impact	8.96

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Banksia Woodlands of the Swan Coastal Plain ecological community (Banksia Woodlands)	Significant impact (step 2, part A)	14.94
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	8.96

***Area* (offset site)**

Offset calculation
Area

Offsets calculation							
	Description	**Proposed offset (area in hectares)**	113.40	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**8.96**
	Acquisition and conservation in perpetuity of native vegetation that is representative of the Banksia Woodlands ecological community	**Current quality of offset site (scale)**	8.00	**Time until offset site secured (years)**	1.00		**100.0%**
		Future quality WITHOUT offset (scale)	8.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		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%			**OFFSET ADEQUATE?**	**YES**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia Woodlands of the Swan Coastal Plain ecological community (Banksia Woodlands)		The proposed clearing will impact on 14.94 hectares of native vegetation representative of the Banksia Woodlands ecological community.
Type of environmental value	Ecological community		The Banksia Woodlands ecological community is listed as a threatened ecological community under the Commonwealth EPBC Act and considered a priority ecological community by DBCA.
Conservation significance of environmental value	Threatened ecological community - endangered		The Banksia Woodlands ecological community is listed as Endangered under the EPBC Act and as Priority 3 by DBCA. Therefore, the highest level of threat has been applied for this field.
Landscape-level value impacted	yes/no		The impact is to an area of the Banksia Woodlands ecological community in hectares.
Significant impact			
Description	Clearing of native vegetation representative of the Banksa Woodlands community		Native vegetation that is representative of the Banksia Woodlands ecological community is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	14.94		The application area contains 14.94 hectares of native vegetation that is representative of the Banksia Woodlands ecological community (i.e., that meets the key diagnostic criteria and condition thresholds), as identified in the biological survey of the application area (Biota, 2021). This largely correspons with portions of the L5, P1, P2 and P7 vegetation types.
Quality (scale) / Number	6.00		The Banksia Woodlands ecological community within the application area was mapped in an Excellent-Very Good (34%), Very Good (29%), Very Good to Good (9%), Good (27%) and Degraded (1%) (Keighery, 1994) condition. The application area occurs on the Swan Coastal Plain, upon which the Banksia Woodlands ecological community has been extensively modified and remaining intact patches of the community are limited. The Banksia Woodlands ecological community within the application area also provides habitat for significant fauna, including foraging habitat for black cockatoos. The application area comprises patches of the community throughout the central and southern portions of the application area. Given the above, a moderate to high value of '6' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that is representative of the Banksia Woodlands ecological community		The acquisition and conservation in perpetuity of native vegetation within Lot 87 on Deposited Plan 422467 and Lot 88 on Deposited Plan 422467, Cowalla, that comprises vegetation representative of the Banksia Woodlands community, to be ceded to the Department of Biodiversity Conservation and Attractions (DBCA).
Proposed offset (area in hectares)	113.40		A total of 113.40 hectares of native vegetation that is representative of the Banksia Woodlands ecological community within the site will be used to counterbalance impacts to this community as part of project works under CPS 9448/1. This would address 100% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	8.00		The offset area is in Excellent (Keighery, 1994) condition and is representative of the Banksia Woodlands ecological community (i.e., meets the key diagnostic criteria and condition thresholds), as identified in a biological survey of the offset area (FVC, 2023). The offset area occurs on the Swan Coastal Plain, upon which the Banksia Woodlands TEC has been extensively modified and remaining intact patches of the community are limited. The Banksia Woodlands TEC within the offset area also provides habitat for significant fauna, including foraging habitat for Carnaby's cockatoo. The offset area forms part of a larger consolidated patch of the community. Given the above, a high value of '8' has been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.

Future quality WITH offset (scale) / Future number WITH offset	8.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality.
Time until ecological benefit (years)	1.00		As the proposed offset relates to acquiring and conserving an existing area of native vegetation the minimum of one year for this field is applied
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Carnaby's cockatoo (Zanda latirostris) foraging habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Carnaby's cockatoo (Zanda latirostris) foraging habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.	Significant impact (hectares)	20.83
		Quality (scale)	7.00
		Total quantum of impact	14.58

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	14.58
	Rehabilitation credit	0.00
	Significant residual impact	14.58

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Carnaby's cockatoo (Zanda latirostris) foraging habitat	Significant impact (step 2, part A)	20.83
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	14.58

Area **(offset site)**

Offset calculation
Area

Offsets calculation	**Description**	**Proposed offset (area in hectares)**	30.52	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**2.41**
	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for Carnaby's cockatoo (Zanda latirostris)	**Current quality of offset site (scale)**	8.00	**Time until offset site secured (years)**	1.00		**16.5%**
		Future quality WITHOUT offset (scale)	8.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		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%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's cockatoo (Zanda latirostris) foraging habitat		The proposed clearing will impact on 20.83 hectares of significant foraging habitat for Carnaby's cockatoo.
Type of environmental value	Species (flora/fauna)		Carnaby's cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened species - endangered		Carnaby's cockatoo is listed as Endangered under both the state BC Act and the Commonwealth EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of foraging habitat in hectares.
Significant impact			
Description	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.		Native vegetation that comprises significant foraging habitat for Carnaby's cockatoo is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	20.83		Based on the vegetation mapping (Biota, 2021), the application area contains 20.83 hectares of native vegetation that provides significant foraging habitat for Carnaby's cockatoo. This corresponds with the recorded L3, L5, P1, P2, P3, P4, P5 and P7 vegetation types (Biota, 2021).
Quality (scale) / Number	7.00		Based on the vegetation mapping (Biota, 2021), the Carnaby's cockatoo foraging habitat in the application area includes marri low open woodland (vegetation types L3 and P2) (2%), jacksonia shrubland (L5 and P4) (2%), Allocasuarina and Banksia woodland (P1) (73%), jarrah open forest over Xanthorrhoea (P5) (10%) and jarrah and Banksia woodland over Xanthorrhoea (P7) (13%). The vegetation is in a Excellent-Very Good (25%), Very Good (20%), Very Good to Good (11%), Good (23%) and Degraded (21%) (Keighery, 1994) condition (Biota, 2021). The application area includes primary foraging habitat in varying densities ranging from dense in areas of SCP20a to sparse within degraded areas. The application area is within 12 km of multiple known breeding sites, and 6 km of multiple known roosting sites. However, no evidence of foraging was identified on site. Given the above, a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for Carnaby's cockatoo (Zanda latirostris)		The acquisition and conservation in perpetuity of native vegetation within Lot 87 on Deposited Plan 422467 and Lot 88 on Deposited Plan 422467, Cowalla, that comprises significant foraging habitat for Carnaby's cockatoo, to be ceded to the Department of Biodiversity Conservation and Attractions (DBCA).
Proposed offset (area in hectares)	30.52		A total of 30.52 hectares of native vegetation within the site will be used to counterbalance impacts to Carnaby's cockatoo foraging habitat as part of project works under CPS 9448/1. This would address 16.5% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	8.00		The offset area is largely in Excellent (Keighery, 1994) condition with some minor areas in Very Good (Keighery, 1994) condition (FVC, 2023) and provides preferred foraging habitat for Carnaby's cockatoo in the Shire of Gingin, in the form of Banksia woodland which occurs over the whole site (FVC, 2023). The area is part of a larger remnant of native vegetation and provides a strategic offset outcome. There is a known nesting site within 12km and a known roost site within 10km. No foraging evidence was identified on site, but foraging was recorded in adjacent remnant vegetation (FVC, 2023). A high value of '8' has therefore been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.
Future quality WITH offset (scale) / Future number WITH offset	8.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality.

