



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 8768/1
File Number: DWERTV5039
Duration of Permit: From 22 August 2020 to 22 August 2027

PERMIT HOLDER

Carey Baptist College Inc.

LAND ON WHICH CLEARING IS TO BE DONE

Lot 2 on Diagram 75868, Forrestdale.

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 1.21 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8768/1(a).

CONDITIONS

1. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

2. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, mulch, fill or other material is brought into the area to be cleared;
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared; and
- (d) where *dieback* or *weed*-affected soil, mulch, fill or other material is to be removed from the area to be cleared, ensure it is transferred to areas of comparable soil disease status.

3. Offset – revegetation and rehabilitation requirements

Within 12 months of the commencement of clearing, the Permit Holder must implement and adhere to the 'Revegetation Plan Addendum (Stage 2) Carey Baptist College, Forrestdale. Revision 2. July 2020', including but not limited to the following actions:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the vegetative material and topsoil to be used in *revegetation* in an area that has already been cleared within the area cross-hatched red on the attached Plan 8768/1(b)
- (b) commence *revegetation* of the areas cross-hatched red on Plan 8768/1(b), and *rehabilitation* of the areas cross-hatched red on Plan 8768/1(c) by:
 - (i) laying the appropriate vegetative material and topsoil retained under condition 3(a);
 - (ii) deliberately *planting* tube stock and salvaged native vegetation and/or *direct seeding* native vegetation seeds; and

- (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the areas.
- (c) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the *revegetation* and *rehabilitation* sites;
- (d) establish at least eight 5 x 5 metre quadrat monitoring sites within *revegetated* and *rehabilitated* areas;
- (e) monitor quadrats specified in condition 3(d) at least annually;
- (f) monitoring of quadrats specified in condition 3(d) is to be undertaken by an *environmental specialist*;
- (g) achieve the completion criteria specified in the attached Schedule 1 (Revegetation) and Schedule 2 (Rehabilitation) after the three year monitoring period for areas *revegetated* and *rehabilitated* under this Permit;
- (h) undertake *weed* control activities on an 'as needs' basis to maintain a minimum criteria in the attached Schedule 1 (*revegetation*) and Schedule 2 (*rehabilitation*);
- (i) undertake remedial actions for areas *revegetated* and *rehabilitated* where monitoring indicates that *revegetation* or *rehabilitation* has not met the completion criteria, outlined in the attached Schedule 1 (Revegetation) and Schedule 2 (Rehabilitation), including:
 - (i) *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation seeds that will result in the minimum targets specified in the attached Schedule 1 (Revegetation) and Schedule 2 (Rehabilitation) ensuring only *local provenance* seeds and propagating material are used;
 - (ii) undertake further *weed* control activities;
 - (iii) undertake watering activities; and
 - (iv) undertake annual monitoring of each *revegetated* and *rehabilitated* site, until the completion criteria outline in the attached Schedule 1 (*revegetation*) and Schedule 2 (*rehabilitation*) are met.

4. Vegetation management - fencing

- (a) Within twelve months of clearing, the Permit Holder shall construct a fence along the perimeters of the areas cross-hatched red on attached Plan 8568/1(d).
- (d) Fences should allow for the movement of wildlife by being raised 15 centimetres from the ground.
- (e) Within one month of installing the above fences, the Permit Holder shall notify the *CEO* in writing that the fencing has been completed.

5. Native vegetation conservation (conservation covenant)

In respect to the areas cross-hatched red on attached Plan 8768/1(d), the Permit Holder shall give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* in accordance with the following conditions:

- (a) native vegetation in the area subject to the conservation covenant must not be cleared, other than for clearing required under the *Bush Fires Act 1954*;
- (b) the land subject to the conservation covenant shall not be used for the purpose of cultivation of crops or pasture, or for the de-pasturing of any stock;
- (c) the conservation covenant is to apply in perpetuity and be registered on the title of the property; and
- (e) Within 1 month of executing and returning the conservation covenant to the Commissioner of Soil and Land Conservation the Permit Holder shall notify the *CEO* in writing that the Conservation covenant has been completed.

6. Direction of clearing

The Permit Holder shall conduct clearing in a slow progressive manner from one direction to the other (e.g. east to west) to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

7. Erosion management

The Permit Holder shall begin construction within two months of undertaking clearing authorised under this Permit.

8. Duration of clearing

This Permit does not authorise the Permit Holder to clear native vegetation after 22 August 2022.

9. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the direction that clearing occurred;
- (d) the size of the area cleared (in hectares);
- (e) the date that construction commenced;
- (f) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit;
- (g) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 2 of this Permit;
- (h) the size of the areas *revegetated* and *rehabilitated*;
- (i) the dates on which the areas *revegetated* and *rehabilitated* were undertaken;
- (j) evidence supporting compliance with conditions 3, 4, and 5 of this Permit.

10. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each calendar year, a written report containing:
 - (i) the records required under condition 8 of this Permit; and
 - (ii) records of activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit has been undertaken, a written report confirming that no clearing under this Permit has been carried out, must be provided to the *CEO* on or before 31 December of each calendar year.
- (c) The Permit Holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of this Permit, a written report of records required under condition 9, where these records have not already been provided under condition 10(a).

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

direct seeding means a method of re-establishing vegetation through establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fill means material used to increase the ground level, or fill a hollow;

local provenance means native vegetation seeds and propagating material from natural sources within 25 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

planting means the re-establishment of vegetation by creating soil conditions and planting seedlings of the desired species;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

soil disease status means soil types either infested, not infested, uninterpretable or not interpreted with a pathogen.

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

30 July 2020

Schedule 1: Revegetation Completion Criteria

Characteristic	Measure	Baseline floristic data	Completion Target	Completion Criteria
			Vegetation in Good to Very Good condition as per Keighery (1994)	
A. Species richness - Banksia Woodland	i. Total species richness (site)	27 native species (trees, shrubs and herbs) were recorded in this vegetation type	Minimum of 60% native species, based on baseline data	Minimum of 16 species (trees, shrubs and herbs) to be present in the revegetation areas
	ii. Quadrat species richness (average)	17 native species present in the quadrats (0.17 species/m ²)	Minimum of 60% native species, based on baseline data	Minimum of 0.1 species/m ² native species to be present on average per monitoring quadrat (i.e. 2.5 species per 5x5m quadrat)
B. Species richness – Mesic Vegetation	i. Total species richness (site)	45 species (trees, shrubs and herbs) have been recorded in the reference site	Minimum of 60% native species, based on baseline data	Minimum of 27 species (trees, shrubs and herbs) to be present in the revegetation areas
	ii. Quadrat species richness (average)	Reference site quadrats varied from 10 to 21 species. Average is 15 species (0.6 species/m ²).	Minimum of 60% native species, based on baseline data	Minimum of 0.36 species /m ² native species to be present on average per monitoring quadrat (i.e. 9 species per 5x5m quadrat).
C. Species density – Banksia Woodland	i. Total	Information not previously recorded. An average plant density of 2 plants/m ² in dryland environments is used as the baseline measure.	Minimum of 60% stems/ha, based on baseline data	Minimum of 1.2 stem/m ² on average within the revegetation area
D. Species density – Mesic Woodland	i. Total	Reference sites varied from 1.1 to 11.9 stems/m ² . Average is 6.8 stems/m ² .	Minimum of 60% stems/ha, based on baseline data	Minimum of 4 stems/m ² on average within the revegetation area
E. Black Cockatoo habitat	i. Species Diversity	4 of the 37 native species recorded in the Banksia vegetation are identified to provide black cockatoo habitat opportunities	Equal or exceed species richness of reference site providing black cockatoo foraging habitat	A minimum of 4 species which provide black cockatoo habitat opportunities are present in both the banksia and mesic revegetation areas.
	ii. Species Density	The percentage cover of species providing black cockatoo habitat opportunities recorded in the Banksia vegetation was 15%.	Exceed 15% cover of species providing black cockatoo foraging habitat when plants are mature. In order to achieve this a target cover of 20% when trees are mature will be aimed for. The following stem density of juvenile stock is identified to assist to achieve this target: <ul style="list-style-type: none"> • Marri / Flooded Gum density of 40 stem/ha; OR • Banksia density of 83 stems/ha; OR • Appropriate combination of the above based on mature canopy coverage estimates. 	Achieve an average stem density of cockatoo habitat species of: <ul style="list-style-type: none"> • Marri / Flooded Gum density of 40 stem/ha; OR • Banksia density of 83 stems/ha; OR • Appropriate combination of the above based on mature canopy extent estimates.

Characteristic	Measure	Baseline floristic data	Completion Target	Completion Criteria
			Vegetation in Good to Very Good condition as per Keighery (1994)	
F. Weed Cover	iii. General weed species	<p>Weed observed in the clearing area reference site were generally competitive species. The highest weed cover recorded was:</p> <ul style="list-style-type: none"> • <i>Ehrharta calycina</i> (50% cover) • <i>Ehrharta longiflora</i> (5% cover) • <i>Ursinia anthemoides</i> (2% cover) <p>Total coverage of all weed was 61%.</p>	Weed cover lower than reference site	Maximum of 15% weed cover
	iv. Declared weeds	No declared weeds were present onsite.	No declared weeds to be present within revegetation area.	0% cover

Schedule 2: Rehabilitation Completion Criteria

Characteristic	Measure	Baseline floristic data	Completion Target	Completion Criteria
			Vegetation in Good to Very Good condition as per Keighery (1994)	
A. Species richness - Banksia Woodland	i. Total species richness (site)	27 native species (trees, shrubs and herbs) were recorded in this vegetation type	Maintain or exceed baseline data	Minimum of 27 species (trees, shrubs and herbs) to be present in the rehabilitated areas
	i. Quadrat species richness (average)	17 native species present in the quadrats (0.17 species/m ²)	Maintain or exceed baseline data	Minimum of 0.17 species/m ² native species to be present on average per monitoring quadrat
B. Species density – Banksia Woodland	i. Total	Information not previously recorded. An average plant density of 2 plants/m ² in dryland environments is used as the baseline measure.	Maintain or exceed baseline data	Minimum of 2 stem/m ² on average within the rehabilitation area
C. Black Cockatoo habitat	i. Species Diversity	4 of the 37 native species recorded in the Banksia vegetation are identified to provide black cockatoo habitat opportunities	Equal or exceed species richness of reference site providing black cockatoo foraging habitat	At least 4 species which provide black cockatoo habitat opportunities are present in rehabilitated areas
	ii Species Density	The percentage cover of species providing black cockatoo habitat opportunities recorded in the Banksia vegetation was 15%.	Equal or exceed cover of species providing black cockatoo foraging habitat.	A minimum of 15% coverage of species which provide black cockatoo habitat opportunities within the revegetation areas.
D. Weed Cover	i. General weed species	<p>Weed observed in the clearing area reference site were generally competitive species. The highest weed cover recorded was:</p> <ul style="list-style-type: none"> <i>Ehrharta calycina</i> (50% cover) <i>Ehrharta longiflora</i> (5% cover) <i>Ursinia anthemoides</i> (2% cover) <p>Total coverage of all weed was 61%.</p>	Reduction in weed cover lower than reference site	Maximum of 15% weed cover
	ii. Declared weeds	No declared weeds were present onsite.	No declared weeds to be present within revegetation area.	0% cover