Time until ecological benefit (years)	1.00		As the proposed offset relates to acquiring and conserving an existing area of native vegetation the minimum of one year for this field is applied
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Carnaby's cockatoo (Zanda latirostris) foraging habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Carnaby's cockatoo (Zanda latirostris) foraging habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.	Significant impact (hectares)	20.83
		Quality (scale)	7.00
		Total quantum of impact	14.58

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	14.58
	Rehabilitation credit	0.00
	Significant residual impact	14.58

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Carnaby's cockatoo (Zanda latirostris) foraging habitat	Significant impact (step 2, part A)	20.83
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	14.58

***Area* (offset site)**

Offset calculation
Area

Offsets calculation	**Description**	**Proposed offset (area in hectares)**	86.60	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**11.87**
	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for Carnaby's cockatoo (Zanda latirostris)	**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	1.00		**81.4%**
		Future quality WITHOUT offset (scale)	6.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		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%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's cockatoo (Zanda latirostris) foraging habitat		The proposed clearing will impact on 20.83 hectares of significant foraging habitat for Carnaby's cockatoo.
Type of environmental value	Species (flora/fauna)		Carnaby's cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened species - endangered		Carnaby's cockatoo is listed as Endangered under both the state BC Act and the Commonwealth EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of foraging habitat in hectares.
Significant impact			
Description	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.		Native vegetation that comprises significant foraging habitat for Carnaby's cockatoo is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	20.83		Based on the vegetation mapping (Biota, 2021), the application area contains 20.83 hectares of native vegetation that provides significant foraging habitat for Carnaby's cockatoo. This corresponds with the recorded L3, L5, P1, P2, P3, P4, P5 and P7 vegetation types (Biota, 2021).
Quality (scale) / Number	7.00		Based on the vegetation mapping (Biota, 2021), the Carnaby's cockatoo foraging habitat in the application area includes marri low open woodland (vegetation types L3 and P2) (2%), jacksonia shrubland (L5 and P4) (2%), Allocasuarina and Banksia woodland (P1) (73%), jarrah open forest over Xanthorrhoea (P5) (10%) and jarrah and Banksia woodland over Xanthorrhoea (P7) (13%). The vegetation is in a Excellent-Very Good (25%), Very Good (20%), Very Good to Good (11%), Good (23%) and Degraded (21%) (Keighery, 1994) condition (Biota, 2021). The application area includes primary foraging habitat in varying densities ranging from dense in areas of SCP20a to sparse within degraded areas. The application area is within 12 km of multiple known breeding sites, and 6 km of multiple known roosting sites. However, no evidence of foraging was identified on site. Given the above, a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for Carnaby's cockatoo (Zanda latirostris)		The acquisition and conservation in perpetuity of native vegetation within Lot 331 on Deposited Plan 424430 (Crown Reserve 54323), Crossman, that comprises significant foraging habitat for Carnaby's cockatoo, to be ceded to the Department of Biodiversity Conservation and Attractions (DBCA).
Proposed offset (area in hectares)	86.60		A total of 86.60 ha of native vegetation within the site will be used to counterbalance impacts to Carnaby's cockatoo foraging habitat as part of project works under CPS 9448/1. This would address 81.4% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00		The offset area is in Excellent (58%) to Good (42%) (Keighery, 1994) condition (AECOM, 2023) and provides Carnaby's cockatoo foraging habitat in the Shire of Boddington. The area includes a mix of closed Allocasuarina forest with Eucalyptus wandoo (wandoo) (55%), wandoo open woodland (37%), and jarrah / marri open woodland (8%). Foraging species foilage for Carnaby's cockatoo was recorded at 42% across the site (AECOM, 2023). The area is part of a much larger remnant of native vegetation. There are two mapped potential nest sites within 12km and multiple roost sites within 6km. Foraging evidence was identified on site (AECOM, 2023). A value of '7' has therefore been given. While the vegetation is on average in a better quality and arguably contains a higher density of suitable foraging habitat for this species than the application area, this species preference for Banksia as a foraging resource has been given some weight, in attributing the same quality values for the offset site and application area.

Future quality WITHOUT offset (scale) / Future number WITHOUT offset	6.00		The Crossman offset site is bordered by intensive agricultural land use (cropping and stock grazing). Information from MRWA indicates that portions of the site are not fenced, and therefore access into the offset site is not restricted. Noting the surrounding threatening land use, the quality of the Carnabys cockatoo foraging habitat in the offset area may reduce slightly over time without fencing and appropriate management.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality.
Time until ecological benefit (years)	10.00		Based on the management measures proposed, it is estimated that it will take 10 years of management for the benefit of future quality WITHOUT offset vs future quality WITH offset to be realised.
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding of the site to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Carnaby's cockatoo (Zanda latirostris) foraging habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Carnaby's cockatoo (Zanda latirostris) foraging habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.	Significant impact (hectares)	20.83
		Quality (scale)	7.00
		Total quantum of impact	14.58

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	14.58
	Rehabilitation credit	0.00
	Significant residual impact	14.58

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Carnaby's cockatoo (Zanda latirostris) foraging habitat	Significant impact (step 2, part A)	20.83
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	14.58

***Area* (offset site)**

Offset calculation
Area

Offsets calculation							
	Description	**Proposed offset (area in hectares)**	1.65	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**0.31**
	Rehabilitation of native vegetation that provides significant foraging habitat for Carnaby's cockatoo.	**Current quality of offset site (scale)**	3.00	**Time until offset site secured (years)**	1.00		**2.1%**
		Future quality WITHOUT offset (scale)	3.00	**Risk of future loss WITHOUT offset (%)**	10.0%		
		Future quality WITH offset (scale)	6.00	**Risk of future loss WITH offset (%)**	10.0%		
		Time until ecological benefit (years)	12.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's cockatoo (Zanda latirostris) foraging habitat		The proposed clearing will impact on 20.83 hectares of significant foraging habitat for Carnaby's cockatoo.
Type of environmental value	Species (flora/fauna)		Carnaby's cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened species - endangered		Carnaby's cockatoo is listed as Endangered under both the state BC Act and the Commonwealth EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of foraging habitat in hectares.
Significant impact			
Description	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.		Native vegetation that comprises significant foraging habitat for Carnaby's cockatoo is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	20.83		Based on the vegetation mapping (Biota, 2021), the application area contains 20.83 hectares of native vegetation that provides significant foraging habitat for Carnaby's cockatoo. This corresponds with the recorded L3, L5, P1, P2, P3, P4, P5 and P7 vegetation types (Biota, 2021).
Quality (scale) / Number	7.00		Based on the vegetation mapping (Biota, 2021), the Carnaby's cockatoo foraging habitat in the application area includes marri low open woodland (vegetation types L3 and P2) (2%), jacksonia shrubland (L5 and P4) (2%), Allocasuarina and Banksia woodland (P1) (73%), jarrah open forest over Xanthorrhoea (P5) (10%) and jarrah and Banksia woodland over Xanthorrhoea (P7) (13%). The vegetation is in a Excellent-Very Good (25%), Very Good (20%), Very Good to Good (11%), Good (23%) and Degraded (21%) (Keighery, 1994) condition (Biota, 2021). The application area includes primary foraging habitat in varying densities ranging from dense in areas of SCP20a to sparse within degraded areas. The application area is within 12 km of multiple known breeding sites, and 6 km of multiple known roosting sites. However, no evidence of foraging was identified on site. Given the above, a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Rehabilitation of native vegetation that provides significant foraging habitat for Carnaby's cockatoo.		Rehabilitation of native vegetation within Lot 156 on Deposited Plan 56488, Bullsbrook, that provides significant foraging habitat for Carnaby's cockatoo in the form of mixed Eucalyptus todtiana and Corymbia calophylla (Astron, 2025).
Proposed offset (area in hectares)	1.65		A total of 1.65 hectares of native vegetation that provides a foraging resource for Carnaby's cockatoo is proposed for rehabilitation. This would address 2.1% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	3.00		The offset area is in a Degraded (Keighery, 1994) condition (Astron, 2025) and provides a low density of preferred foraging habitat for Carnaby's cockatooo in the form of Eucalyptus todtiana and Corymbia calophylla trees. There are no known mapped nesting sites within 12km and no known mapped roosting sites within 6km. Therefore, a relatively low value of '3' has been assigned.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	3.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.
Future quality WITH offset (scale) / Future number WITH offset	6.00		The applicant will undertake revegetation management actions within the offset site to substantially improve the value of the Carnaby's cockatoo foraging habitat. This includes revegetation through infill planting / direct seeding, fencing, weed control, dieback and fire management and feral animal control, in accordance with a Revegetation Management Plan (to be prepared). It is considered that these actions will increase the foraging values of the offset site such that a moderate value of '6' is considered achievable.
Time until ecological benefit (years)	12.00		It is assumed that the benefits described above could be realised within 12 years, given the time taken for vegetation to reach a sufficient age to provide foraging resources and the potential delay in the commencement of revegetation.

Confidence in offset result (%)	0.8		A high degree of confidence has been assigned noting MRWAs experience in undertaking successful revegetation of black cockatoo foraging habitat, and that the revegetation is based specifically on improving the density of foraging habitat.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed and protected as a revegetation area within MRWA's Internal Property Management Information System and allocated to its Director Environment and Heritage for a minimum of 20 years.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	10.0%		Risk of loss WITHOUT offset has been set at 10% as the property is managed as state-owned MRWA freehold land and therefore, it is considered there is a low risk of loss.
Risk of future loss WITH offset (%)	10.0%		Risk of loss WITH offset has been set at 10%, noting that the tenure for the site is not proposed to change. DWER considered it appropriate for the tenure not to change in this instance (with no change in Risk of Loss credited through this calculator) given the site will be managed and protected as a revegetation area within MRWA's 'Internal Property Management Information System' and allocated to its Director Environment and Heritage, for a minimum of 20 years.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Native vegetation growing within a Conservation Category Wetland (CCW)
	Type of environmental value	Wetland/watercourse
	Conservation significance of environmental value	A category or type of wetland or watercourse for which an offset is required
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Native vegetation growing within a Conservation Category Wetland (CCW)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation associated with UFI 15540 and UFI 15266.	Significant impact (hectares)	3.15
		Quality (scale)	5.00
		Total quantum of impact	1.58

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	1.58
	Rehabilitation credit	0.00
	Significant residual impact	1.58

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Native vegetation growing within a Conservation Category Wetland (CCW)	Significant impact (step 2, part A)	3.15
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	1.58

***Area* (offset site)**

Offset calculation
Area

Offsets calculation							
	Description	**Proposed offset (area in hectares)**	11.70	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**0.82**
	Acquisition and conservation in perpetuity of native vegetation that is growing in association with a CCW	**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	1.00		**51.9%**
		Future quality WITHOUT offset (scale)	7.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	5.0%		
		Time until ecological benefit (years)	1.00				
		Confidence in offset result (%)	90.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Native vegetation growing within a Conservation Category Wetland (CCW)		The proposed clearing will impact on 3.15 hectares of native vegetation growing in two wetlands which are commensurate with a CCW, being a floodplain of the Helena River (UFI15540) (formally mapped as a CCW) and a palusplain (UFI15266) (likely to have values commensurate with a CCW based on DBCA advice).
Type of environmental value	Wetland/watercourse		Vegetation growing in association with high-value wetlands.
Conservation significance of environmental value	A category or type of wetland or watercourse for which an offset is required		A CCW is generally defined as a wetland that supports a high level of attributes and functions. The clearing of native vegetation growing in, or in association with, a CCW is considered to constitute a significant residual impact for which an offset is required.
Landscape-level value impacted	yes/no		The impact is to an area of wetland-associated vegetation in hectares.
Significant impact			
Description	Clearing of native vegetation associated with UFI 15540 and UFI 15266.		Native vegetation growing within wetlands that are commensurate with a CCW is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	3.15		Based on formal DBCA wetland mapping and DBCA advice, the application area contains 3.15 hectares of native vegetation growing in association with wetlands that have values commensurate with a CCW.
Quality (scale) / Number	5.00		The wetland-associated vegetation proposed to be cleared comprises marri open woodland, Eucalyptus rudis subsp. rudis open forest, Allocasuarina fraseriana open woodland and Jacksonia floribunda scattered shrubland. The condition of this vegetation was recorded as Excellent-Very Good (29%), Very Good (9%), Good (21%) and Degraded (41%) (Keighery, 1994) condition. The wetland vegetation occurs within the Swan Coastal Plain, on which other CCWs and high-value wetland vegetation has been highly impacted by development. Given the above, a moderate value of '5' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that is growing in association with a CCW		The acquisition and conservation in perpetuity of native vegetation within Lot 87 on Deposited Plan 422467 and Lot 88 on Deposited Plan 422467, Cowalla, that comprises wetland vegetation growing in association with CCWs (UFI9446, UFI9450, UFI9237, UFI9238, UFI9239).
Proposed offset (area in hectares)	11.70		The offset area comprises 11.7 hectares of native vegetation growing in association with CCWs based on DBCA wetland mapping. This would address 51.9% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00		The CCWs within the offset site were recorded as being in an Excellent to Very Good (Keighery, 1994) condition (FVC 2023). The offset area is part of a larger remnant of native vegetation and provides a strategic outcome. The wetland vegetation occurs within the Swan Coastal Plain, on which other CCWs and high-value wetland vegetation has been highly impacted by development. Given the above, a high value of '7' has been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	7.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality.
Time until ecological benefit (years)	1.00		As the proposed offset relates to acquiring and conserving an existing area of native vegetation the minimum of one year for this field is applied
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.

Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Native vegetation growing within a Conservation Category Wetland (CCW)
	Type of environmental value	Wetland/watercourse
	Conservation significance of environmental value	A category or type of wetland or watercourse for which an offset is required
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Native vegetation growing within a Conservation Category Wetland (CCW)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation associated with UFI 15540 and UFI 15266.	Significant impact (hectares)	3.15
		Quality (scale)	5.00
		Total quantum of impact	1.58

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	1.58
	Rehabilitation credit	0.00
	Significant residual impact	1.58

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

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

Environmental value (step 1)	Native vegetation growing within a Conservation Category Wetland (CCW)	Significant impact (step 2, part A)	3.15
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	1.58