Plan 8768/1 (a)

115°55'3.900"E

115°55'6.600"E

115°55'9.300"E

32°9'38.700"S

32°9'38.700"S

32°9'41.400"S

32°9'41.400"S


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32°9'44.100"S




Legend

CPS layers

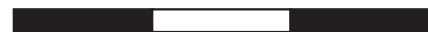
 CPS areas approved to clear

base layers

 Cadastre - LGATE 218

Local Government Authority (LGA) Boundaries (LGATE-233)

0 25 50 75 m



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GOVERNMENT OF
WESTERN AUSTRALIA

Plan 8768/1 (b)

115°54'55.800"E

115°55'1.200"E

115°55'6.600"E

32°9'36.000"S

32°9'41.400"S

32°9'46.800"S

32°9'36.000"S

32°9'41.400"S

32°9'46.800"S





115°54'55.800"E

115°55'1.200"E

115°55'6.600"E

Legend

CPS layers

-  CPS areas approved to clear
-  CPS subject to conditions

base layers

-  Cadastre - LGATE 218

Local Government Authority (LGA) Boundaries (LGATE-233)

0 50 100 150 m



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Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA

Plan 8768/1 (c)

115°54'55.800"E

115°55'1.200"E

115°55'6.600"E

32°9'36.000"S

32°9'41.400"S

32°9'46.800"S

32°9'36.000"S



32°9'41.400"S

32°9'46.800"S




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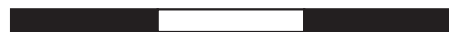
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-  CPS subject to conditions

base layers

-  Cadastre - LGATE 218

Local Government Authority (LGA) Boundaries (LGATE-233)

0 50 100 150 m



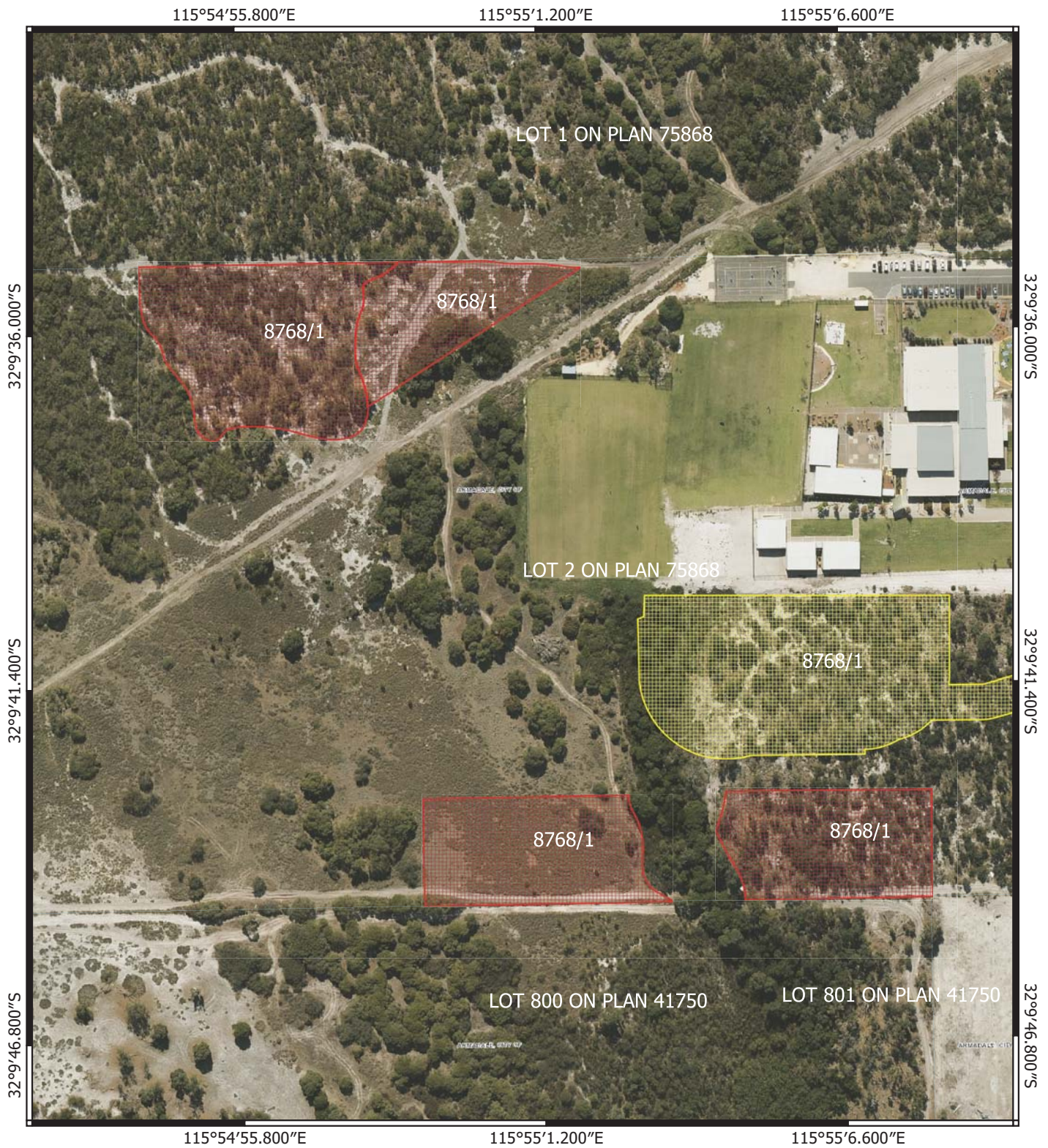
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GOVERNMENT OF
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Plan 8768/1 (d)