***Area* (offset site)**

Offset calculation
Area

Offsets calculation	**Description**	**Proposed offset (area in hectares)**	4.05	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**0.76**
	Acquisition and conservation in perpetuity of native vegetation that is growing in association with a CCW	**Current quality of offset site (scale)**	3.00	**Time until offset site secured (years)**	1.00		**48.1%**
		Future quality WITHOUT offset (scale)	3.00	**Risk of future loss WITHOUT offset (%)**	10.0%		
		Future quality WITH offset (scale)	6.00	**Risk of future loss WITH offset (%)**	10.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	70.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Native vegetation growing within a Conservation Category Wetland (CCW)		The proposed clearing will impact on 3.15 hectares of native vegetation growing in two wetlands which are commensurate with a CCW, being a floodplain of the Helena River (UFI15540) (formally mapped as a CCW) and a palusplain (UFI15266) (likely to have values commensurate with a CCW based on DBCA advice).
Type of environmental value	Wetland/watercourse		Vegetation growing in association with high-value wetlands.
Conservation significance of environmental value	A category or type of wetland or watercourse for which an offset is required		A CCW is generally defined as a wetland that supports a high level of attributes and functions. The clearing of native vegetation growing in, or in association with, a CCW is considered to constitute a significant residual impact for which an offset is required.
Landscape-level value impacted	yes/no		The impact is to an area of wetland-associated vegetation in hectares.
Significant impact			
Description	Clearing of native vegetation associated with UFI 15540 and UFI 15266.		Native vegetation growing within wetlands that are commensurate with a CCW is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	3.15		Based on formal DBCA wetland mapping and DBCA advice, the application area contains 3.15 hectares of native vegetation growing in association with wetlands that have values commensurate with a CCW.
Quality (scale) / Number	5.00		The wetland-associated vegetation proposed to be cleared comprises marri open woodland, Eucalyptus rudis subsp. rudis open forest, Allocasuarina fraseriana open woodland and Jacksonia floribunda scattered shrubland. The condition of this vegetation was recorded as Excellent-Very Good (29%), Very Good (9%), Good (21%) and Degraded (41%) (Keighery, 1994) condition. The wetland vegetation occurs within the Swan Coastal Plain, on which other CCWs and high-value wetland vegetation has been highly impacted by development. Given the above, a moderate value of '5' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that is growing in association with a CCW		Rehabilitation of native vegetation within Lot 156 on Deposited Plan 56488, Bullsbrook, of wetland vegetation growing in association with CCWs (UFI 8773, UFI 8909 and UFI 1462) (CCW areas comprise 3.49 hectares based on DBCA wetland mapping, immediately surrounding supporting vegetation comprises 0.56 hectares and is mapped as Multiple Use Wetland). It is considered that immediately surrounding wetland vegetation not mapped as CCW is appropriate to consider as part of the offset for this site given its value to protect and support the wetland function.
Proposed offset (area in hectares)	4.05		A total of 4.05 hectares of native vegetation growing in and surrounding CCWs is proposed for rehabilitation. This would address 48.1% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	3.00		The vegetation within the proposed offset area is in a Very Good to Completely Degraded (Keighery, 1994) condition, with large portions in a Degraded (Keighery, 1994) condition (Astron, 2024). The wetland vegetation occurs within the Swan Coastal Plain, on which other CCWs and high-value wetland vegetation has been highly impacted by development. Given the above, a low to moderate value of '3' has been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	3.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.
Future quality WITH offset (scale) / Future number WITH offset	6.00		The applicant will undertake revegetation management actions within the offset site to substantially improve the value of the vegetation growing within and immediately surrounding the CCWs. This includes revegetation through infill planting / direct seeding, fencing, weed control, dieback and fire management and feral animal control, in accordance with a Revegetation Management Plan (to be prepared). It is considered that these actions will increase the CCW values of the offset site such that a moderate value of '6' is considered achievable.
Time until ecological benefit (years)	10.00		It is considered the revegetation action benefits described above could be realised in 10 years, given the time taken for vegetation establishment. This also accounts for the time taken to commence revegetation.

Confidence in offset result (%)	0.7		A relatively high degree of confidence has been assigned noting the existing high weed load in portions of the site, which is somewhat counterbalanced by MRWA's experience in undertaking successful revegetation.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed and protected as a revegetation area within MRWA's Internal Property Management Information System and allocated to its Director Environment and Heritage for a minimum of 20 years.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	10.0%		Risk of loss WITHOUT offset has been set at 10% as the property is managed as state-owned MRWA freehold land and therefore, it is considered there is a low risk of loss.
Risk of future loss WITH offset (%)	10.0%		Risk of loss WITH offset has been set at 10%, noting that the tenure for the site is not proposed to change. DWER considered it appropriate for the tenure not to change in this instance (with no change in Risk of Loss credited through this calculator) given the site will be managed and protected as a revegetation area within MRWA's 'Internal Property Management Information System' and allocated to its Director Environment and Heritage, for a minimum of 20 years.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Conospermum undulatum significant habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Conospermum undulatum significant habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of significant habitat for Conospermum undulatum	Significant impact (hectares)	1.43
		Quality (scale)	7.00
		Total quantum of impact	1.00

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	1.00
	Rehabilitation credit	0.00
	Significant residual impact	1.00

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

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

Environmental value (step 1)	Conospermum undulatum significant habitat	Significant impact (step 2, part A)	1.43
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	1.00

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	5.28	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**1.01**
	Rehabilitation and conservation in perpetuity of native vegetation that provides significant habitat for Conospermum undulatum	**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	2.00		**100.6%**
		Future quality WITHOUT offset (scale)	6.00	**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)	7.00				
		Confidence in offset result (%)	85.0%			**OFFSET ADEQUATE?**	**YES**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Conospermum undulatum significant habitat		The proposed clearing will impact on five Conospermum undulatum individuals within a patch of significant habitat.
Type of environmental value	Species (flora/fauna)		Conospermum undulatum is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened Species - vulnerable		Conospermum undulatum is listed as Vulnerable under both the BC Act and EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of Conospermum undulatum habitat in hectares.
Significant impact			
Description	Clearing of significant habitat for Conospermum undulatum		Native vegetation that provides significant habitat for Conospermum undulatum, including 5 individuals, is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	1.43		The application area contains 1.43 hectares that provides significant habitat for Conospermum undulatum, including 5 individuals that this patch supports. The occurrence of this species was recorded during an appropriately timed tageted flora survey (FVC, 2025).
Quality (scale) / Number	7.00		The patch of vegetation supporting Conospermum undulatum is all in an Excellent-Very Good (Keighery, 1994) condition (Biota, 2021), within a linear patch of around 15 m wide that stretches 765 m north-south on the eastern side of Roe Hwy. This occurrence is in a highly cleared portion of the Swan Coastal Plain where the species habitat has been subject to high levels of fragmentation. The population this patch supports is considered important from a local impact perspective. Therefore a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Rehabilitation and conservation in perpetuity of native vegetation that provides significant habitat for Conospermum undulatum		Rehabilitation and conservation in perpetuity of native vegetation in Lot 3003 on Deposited Plan 70568 (Crown Reserve 17098), Forrestfield (Hartfield Park), that comprises vegetation that either includes known occurrences of Conospermum undulatum (southern Hartfield Park offset area comprising 2.36 hectares), or provides suitable habitat that is contiguous with known records (northern Hartfield Park offset area comprising 2.92 hectares) (Umwelt, 2025).
Proposed offset (area in hectares)	5.28		At total of 5.28 hectares of native vegetation providing significant habitat for Conospermum undulatum is proposed to be subject to a reserve purpose change to Conservation, and rehabilitation actions under this offset. The offset comprises two patches of vegetation (southern and northern) comprising 2.36 and 2.92 hectares, respectively. This would address 100.6% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00		The offset area is in a Very Good (Keighery, 1994) condition (Umwelt, 2025). The southern patch of the offset area includes significant Conospermum undulatum habitat, noting it includes 46 individuals (Umwelt, 2025). The northern patch does not include any individuals, however it does include suitable habitat that is contiguous with other patches of vegetation in Hartfield Park with known records of this species. These occurrences are in a highly cleared portion of the Swan Coastal Plain where the species habitat has been subject to high levels of fragmentation. The population these patches support is considered important from a local impact perspective. Therefore a high value of '7' has been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	6.00		The northern offset area is largely un-fenced and surrounded by threatening recreational land uses which, given the unrestricted access into the site, will increase the risk of edge effects degrading the site over time (particularly weed spread). The southern area has a track running through it and is adjacent to to a large firebreak / track on its western and southern boundaries, which also increase the risk of edge effects. Weeds were recorded in both offset areas (Umwelt, 2025). Therefore a minor reduction in future quality of the offset site without offset has been assumed.

Future quality WITH offset (scale) / Future number WITH offset	8.00		The applicant will fund rehabilitation management actions within the offset site to improve the value of the vegetation supporting Conospermum undulatum. This includes infill planting 0.85 hectares within the easternmost 'arm' of the northern site, along with fencing, weed control, dieback and fire management and feral animal control of both sites, in accordance with a Revegetation Management Plan (to be prepared). It is noted that weeds were recorded in both offset areas (Umwelt, 2025) and both areas would benefit from weed control. It is considered that these actions will increase the value of significant habitat for Conospermum undulatum such that a high value of '8' is considered achievable, being a small improvement of its existing quality.
Time until ecological benefit (years)	7.00		The benefits of the abovementioned rehabilitation actions are expected to be realised within 7 years, which includes the time taken to commence rehabilitation and for fencing and weed control actions to take effect.
Confidence in offset result (%)	0.85		There is a high level of confidence that a small improvement could be delivered to Conospermum undulatum significant habitat, given the measures proposed by MRWA in accordance with a Revegetation Management Plan.
Duration of offset implementation (maximum 20 years)	20.00		The area will be managed by the City of Kalamunda in perpetuity, with funding from MRWA over 20 years, as a Class A Reserve with a mangement order for the purpose of Conservation. Therefore, the maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	2.00		It is expected that the change in reserve purpose from Recreation to Conservation could be achieved in two years.
Risk of future loss WITHOUT offset (%)	10.0%		The offset area is zoned for the purpose of Parks and Recreation under the Metropolitan Regional Scheme and is currently reserved (Class A Reserve) under a management order for the purpose of Recreation. Therefore there is a small risk that the site would be lost in the future to development associated with recreation.
Risk of future loss WITH offset (%)	5.0%		The site will be conserved in perpetuity through a change of the reserve purpose from Recreation to Conservation. Therefore, there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description	Quantum of impact	
Significant impact	Clearing of native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo.	Significant impact (hectares)	20.38
		Quality (scale)	6.00
		Total quantum of impact	12.23