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CPS layers

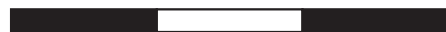
-  CPS areas approved to clear
-  CPS subject to conditions

base layers

-  Cadastre - LGATE 218

Local Government Authority (LGA) Boundaries (LGATE-233)

0 50 100 150 m



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GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

Permit application details

Permit application No.: 8768/1
Permit type: Area Permit

Applicant details

Applicant's name: Carey Baptist College Inc.
Application received date: 17 December 2019

Property details

Property: Lot 2 on Diagram 75868, Forrestdale
Local Government Authority: City of Armadale
Localities: Forrestdale

Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.21		Mechanical Removal	Building or structure

Decision on application

Decision on Permit Application: Grant
Decision Date: 30 July 2020
Reasons for Decision:

The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance with principles (a), (b), (e) and (f), may be at variance with clearing principle (h), and is not, or not likely, to be at variance with the remaining clearing principles.

The Delegated Officer had regard to the associated Development Application submitted by the applicant to the City of Armadale on 17 December 2019.

The Delegated Officer noted that the application area contains 0.97 hectares of significant Carnaby's Cockatoo (*Calyptorhynchus latirostris*) foraging habitat (Vegetation Type 'Ba'). To mitigate the significant residual impacts identified, and in accordance with the WA Environmental Offset Policy and Environmental Offsets Guidelines, an offset of 2.09 hectares of revegetated and rehabilitated Carnaby's Cockatoo foraging habitat is required to be protected within the Carey Baptist College Forrestdale Campus land holding (Lot 2 on Diagram 75868). This area will be managed in perpetuity as Carnaby's Cockatoo foraging habitat via a conservation covenant placed on the property title under section 30B of the *Soil and Land Conservation Act 1945*. Furthermore, fencing installation around revegetated and rehabilitated areas will mitigate against potential impacts from the adjacent school.

The Delegated Officer noted that mitigation of the loss of 0.14 hectares of riparian vegetation in Good condition can be accommodated via an on-going wetland revegetation program being undertaken at Carey Baptist College Forrestdale Campus, with a commitment by the applicant to revegetate 0.14 hectares of Vegetation Type 'Mp' – *Melaleuca preissiana* woodland.

Although the application area forms part of a significant remnant in an area that has been extensively cleared, an offset is not required due to the location being in a highly constrained area as part of the Metropolitan Regional Scheme.

The Delegated Officer also determined that the proposed clearing may increase the spread of weeds and dieback into adjacent vegetation associated with the Jandakot Regional Park. Weed and dieback management measures will mitigate this impact. Slow, directional clearing into areas of adjacent remnant vegetation will mitigate impacts against any ground dwelling fauna utilising the application area at the time of clearing.

The proposed clearing of vegetation within this area may lead to wind erosion. Although wind erosion may occur it can be managed through standard staged construction techniques, and commencing construction within two months of clearing, and is not likely to cause appreciable land degradation. Impacts from waterlogging can be managed through appropriate design of drainage controls.

After consideration of the above, the Delegated Officer decided to grant a clearing permit subject to weed and dieback, fencing, erosion management, revegetation and offset

conditions. The Delegated Officer determined that given the management, mitigation and offset measures identified, the proposed clearing is unlikely to have any further significant environmental impacts and is not likely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description

The application is to clear 1.21 hectares of native vegetation to facilitate the initial components of the Stage 2 development of the Carey Baptist College Forrestdale Campus. Proposed clearing is required for the construction of a STEAM centre (Science, Technology, Engineering, Arts and Mathematics), and associated car park with access road, together with the associated Asset Protection Zones required under an approved Bushfire Management Plan (Figure 1).

Vegetation Description

Swan Coastal Plain vegetation complex

The application area is mapped as the Southern River Complex of Open Woodland. That is, an open woodland of *Corymbia calophylla* (Marri) - *Eucalyptus marginata* (Jarrah) - Banksia species with fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca raphiophylla* (Swamp Paperbark) along creek beds.

Vegetation survey

Bennett (2011) undertook a Level 2 flora and vegetation survey incorporating the application area and described and mapped the Vegetation Types present as (Figure 2):

- 0.98 hectares (or 80.9 percent) of 'Ba' - a Low Woodland of *Banksia attenuata*, *Banksia menziesii*, *Nuytsia floribunda* and *Eucalyptus todiana* over Heath dominated by *Acacia pulchella* var. *glaberrima* over Tall Grass dominated by *Ehrharta calycina*.
- 0.13 hectares (or 10.3 per cent) of 'Ec' - a Dense Tall Grass of *Eragrostis curvula*, *Paspalum urvillei* and/or *Pennisetum clandestinum* or Tall Sedges of *Juncus pallidus* or Herbs dominated by *Lotus subbiflorus*, *Moraea flaccida* and *Euphorbia terracina*.
- 0.11 hectares (or 8.8 per cent) of 'Mr' - a Low Forest of *Melaleuca raphiophylla* over Dense Herbs dominated by *Zantedeschia aethiopicum* and *Lotus subbiflorus*.

Conservation listing

Much of the application area is mapped as the state-listed Banksia Dominated Woodlands of the Swan Coastal Plain Priority 3 Priority Ecological Community (PEC). The 0.97 hectares of Vegetation Type 'Ba' in Good to Very Good condition recorded over the application area by Bennett (2011) is analogous with the state-listed PEC. This is synonymous with the Commonwealth-listed Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (TEC), listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Vegetation Condition

Vegetation condition across the application area varies from Very Good to Completely Degraded based on the condition scale of Keighery (1994) (Table 1). The 0.98 hectares of 'Ba' vegetation type is predominantly in Good to Very Good condition, the 0.13 hectares 'Ec' vegetation type is predominantly in a Completely Degraded condition, and the 0.11 hectares 'Mr' vegetation type is predominantly in a Good condition.

Table 1 Vegetation condition scale (Keighery 1994)

Scale	Description
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	Vegetation structure altered; obvious signs of disturbance.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate.
Degraded	Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching Good condition without intensive management.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

Soil and Landform Type:

The vast majority of the application area consists of the 212Bs Bassendean B1 Phase soil type, which is described as being of extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands, sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 metres.

A minority of the application area in the west consists of the 212Bs Bassendean B4 Phase soil type, which is described as being of broad poorly drained sandplain with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 metres by clay or, less frequently, a strong iron-organic hardpan.

Comments:

The local area referred to in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area. The application area is located within the Swan Coastal Plain (SWA02) bioregion as described by Thackway and Cresswell (1995).

The local area contains approximately 23.1 per cent native vegetation cover.



Figure 1: CPS 8768/1 application area (red) consisting of the initial components of Stage 2 of the Carey Baptist College Forrestdale Campus

Vegetation Type 'Ba' in predominantly Good to Very Good condition.

Low Woodland of *Banksia attenuata*, *Banksia menziesii*, *Nuytsia floribunda* and *Eucalyptus tottiana* over Heath dominated by *Acacia pulchella* var. *glaberrima* over Tall Grass dominated by *Ehrharta calycina*.

0.98 hectares or 80.9 per cent of the application area.



Vegetation Type 'Ec' in predominantly Completely Degraded condition.

Dense Tall Grass of *Eragrostis curvula*, *Paspalum urvillei* and/or *Pennisetum clandestinum* or Tall Sedges of *Juncus pallidus* or Herbs dominated by *Lotus subbiflorus*, *Moraea flaccida* and *Euphorbia terracina*.

0.13 hectares or 10.3 per cent of the application area.



Vegetation Type Mr in predominantly Good condition.

Low Forest of *Melaleuca raphiophylla* over Dense Herbs dominated by *Zantedeschia aethiopicum* and *Lotus subbiflorus*.

0.11 hectares or 8.8 per cent of the application area.



Figure 2: Representative photographs of vegetation types over the application area

3. Avoidance and minimisation measures

The school location was initially selected to avoid impacts to a Resource Enhancement Category Wetland located at the eastern end of the site, and to allow for a 50 metre buffer to Conservation Category Wetlands surrounding the site. The clearing for the proposed second stage of the school development was reduced from the initial application submitted to DWER (3.18 hectares) by refining the clearing extent. The clearing envelope has been minimised, with building locations clustered to reduce physical extent, and associated clearing. The development of Stage 2 of the Carey Baptist College Forrestdale Campus is being undertaken in stages, with the first stage allowing for the STEAM centre building footprint, Asset Protection Zone (APZ) for bushfire protection around the STEAM Building, and an access road plus a three metre disturbance area on either side of the road required for construction purposes. Any areas which are cleared, but where construction immediately commences, will be stabilised with landscaping, mulch or hydro-mulch.

On-site revegetation and rehabilitation works are proposed to address residual impacts of the clearing. The proponent has been assisted by specialist environmental and revegetation consultants to implement a revegetation plan.

The initial 2014 Stage 1 development of the Carey Baptist College development incorporated a Revegetation Plan (Coterra 2014a; Coterra 2014b) that included the revegetation of a fenced 5.4 hectare area over the eastern end of the site incorporating a Resource Enhancement Wetland. Coterra (2019a) report that completion criteria associated with the Stage 1B revegetation area (2.9 hectares), commenced in 2015, were met during the spring 2018 and autumn 2019 monitoring periods (Tranen 2019). The smaller Stage 1A (Drainage Basin) revegetation was commenced in 2017 and is ongoing, with a focus on weed control to allow the established plants to further expand their current 85 percent cover (Coterra 2019a).

The initial component of the Stage 2 development of the Carey Baptist College considered here will expand the current revegetation program and incorporate new areas within a Banksia Low Forest to be rehabilitated, as well as a Multiple Use Wetland, and incorporate targeted locally-provenanced species and utilise methodologies consistent with Department of Water and Environmental Regulation (DWER) guidance on revegetation plans (DWER 2018).

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing is at variance with this principle.

Proposed clearing incorporates 0.98 hectares (or 80.9 per cent of the application area) of Vegetation Type 'Ba' (banksia woodland), of which 0.97 hectares is in Good to Very Good condition; 0.13 hectares (or 10.3 per cent of the application area) of Vegetation Type 'Ec' (tall dense grasses) in predominantly Completely Degraded condition; and 0.11 hectares (or 8.8 per cent of the application area) of Vegetation Type 'Mr' (Melaleuca Low Forest) in predominantly Good condition.