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	None proposed.	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	12.23
	Rehabilitation credit	0.00
	Significant residual impact	12.23

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat	Significant impact (step 2, part A)	20.38
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	12.23

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	82.05	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**11.88**
	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for forest red-tailed black cockatoo (Calyptorhynchus banksii naso)	**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	1.00		**97.2%**
		Future quality WITHOUT offset (scale)	6.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		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%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat		The proposed clearing will impact on 20.38 hectares of significant foraging habitat for forest red-tailed black cockatoo.
Type of environmental value	Species (flora/fauna)		Forest red-tailed black cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened Species - vulnerable		Forest red-tailed black cockatoo is listed as Vulnerable under both the state BC Act and the Commonwealth EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of foraging habitat in hectares.
Significant impact			
Description	Clearing of native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo.		Native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	20.38		Based on the vegetation mapping (Biota, 2021), the application area contains 20.38 hectares of native vegetation representative of forest red-tailed black cockatoo foraging habitat. This corresponds with the recorded L3, P1, P2, P5 and P7 vegetation types (Biota, 2021).
Quality (scale) / Number	6.00		Based on the vegetation mapping (Biota, 2021), the forest red-tailed black cockatoo foraging habitat in the application area includes marri low open woodland (vegetation types L3 and P2) (2%), Allocasuarina and Banksia woodland (P1) (74%), jarrah open forest over Xanthorrhoea (P5) (10%), and jarrah and Banksia woodland over Xanthorrhoea (P7) (14%). The vegetation is in a Excellent-Very Good (25%), Very Good (20%), Very Good to Good (11%), Good (23%) and Degraded (21%) (Keighery, 1994) condition (Biota, 2021). The application area includes preferred foraging habitat in the form of the jarrah, marri and Allocasuarina. There are no known breeding or roost sites in the local area. No evidence of foraging was identified on site. Based on the above, a moderate value of '6' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that provides foraging habitat for forest red-tailed black cockatoo (Calyptorhynchus banksii naso)		The acquisition and conservation in perpetuity of native vegetation within Lot 331 on Deposited Plan 424430 (Crown Reserve 54323), Crossman, that comprises significant foraging habitat for forest red-tailed black cockatoo, to be ceded to the Department of Biodiversity Conservation and Attractions (DBCA).
Proposed offset (area in hectares)	82.05		A total of 82.05 hectares of native vegetation within the site will be used to counterbalance impacts to forest red-tailed black cockatoo foraging habitat. This would address 100% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00		The offset area is in Excellent (58%) to Good (42%) (Keighery, 1994) condition (AECOM, 2023) and provides forest red-tailed black cockatoo foraging habitat in the Shire of Boddington. The area includes a mix of closed Allocasuarina forest with Eucalyptus wandoo (wandoo) (55%), wandoo open woodland (37%), and jarrah / marri open woodland (8%). Foraging species foilage for forest red-tailed black cockatoo was recorded as 30% across the site (AECOM, 2023). The area is part of a much larger remnant of native vegetation. No evidence of this species breeding or roosting has been recorded in the local area. However, foraging evidence was identified in the offset area (AECOM, 2023). A value of '7' has therefore been given, noting that there is on average a slightly higher density of both preferred and secondary foraging habitat, and evidence of foraging, when compared to the application area.

Future quality WITHOUT offset (scale) / Future number WITHOUT offset	6.00		The Crossman offset site is bordered by intensive agricultural land use (cropping and stock grazing). Information from MRWA indicates that portions of the site are not fenced, and therefore access into the offset site is not restricted. Noting the surrounding threatening land use, the quality of the Carnabys cockatoo foraging habitat in the offset area may reduce slightly over time without fencing and appropriate management.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality.
Time until ecological benefit (years)	10.00		Based on the management measures proposed, it is estimated that it will take 10 years of management for the benefit of future quality WITHOUT offset vs future quality WITH offset to be realised.
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding of the site to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description	Quantum of impact	
Significant impact	Clearing of native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo.	Significant impact (hectares)	20.38
		Quality (scale)	6.00
		Total quantum of impact	12.23

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	None proposed.	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	12.23
	Rehabilitation credit	0.00
	Significant residual impact	12.23

WA Environmental Offsets Calculator

Step 3: Calculating offsets

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

Environmental value (step 1)	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat	Significant impact (step 2, part A)	20.38
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	12.23

***Area* (offset site)**

Offset calculation
Area

Offsets calculation	**Description**	**Proposed offset (area in hectares)**	1.65	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**0.35**
	Rehabilitation of native vegetation that provides significant foraging habitat for forest red-tailed black cockatoo	**Current quality of offset site (scale)**	3.00	**Time until offset site secured (years)**	1.00		**2.8%**
		Future quality WITHOUT offset (scale)	3.00	**Risk of future loss WITHOUT offset (%)**	10.0%		
		Future quality WITH offset (scale)	6.00	**Risk of future loss WITH offset (%)**	10.0%		
		Time until ecological benefit (years)	12.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo (Calyptorhynchus banksii naso) foraging habitat		The proposed clearing will impact on 20.38 hectares of significant foraging habitat for forest red-tailed black cockatoo.
Type of environmental value	Species (flora/fauna)		Forest red-tailed black cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened Species - vulnerable		Forest red-tailed black cockatoo is listed as Vulnerable under both the state BC Act and the Commonwealth EPBC Act.
Landscape-level value impacted	yes/no		The impact is to an area of foraging habitat in hectares.
Significant impact			
Description	Clearing of native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo.		Native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	20.38		Based on the vegetation mapping (Biota, 2021), the application area contains 20.38 hectares of native vegetation representative of forest red-tailed black cockatoo foraging habitat. This corresponds with the recorded L3, P1, P2, P5 and P7 vegetation types (Biota, 2021).
Quality (scale) / Number	6.00		Based on the vegetation mapping (Biota, 2021), the forest red-tailed black cockatoo foraging habitat in the application area includes marri low open woodland (vegetation types L3 and P2) (2%), Allocasuarina and Banksia woodland (P1) (74%), jarrah open forest over Xanthorrhoea (P5) (10%), and jarrah and Banksia woodland over Xanthorrhoea (P7) (14%). The vegetation is in a Excellent-Very Good (25%), Very Good (20%), Very Good to Good (11%), Good (23%) and Degraded (21%) (Keighery, 1994) condition (Biota, 2021). The application area includes preferred foraging habitat in the form of the jarrah, marri and Allocasuarina. There are no known breeding or roost sites in the local area. No evidence of foraging was identified on site. Based on the above, a moderate value of '6' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Rehabilitation of native vegetation that provides significant foraging habitat for forest red-tailed black cockatoo		Rehabilitation of native vegetation within Lot 156 on Deposited Plan 56488, Bullsbrook, that provides significant foraging habitat for forest red-tailed black cockatoo in the form of mixed Eucalyptus todtiana and Corymbia calophylla (Astron 2025).
Proposed offset (area in hectares)	1.65		A total of 1.65 hectares of native vegetation that provides a foraging resource for forest red-tailed black cockatoos is proposed for rehabilitation. This would address 2.8% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	3.00		The offset area is in a Degraded (Keighery, 1994) condition (Astron, 2025) and provides a low density of preferred foraging habitat for forest red-tailed black cockatooo in the form of Corymbia calophylla trees. There are no known mapped nesting sites within 12km and no known mapped roosting sites within 6km. Therefore, a relatively low value of '3' has been assigned.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	3.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.
Future quality WITH offset (scale) / Future number WITH offset	6.00		The applicant will undertake revegetation management actions within the offset site to substantially improve the value of the forest red-tailed black cockatoo foraging habitat. This includes revegetation through infill planting / direct seeding, fencing, weed control, dieback and fire management and feral animal control, in accordance with a Revegetation Management Plan (to be prepared). It is considered that these actions will increase the foraging values of the offset site such that a moderate value of '6' is considered achievable.
Time until ecological benefit (years)	12.00		It is assumed that the benefits described above could be realised within 12 years, given the time taken for vegetation to reach a sufficient age to provide foraging resources and the potential delay in the commencement of revegetation.