The 0.97 hectares of Vegetation Type 'Ba' recorded on slopes and the crest of a sand dune at the site in predominantly Good to Very Good condition is analogous with a PEC and TEC. Regional mapping of the Banksia dominated woodlands of the Swan Coastal Plain TEC occurs over 1.08 ha of the application area, including the 0.98 hectares of Vegetation Type 'Ba'.

According to available databases, 10 threatened flora taxa and 36 priority flora taxa have been recorded within the local area. Priority (P) flora taxa within the local area consist of four P1 taxa, four P2 taxa, 16 P3 taxa and 12 P4 taxa. The closest Priority flora records include: *Verticordia lindleyi* subsp. *lindleyi* (P4) approximately 2.6 kilometres to the west of the application area; *Drosera occidentalis* (P4), *Ornduffia submersa* (P4), and *Meionectes tenuifolia* (P3) approximately 2.6 kilometres to the east; *Jacksonia sericea* (P4) approximately 2.7 kilometres to the north-east; and *Tripterococcus* sp. *Brachylobus* (A.S. George 14234) (P4) approximately 2.9 kilometres to the west of the application area.

Bennett (2011) recorded two priority flora taxa within the study area of the Carey Baptist College Forrestdale Campus land holding (Lot 2 on Diagram 75868). *Schoenus pennisetis* (P3) and *Jacksonia gracillima* (P3) were identified approximately 235 metres to the north-west of the application area, with *Jacksonia gracillima* also identified approximately 60 metres east of the application area in vegetation types analogous with the application area. No Threatened or Priority flora were identified within the application area (Bennett 2011).

The 0.97 hectares of Vegetation Type 'Ba' in predominantly Good to Very Good condition provides foraging habitat for the Endangered Carnaby's cockatoo (*Calyptorhynchus latirostris*) (DSEWPaC 2012; Valentine and Stock 2008). Applying methodologies outlined in the Conservation Advice for Banksia Woodlands (TSSC 2016), the remnant containing the application area potentially forms part of a much larger banksia woodland patch extending to the south into the Jandakot Regional Park. This has implications for landscape connectivity in addition to its value as Carnaby's Cockatoo foraging habitat across a fragmented landscape.

The presence of significant ecological communities and foraging resources for threatened species provides a measure of biodiversity for ecological communities. The presence of such communities is indicative of environmental values worthy of protection and a higher level of biological diversity than might typically be expected in the area. Noting that the application area contains significant foraging habitat and is representative of a PEC, and Commonwealth-listed TEC, the proposed clearing is at variance with this principle.

It is considered that the proposed impacts to significant foraging habitat for black cockatoos and the loss of vegetation that is representative of a PEC, and Commonwealth-listed TEC are of a scale that can be offset. Further details on the offset are provided in Section 6.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing is at variance with this principle.

Three broad fauna habitats occur over the application area; banksia woodland, grasslands, and a melaleuca low forest. The majority of the application area consists of banksia woodland with the melaleuca low forest associated with a drainage line dissecting the application area at a width of approximately 20 metres. Forty-four vertebrates of significance have been recorded within the local area, including 31 birds, nine mammals and four reptiles.

Of the mammals, several records of the Quenda (*Isoodon fusciventer*) (P4) occur within three kilometres to the east, west, north and south of the application area (DBCA 2007-). This species is associated with dense vegetation, often in conjunction with wetland habitat, and may occur within the application area, particularly in wetland areas associated with melaleuca low forest.

Slow directional clearing towards areas of remnant native vegetation will minimise impacts to individuals potentially utilising the site at the time of clearing.

Many bird species protected under International Agreements (particularly the Families: Scolopacidae, Charadriidae, and Glareolidae) have been recorded within the local area (DBCA, 2007-). The majority of the members from these Families are migratory (including priority and threatened) shorebirds that breed in northern latitudes. Most are coastal but some species will also utilise flooded inland waters. It is these species that may occur over the application area at least intermittently. These include the Common Greenshank (*Tringa nebularia*) and Sharp-tailed Sandpiper (*Calidris acuminata*) recorded within 1.2 kilometres of the application area. They may possibly occur during their time in Australia, particularly after summer-autumn flood events when any flooded areas may be temporarily utilised within and adjacent to the melaleuca low forest habitat (DAWE 2020b; 2020c). The migratory Glossy Ibis (*Plegadis falcinellus*) recorded within 700 metres of the application area may also intermittently utilise these habitats. The migratory Fork-tailed Swift (*Apus pacificus*), as well as the Peregrine Falcon (*Falco peregrinus*) (other specially protected fauna) may overfly the application area without utilising any of the habitats present. Diving waterbirds such as the Blue Billed Duck (*Oxyura australis*) (P4) are unlikely to occur due to the absence of standing water at depth.

Both the Endangered Carnaby's Cockatoo (*Calyptorhynchus latirostris*), and the Vulnerable Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) are known from the vicinity of the application area, and foraging evidence of Carnaby's Cockatoo has been recorded (Coterra 2012; DEC 2012a). Black cockatoo habitat can be considered in terms of breeding habitat, night roosting habitat, and foraging habitat. Black cockatoos will generally forage up to 12 kilometres from an active breeding site (DSEWPac 2012; DoEE 2017; DPaw 2013). Following breeding, they will flock in search of food usually within six kilometres of a night roost (DSEWPac 2012; DoEE 2017; DPaw 2013), but may range up to 20 kilometres (Commonwealth of Australia 2017). Food resources within the range of breeding sites and roost sites are vital to sustain populations, and foraging resources are therefore viewed in the context of known (or unconfirmed), breeding and night roosting sites, particularly within 12 kilometres of an impact area (Commonwealth of Australia 2017).

Black cockatoo night roosts are usually located in the tallest trees of an area, and in close proximity to both a food and water supply (DAWE 2020a). Flocks will use different night roosts, often for weeks, or until the local food supply is exhausted. Flocks show some fidelity to night roosts with sites used in most years to access high-quality feeding sites. However, not all night roosts are used in every year (DPaw 2013).

The application area does not include trees large enough to provide black cockatoo breeding habitat, nor roosting habitat (that is, trees with a diameter at breast height greater than 500 millimetres) (Coterra 2012). The application area is located within a mapped unconfirmed breeding area for Carnaby's Cockatoo, and within 3.5 kilometres from a confirmed Carnaby's Cockatoo breeding area. Notably, there are 24 known Carnaby's Cockatoo night roosting sites within 12 kilometres of the application area, 10 of which also include Forest Red-tailed Black Cockatoos. The closest roost sites are approximately 2.8 kilometres to the north east, and approximately 4.1 km south west of the application area. Food resources within the range of these roost sites are important to these individuals, and any foraging habitat available over the application area would therefore be associated with night roost sites in the non-breeding season, rather than breeding sites.

Forest Red-tailed black cockatoos primarily feed on the seeds of jarrah and marri and foraging habitat is not present over the application area. Carnaby's Cockatoo diet, however, also includes seeds of native proteaceous plant species such as *Banksia* spp (DSEWPac 2012; Valentine and Stock 2008). The importance of banksia woodland as foraging habitat for Carnaby's Black Cockatoo has been demonstrated through various studies which have determined that the species will exploit all areas of available Banksia food resources on the Swan Coastal Plain (EPA 2019), and the Commonwealth of Australia (2017) consider the Swan Coastal Plain a critical foraging area for Carnaby's Cockatoo during the non-breeding season.

Carnaby's Cockatoo foraging habitat is present over the application area in the form of native vegetation associated with the 0.98 hectares of 'Ba' Vegetation Type (Low Woodland of *Banksia attenuata*, *Banksia menziesii*, *Nuytsia floribunda* and *Eucalyptus tottiana* over heath). Despite the relatively small size of the foraging habitat proposed to be impacted, the cumulative impacts upon Carnaby's cockatoo foraging habitat over time, continues to contribute to the decline of the species (Whitehead et al. 2016; Williams et al. 2017). Given that Carnaby's Cockatoo is known from the local area, that 0.97 hectares of banksia woodland is in Good to Very Good condition (Keighery 1994), and the proximity of several known night roosts, the clearing of 0.97 hectares of banksia woodland will have a significant impact on foraging habitat for this species. Due to the value of the application area as significant fauna habitat, the proposed clearing is at variance with this principle.

It is considered that the proposed impacts to significant foraging habitat for black cockatoos are of a scale that can be offset. Further details on the offset are provided in Section 6.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.

Proposed clearing is not likely to be at variance with this principle.

According to available databases, 10 threatened flora taxa have been recorded within the local area of 10 kilometres radius of the application area.

The closest Threatened flora recorded were *Drakaea micrantha* (Endangered) approximately 555 meters to the north-west of the application area; *Caladenia huegellii* (Critically Endangered) approximately 1.6 kilometres to the south; *Diuris purdiei* (Endangered) approximately 2.6 kilometres to the east; and *Drakaea elastica* (Critically Endangered) approximately 2.0 kilometres south of the application area.

Drakaea micrantha, *Caladenia huegelii*, and *Drakaea elastica* were recorded within the same vegetation and soil type as the 'Ba' Vegetation Type, and *Diuris purdiei* within the same vegetation type as the 'Mr' Vegetation Type (Western Australian Herbarium 1998-). However, no threatened flora taxa were recorded during the spring level 2 botanical assessment conducted by Bennett (2011). Given the vegetation condition and distance to records, clearing is not likely to be at variance with this principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not at variance with this principle.

No state-listed TECs are mapped within the application area. The closest known state-listed TECs are the *Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994))* (Vulnerable), recorded approximately 2.4 kilometres to the east of the application area; and *Shrublands on dry clay flats (floristic community type 10a as originally described in Gibson et al. (1994))* recorded approximately 2.95 kilometres to the east of the application area.

Vegetation descriptions over the application area are not analogous with these communities. Given the condition of the vegetation and the distance to the nearest TEC, it is unlikely that the vegetation under application will be necessary for the maintenance of either of these communities. Proposed clearing is not at variance with this principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is at variance with this principle.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region within the Metropolitan Regional Scheme to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA 2008).

The application area is located within the Swan Coastal Plain (IBRA) bioregion which retains approximately 38.6 per cent of its pre-European vegetation extent (Government of Western Australia 2019a).

The application area is mapped as the Southern River Complex (Heddl et al. 1980 as updated by Webb et al. 2016). The Southern River Complex retains below the 30 per cent threshold at approximately 18.4 per cent of its pre 1750 extent (Government of Western Australia 2019b). Additionally, a very low percentage of the Southern River Complex occurs within lands protected for conservation, at just 1.37 per cent (Government of Western Australia 2019b).