Confidence in offset result (%)	0.8		A high degree of confidence has been assigned noting MRWAs experience in undertaking successful revegetation of black cockatoo foraging habitat, and that the revegetation is based specifically on improving the density of foraging habitat.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed and protected as a revegetation area within MRWA's Internal Property Management Information System and allocated to its Director Environment and Heritage for a minimum of 20 years.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.
Risk of future loss WITHOUT offset (%)	10.0%		Risk of loss WITHOUT offset has been set at 10% as the property is managed as state-owned MRWA freehold land and therefore, it is considered there is a low risk of loss.
Risk of future loss WITH offset (%)	10.0%		Risk of loss WITH offset has been set at 10%, noting that the tenure for the site is not proposed to change. DWER considered it appropriate for the tenure not to change in this instance (with no change in Risk of Loss credited through this calculator) given the site will be managed and protected as a revegetation area within MRWA's 'Internal Property Management Information System' and allocated to its Director Environment and Heritage, for a minimum of 20 years.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Threatened ecological community - critically endangered
	Conservation significance score	**6.8%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation representative of SCP20a	Significant impact (hectares)	5.78
		Quality (scale)	7.00
		Total quantum of impact	4.05

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	4.05
	Rehabilitation credit	0.00
	Significant residual impact	4.05

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

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

Environmental value (step 1)	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)	Significant impact (step 2, part A)	5.78
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.05

***Area* (offset site)**

Offset calculation
Area

Offsets calculation

Description	**Proposed offset (area in hectares)**	2.92	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**0.38**
Rehabilitation and conservation in perpetuity of native vegetation that is representative of SCP20a	**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	2.00		**9.5%**
	Future quality WITHOUT offset (scale)	6.00	**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)	7.00				
	Confidence in offset result (%)	85.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)		The proposed clearing will impact on 5.78 hectares of native vegetation representative of SCP20a.
Type of environmental value	Ecological community		SCP20a is listed as a threatened ecological community under the BC Act.
Conservation significance of environmental value	Threatened ecological community - critically endangered		SCP20a is listed as Critically Endangered under the BC Act.
Landscape-level value impacted	yes/no		The impact is to an area of SCP20a in hectares.
Significant impact			
Description	Clearing of native vegetation representative of SCP20a		Native vegetation that is representative of SCP20a is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	5.78		The application area contains 5.78 hectares of native vegetation that is representative of SCP20a, as identified in a biological survey of the application area subject to appropriate floristic analysis (Biota, 2021). The representative vegetation correspons to a 3.55-hectare portion of the P1 vegetation type and a 2.23-hectare portion of the P7 vegetation type (Biota, 2021).
Quality (scale) / Number	7.00		The occurences of SCP20a within the application area are mapped in an Excellent-Very Good (79%), Very Good (4%), Good (15%) and Degraded (2%) (Keighery, 1994) condition (Biota, 2021). The remaining patches of SCP20a have been extensively modified and are limited. The patches of SCP20a in the application area provide high quality habitat for significant fauna, including foraging habitat for Carnaby's cockatoo. The application area comprises linear patches of the community that occur throughout the central and southern portions of the application area on the eastern side of Roe Hwy. Given the above, a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Rehabilitation and conservation in perpetuity of native vegetation that is representative of SCP20a		Rehabilitation and conservation in perpetuity of native vegetation in Lot 3003 on Deposited Plan 70568 (Crown Reserve 17098), Forrestfield (Hartfield Park), that comprises vegetation representative of SCP20a, as confirmed within biological surveys subject to appropriate floristic analysis (Umwelt, 2025).
Proposed offset (area in hectares)	2.92		A total of 2.92 hectares of native vegetation comprising SCP20a is proposed to be subject to a reserve purpose change to to a reserve purpose change to Conservation, and rehabilitation actions under this offset. This would address 9.5% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00		The offset area is in a Very Good (Keighery, 1994) condition and is representative of SCP20a (Umwelt, 2025). The remaining patches of SCP20a have been extensively modified and are limited. The patch of SCP20a in the offset area is consolidated, adding to the existing high environmental values within Hartfield Park, and provides high quality habitat for significant fauna, including foraging habitat for Carnaby's cockatoo. Given the above, a high value of '7' has been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	6.00		The offset area is largely un-fenced and surrounded by threatening recreational land uses which, given the unrestricted access into the site, will increase the risk of edge effects degrading the site over time (particularly weed spread), with weeds evident in the offset area (Umwelt, 2025) as evidenced during DWER's site inspection. Therefore, a minor reduction in future quality of the offset site without offset has been assumed.

Future quality WITH offset (scale) / Future number WITH offset	8.00		The applicant will fund rehabilitation management actions within the offset site to improve the value of the vegetation representative of SCP20a. This includes infill planting 0.85 hectares within the easternmost 'arm' of the site, fencing, weed control, dieback and fire management and feral animal control, in accordance with a Revegetation Management Plan (to be prepared). It is noted that weeds were recorded in this offset area (Umwelt, 2025) which would benefit from weed control. It is considered that these actions will increase the value of the SCP20a occurrence such that a high value of '8' is considered achievable, being a small improvement of its existing quality.
Time until ecological benefit (years)	7.00		The benefits of the abovementioned rehabilitation actions are expected to be realised within 7 years, which includes the time taken to commence rehabilitation and for fencing and weed control actions to take effect.
Confidence in offset result (%)	0.85		There is a high level of confidence that a small improvement could be delivered to the occurrence of SCP20a, given the measures proposed by MRWA in accordance with a Revegetation Management Plan.
Duration of offset implementation (maximum 20 years)	20.00		The area will be managed by the City of Kalamunda in perpetuity, with funding from MRWA over 20 years, as a Class A Reserve with a mangement order for the purpose of Conservation. Therefore, the maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	2.00		It is expected that the change in reserve purpose from Recreation to Conservation could be achieved in two years.
Risk of future loss WITHOUT offset (%)	10.0%		The offset area is zoned for the purpose of Parks and Recreation under the Metropolitan Regional Scheme and is currently reserved (Class A Reserve) under a management order for the purpose of Recreation. Therefore there is a small risk that the site would be lost in the future to development associated with recreation.
Risk of future loss WITH offset (%)	5.0%		The site will be conserved in perpetuity through a change of the reserve purpose from Recreation to Conservation. Therefore, there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Threatened ecological community - critically endangered
	Conservation significance score	**6.8%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation representative of SCP20a	Significant impact (hectares)	5.78
		Quality (scale)	7.00
		Total quantum of impact	4.05

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	4.05
	Rehabilitation credit	0.00
	Significant residual impact	4.05

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

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

Environmental value (step 1)	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)	Significant impact (step 2, part A)	5.78
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.05

***Area* (offset site)**

Offset calculation
Area

Offsets calculation

Description		**Proposed offset (area in hectares)**	9.50	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**0.79**
Rehabilitation and conservation in perpetuity of native vegetation that is representative of SCP20a		**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	2.00		**19.6%**
		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)	7.00				
		Confidence in offset result (%)	85.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)		The proposed clearing will impact on 5.78 hectares of native vegetation representative of SCP20a.
Type of environmental value	Ecological community		SCP20a is listed as a threatened ecological community under the BC Act.
Conservation significance of environmental value	Threatened ecological community - critically endangered		SCP20a is listed as Critically Endangered under the BC Act.
Landscape-level value impacted	yes/no		The impact is to an area of SCP20a in hectares.
Significant impact			
Description	Clearing of native vegetation representative of SCP20a		Native vegetation that is representative of SCP20a is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	5.78		The application area contains 5.78 hectares of native vegetation that is representative of SCP20a, as identified in a biological survey of the application area subject to appropriate floristic analysis (Biota, 2021). The representative vegetation correspons to a 3.55-hectare portion of the P1 vegetation type and a 2.23-hectare portion of the P7 vegetation type (Biota, 2021).
Quality (scale) / Number	7.00		The occurences of SCP20a within the application area are mapped in an Excellent-Very Good (79%), Very Good (4%), Good (15%) and Degraded (2%) (Keighery, 1994) condition (Biota, 2021). The remaining patches of SCP20a have been extensively modified and are limited. The patches of SCP20a in the application area provide high quality habitat for significant fauna, including foraging habitat for Carnaby's cockatoo. The application area comprises linear patches of the community that occur throughout the central and southern portions of the application area on the eastern side of Roe Hwy. Given the above, a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Rehabilitation and conservation in perpetuity of native vegetation that is representative of SCP20a		Conservation in perpetuity and rehabilitation of native vegetation in within various properties within Bush Forever Site 385 in the locality of Mirrabooka (Mirrabooka Bushland) that comprises vegetation representative of SCP20a as confirmed by DBCA, a site inspection by DWER, and inferred during historical surveys (Madden, 2002). The entire offset site is mapped as SCP20a within DBCA's Threatened and Priority Ecological Communities dataset. This offset is referred to as the Mirrabooka Boundary offset area, to distinguish it from the Mirrabooka Internal offset area also proposed and subject to a seperate calculation. The Mirrabooka Boundary offset area has been strategically selected by MRWA to undertake rehabilitation actions adjacent to existing firebreaks to lessen the weed load in these areas and reduce the risk of spread further into the SCP20a occurrence.
Proposed offset (area in hectares)	9.50		A total of 9.5 hectares of native vegetation comprising SCP20a is proposed to be subject to a reserve purpose change to Conservation, and rehabilitation actions under this offset. This would address 19.6% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00		The vegetation representative of SCP20a in the offset area is mapped in Excellent-Very Good (Keighery, 1994) condition (Madden, 2002). However, a DWER site inspection confirmed that this area had a slightly higher weed load than the 'Mirrabooka Internal' offset area. This is also noted in a former Parks and Wildlife (now DBCA) weed mapping survey undertaken for the area. The remaining patches of SCP20a have been extensively modified and are limited. Subsequently, while the value of this offset area is still high owing to its condition and site context, it has been given a slightly lower value of '7' than the vegetation in the Mirrabooka Internal offset area (which was given an '8').
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	7.00		Noting the site is currently well fenced from unauthorised vehicular access and is part of a larger resilient patch of SCP20a, it is considered that the quality of the vegetation would likely remain the same without ongoing management.

Future quality WITH offset (scale) / Future number WITH offset	8.00		The applicant will fund rehabilitation management actions within the site over 20 years (estimated to be $5 million for the broader Mirrabooka Bushland) including ongoing weed control, feral animal control, fire management, infill planting of closed access tracks and dieback management, in accordance with a Revegetation Management Plan (to be prepared). It is considered that these actions will increase the value of the SCP20a occurrence such that a high value of '8' is considered achievable, being a small improvement to its existing quality.
Time until ecological benefit (years)	7.00		The benefits of the abovementioned rehabilitation actions are expected to be realised within 7 years, which includes the time taken to commence rehabilitation and for fencing and weed control actions to take effect.
Confidence in offset result (%)	0.85		There is a high level of confidence that a small improvement could be delivered to the occurrence of SCP20a, given the measures proposed by MRWA in accordance with a Revegetation Management Plan.
Duration of offset implementation (maximum 20 years)	20.00		The area will be managed by the City of Stirling in perpetuity, with funding from MRWA over 20 years, as a Class A Reserve with a mangement order for the purpose of Conservation. Therefore, the maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	2.00		It is expected that the change in reserve purpose from Recreation to Conservation could be achieved in two years.
Risk of future loss WITHOUT offset (%)	10.0%		The offset area is freehold land currently managed by the WAPC and zoned Regional Open Space under the Metropolitan Region Scheme. The offset are is part of Bush Forever site 385. Noting the area is state owned freehold land, there is a low risk of loss. However, without formal conservation tenure, a small risk of loss remains.
Risk of future loss WITH offset (%)	5.0%		The site will be conserved in perpetuity through a change of the reserve purpose from Recreation to Conservation. Therefore, there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Threatened ecological community - critically endangered
	Conservation significance score	**6.8%**

Please select *area* or *feature* for the calculations	**Area**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation representative of SCP20a	Significant impact (hectares)	5.78
		Quality (scale)	7.00
		Total quantum of impact	4.05

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	4.05
	Rehabilitation credit	0.00
	Significant residual impact	4.05

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

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

Environmental value (step 1)	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)	Significant impact (step 2, part A)	5.78
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.05

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	33.30	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**2.92**
	Rehabilitation and conservation in perpetuity of native vegetation that is representative of SCP20a	**Current quality of offset site (scale)**	8.00	**Time until offset site secured (years)**	2.00		**72.2%**
		Future quality WITHOUT offset (scale)	8.00	**Risk of future loss WITHOUT offset (%)**	10.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	5.0%		
		Time until ecological benefit (years)	7.00				
		Confidence in offset result (%)	85.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (SCP20a)		The proposed clearing will impact on 5.78 hectares of native vegetation representative of SCP20a.
Type of environmental value	Ecological community		SCP20a is listed as a threatened ecological community under the BC Act.
Conservation significance of environmental value	Threatened ecological community - critically endangered		SCP20a is listed as Critically Endangered under the BC Act.
Landscape-level value impacted	yes/no		The impact is to an area of SCP20a in hectares.
Significant impact			
Description	Clearing of native vegetation representative of SCP20a		Native vegetation that is representative of SCP20a is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	5.78		The application area contains 5.78 hectares of native vegetation that is representative of SCP20a, as identified in a biological survey of the application area subject to appropriate floristic analysis (Biota, 2021). The representative vegetation correspons to a 3.55-hectare portion of the P1 vegetation type and a 2.23-hectare portion of the P7 vegetation type (Biota, 2021).
Quality (scale) / Number	7.00		The occurences of SCP20a within the application area are mapped in an Excellent-Very Good (79%), Very Good (4%), Good (15%) and Degraded (2%) (Keighery, 1994) condition (Biota, 2021). The remaining patches of SCP20a have been extensively modified and are limited. The patches of SCP20a in the application area provide high quality habitat for significant fauna, including foraging habitat for Carnaby's cockatoo. The application area comprises linear patches of the community that occur throughout the central and southern portions of the application area on the eastern side of Roe Hwy. Given the above, a high value of '7' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Rehabilitation and conservation in perpetuity of native vegetation that is representative of SCP20a		Conservation in perpetuity and rehabilitation of native vegetation in within various properties within Bush Forever Site 385 in the locality of Mirrabooka (Mirrabooka Bushland) that comprises vegetation representative of SCP20a as confirmed by DBCA, a site inspection by DWER, and inferred during historical surveys (Madden, 2002). The entire offset site is mapped as SCP20a within DBCA's Threatened and Priority Ecological Communities dataset. This offset is referred to as the Mirrabooka Internal offset area, to distinguish it from the Mirrabooka Boundary offset area also proposed and subject to a seperate calculation.
Proposed offset (area in hectares)	33.30		A total of 33.3 hectares of native vegetation comprising SCP20a is proposed to be subject to a reserve purpose change to Conservation, and rehabilitation actions under this offset. This addresses 72.2% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	8.00		The vegetation representative of SCP20a in the offset area is mapped in Excellent-Very Good (Keighery, 1994) condition (Madden, 2002), as confirmed via a DWER site inspection. This occurrence is within a highly cleared portion of the Swan Coastal Plain where the community has been subject to high levels of fragmentation. The remaining patches of SCP20a have been extensively modified and are limited. The patch of SCP20a in the offset area is consolidated, providing a strategic location to ensure the long term protection of this patch of SCP20a. The area also provides high quality habitat for significant fauna, including foraging habitat for Carnaby's cockatoo. Given the above, a high value of '8' has been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00		Noting the site is currently well fenced from unauthorised vehicular access and is part of a larger resilient patch of SCP20a, it is considered that the quality of the vegetation would likely remain the same without ongoing management.

Future quality WITH offset (scale) / Future number WITH offset	9.00		The applicant will fund rehabilitation management actions within the site over 20 years (estimated to be $5 million for the broader Mirrabooka Bushland) including ongoing weed control, feral animal control, fire management, infill planting of closed access tracks and dieback management, in accordance with a Revegetation Management Plan (to be prepared). It is considered that these actions will increase the value of the SCP20a occurrence such that a high value of '9' is considered achievable, being a small improvement to its existing quality.
Time until ecological benefit (years)	7.00		The benefits of the abovementioned rehabilitation actions are expected to be realised within 7 years, which includes the time taken to commence rehabilitation and for fencing and weed control actions to take effect.
Confidence in offset result (%)	0.85		There is a high level of confidence that a small improvement could be delivered to the occurrence of SCP20a, given the measures proposed by MRWA in accordance with a Revegetation Management Plan.
Duration of offset implementation (maximum 20 years)	20.00		The area will be managed by the City of Stirling in perpetuity, with funding from MRWA over 20 years, as a Class A Reserve with a mangement order for the purpose of Conservation. Therefore, the maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	2.00		It is expected that the change in reserve purpose from Recreation to Conservation could be achieved in two years.
Risk of future loss WITHOUT offset (%)	10.0%		The offset area is freehold land currently managed by the WAPC and zoned Regional Open Space under the Metropolitan Region Scheme. The offset are is part of Bush Forever site 385. Noting the area is state owned freehold land, there is a low risk of loss. However, without formal conservation tenure, a small risk of loss remains.
Risk of future loss WITH offset (%)	5.0%		The site will be conserved in perpetuity through a change of the reserve purpose from Recreation to Conservation. Therefore, there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		

WA Environmental Offsets Calculator

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	**Description**	Low lying Banksia attenuata woodlands or shrublands floristic community type 21c as originally described in Gibson et al. 1994) (SCP21c)
	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**

WA Environmental Offsets Calculator

Step 2: Calculating significant residual impact

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

Environmental value (step 1)	Low lying Banksia attenuata woodlands or shrublands floristic community type 21c as originally described in Gibson et al. 1994) (SCP21c)

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Clearing of native vegetation representative of SCP21c	Significant impact (hectares)	2.53
		Quality (scale)	6.00
		Total quantum of impact	1.52

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
	None proposed.	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	1.52
	Rehabilitation credit	0.00
	Significant residual impact	1.52

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

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

Environmental value (step 1)	Low lying Banksia attenuata woodlands or shrublands floristic community type 21c as originally described in Gibson et al. 1994) (SCP21c)	Significant impact (step 2, part A)	2.53
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	1.52

***Area* (offset site)**

Offset calculation
Area

Offsets calculation	**Description**	**Proposed offset (area in hectares)**	18.89	**Duration of offset implementation (maximum 20 years)**	20.00	**Offset value**	**1.51**
	Acquisition and conservation in perpetuity of native vegetation that is representative of SCP21c	**Current quality of offset site (scale)**	8.00	**Time until offset site secured (years)**	1.00		**99.5%**
		Future quality WITHOUT offset (scale)	8.00	**Risk of future loss WITHOUT offset (%)**	15.0%		
		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%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Low lying Banksia attenuata woodlands or shrublands floristic community type 21c as originally described in Gibson et al. 1994) (SCP21c)		The proposed clearing will impact on 2.53 hectares of native vegetation representative of SCP21c.
Type of environmental value	Ecological community		SCP 21c is listed as a priority ecological community in WA by DBCA.
Conservation significance of environmental value	Priority ecological community		SCP 21c is listed as a Priority 3 community by DBCA in WA. This community also forms part of the Banksia Woodlands of the Swan Coastal Plain (Banksia Woodlands) ecological community which is listed as Endangered under the Commonwealth EPBC Act. Noting that the impact to the Banksia Woodlands ecological community has been considered in its entirety in a separate offset calculation, where a conservation value of Endangered has been attributed, DWER considered it appropriate to use the Priority 3 conservation listing in this calculator.
Landscape-level value impacted	yes/no		The impact is to an area of SCP21c in hectares.
Significant impact			
Description	Clearing of native vegetation representative of SCP21c		Native vegetation that is representative of SCP21c is proposed to be cleared for road construction and upgrades associated with the Great Eastern Highway Bypass Interchanges (GEHBI) project.
Significant impact (hectares) / Type of feature	2.53		The application area contains 2.53 hectares of native vegetation that is representative of SCP21c, as identified in the biological survey of the application area (Biota, 2021).
Quality (scale) / Number	6.00		The occurrence of SCP21c within the application area is in a Good (Keighery, 1994) condition, consolidated within one patch of native vegetation, within a highly cleared landscape. Noting vegetation condition and site context, a moderate quality value of '6' has been given.
Rehabilitation credit			
Description	None proposed.		No onsite rehabilitation or revegetation proposed (i.e., within or immediately adjacent to the application area).
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	Acquisition and conservation in perpetuity of native vegetation that is representative of SCP21c		The acquisition and conservation in perpetuity of native vegetation within Lot 87 on Deposited Plan 422467 and Lot 88 on Deposited Plan 422467, Cowalla, that comprises vegetation representative of SCP21c, to be ceded to the Department of Biodiversity Conservation and Attractions (DBCA).
Proposed offset (area in hectares)	18.89		The offset area comprises 18.89 hectares of vegetation that is representative of SCP21c, as confirmed by a biological survey (FVC, 2023; FVC 2025). Specifically, quadrats C3 and C8 which both occurred in the offset area were considered to have a high affinity for SCP21c (FVC 2025). This would address 99.5% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	8.00		The occurrence of SCP21c in the offset area is mostly (92%) in Excellent (Keighery, 1994) condition (FVC, 2023) and occurs as a larger patch of native vegetation in the Shire of Gingin. A high value of '8' has therefore been given.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00		Given site context, the quality of the vegetation would likely remain the same without ongoing management.
Future quality WITH offset (scale) / Future number WITH offset	8.00		The site will be managed by DBCA as part of its conservation estate. This will include fencing of the site, weed and dieback control activities, fire management and feral animal pest control, to be funded by MRWA for a period of 20 years. This management is expected to maintain the current site quality.
Time until ecological benefit (years)	1.00		As the proposed offset relates to acquiring and conserving an existing area of native vegetation the minimum of one year for this field is applied
Confidence in offset result (%)	0.9		A high degree of confidence has been assigned as DBCA is an experienced land manager that will appropriately protect the offset site.
Duration of offset implementation (maximum 20 years)	20.00		The site will be managed in perpetuity by DBCA for conservation. MRWA will fund the offset implementation for 20 years. The maximum offset implementation value has therefore been applied.
Time until offset site secured (years)	1.00		The site will be secured as an offset within one year.

Risk of future loss WITHOUT offset (%)	15.0%		Risk of loss without the offset has been set at 15%, given the existing land use for the property prior to being purchased as an offset (rural) and potential for further agricultural and/or forestry activities exists without protection.
Risk of future loss WITH offset (%)	5.0%		The ceding to DBCA will ensure the offset site is conserved in perpetuity, and there is a very low risk of the site being lost in the future.
Offset ratio (Conservation area only)	N/A		