Table 2: Vegetation statistics (Government of Western Australia 2019a/b)

		Pre-European Extent (ha)	Current Extent (ha)	Current Extent (per cent)	Current extent protected for conservation (ha)	Current Extent Protected for Conservation (per cent)
IBRA Bioregion						
* Swan Coastal Plain	(SWA)	1,501,222	579,813	38.6 %	153,955	10.26 %
Vegetation Complex						
# Southern River Complex	ID 42	58,781	10,832	18.4 %	803	1.37 %

* Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Heddl, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Vegetation present over the application area broadly correlates with the Southern River Complex, and at the local scale of a 10 kilometre radius approximately 23.1 per cent native vegetation cover remains. Despite the relatively small size of the application area, if granted it would directly contribute to the cumulative impacts, fragmentation and loss of vegetation across the Swan Coastal Plain. This recognises that indiscriminate impacts accumulate over a range of spatial scales and multiple species (Whitehead et al. 2016).

Vegetation under application is a significant remnant as it contains vegetation in Good to Very Good condition (Keighery 1994), comprises a high biological diversity, and significant habitat for fauna indigenous to Western Australia. Given the above, the application area is considered significant as a remnant of native vegetation in an area that has been extensively cleared. The proposed clearing is at variance with this principle.

Although the application area forms part of a significant remnant in an area that has been extensively cleared, an offset is not required due to the location being in a highly constrained area as part of the Metropolitan Regional Scheme.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is at variance with this principle.

The application area is located within the SwanAvon/Canning River catchment and the entire application area is within an Environmentally Sensitive Area (ESA) (ID 1900) associated with surrounding wetlands.

Forresdale Lake is a RAMSAR Listed Wetland located approximately 880 metres to the east of the application area with Thomsons Lake located approximately 7.1 kilometres to the west.

The western portion of the application area (0.141 hectares, or 11.6 % of the application area) is located within a nationally-significant wetland that has been listed by the Australian Government Department of Agriculture, Water and the Environment (DAWE) in the Directory of Important Wetlands in Australia. That is, as a component of the mapped Gibbs Road Swamp System (WA078) (and Bush Forever Site 344). The Gibbs Road Swamp System covers approximately 188 hectares between Forresdale Lake (WA077) to the east and Thomsons Lake to the west (WA092) with a landuse of conservation, recreation, and drainage.

The western portion of the application area (analogous with the above) is located within a mapped 7.5 hectare Geomorphic Wetland (ID 7088); with a wetland type of 'Dampland' and associated management category of 'Multiple Use'. Multiple Use Wetlands are considered wetlands with few remaining important attributes and functions (EPA 2004; EPA 2008; Water and Rivers Commission 2001). The management objective should be to take all reasonable measures to retain the wetland's hydrological function (EPA 2008), but is not incompatible with clearing.

Approximately 65 metres to the east of the application area, but within the Carey Baptist College Forresdale Campus land holding (Lot 2 on Diagram 75868), is the 7.6 hectare Forresdale Sumpland (ID 15820) with an associated management category of 'Resource Enhancement'. The Water and Rivers Commission (2001) consider Resource Enhancement category wetlands to be priority wetlands which may have been partially modified, but still retain substantial ecological attributes and functions. This wetland is part of an extensive sumpland adjacent to, but outside the boundary of the Forresdale Lake RAMSAR site and retains vegetation structure and hydrological function of a functioning wetland ecosystem (DEC 2012b). Approximately 208 metres to the east of the application area, and immediately adjacent to the Carey Baptist College Forresdale Campus land holding and contiguous with the above, is the 81.8 hectare Forresdale Sumpland (ID 7233), with an associated management category of 'Conservation'.

The 0.141 hectare western portion of the application area mapped as Multiple Use wetland incorporates: 0.095 hectares of Vegetation Type 'Mr' (*Melaleuca raphiophylla* low forest) in Good condition; 0.043 hectares of Vegetation Type 'Ec' (Dense tall grasses) in Completely Degraded condition; and 0.002 hectares of Vegetation Type 'Ba' (banksia low woodland) in Completely Degraded condition. This wetland is seasonally dry through the summer and damp in winter (Coterra 2019b), however Bennett (2011) recorded standing water present in the *Melaleuca raphiophylla* low forest wetland ('Mr' Vegetation type) during the month of October.

A recognised wetland and riparian vegetation in Good condition occurs over the application area. The proposed clearing is at variance with this principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance with this principle.

Soils over the vast majority of the application area, that is apart from a narrow section on the west, consists of type 212Bs Bassendean B1 Phase (DPIRD 2017; Schoknecht et al. 2004). The small area over the western section of the application area, consistent with a Multiple Use Wetland and Vegetation type 'Mr', consists of 212Bs Bassendean B4 Phase (DPIRD 2017; Schoknecht et al., 2004).

Soils within the majority Bassendean B1 phase are mapped as having a moderate to low acid sulfate soil (ASS) risk. Soils within the western area of Bassendean B4 are mapped as having a high to moderate ASS risk.

Groundwater salinity over the application area is mapped as having Total Dissolved Solids (TDS) at less than 500 milligrams per litre (mg/L). This level of groundwater salinity is considered to be marginal.

Wind erosion over the majority Bassendean B1 phase is rated high with more than 70 per cent of the mapped H2 unit having a high to extreme hazard. The western area of Bassendean B4 soils is rated at a lower risk with 10 to 30 per cent of the mapped M1 unit having a high to extreme hazard.

Water erosion risk is low over the application area with less than three per cent of the mapped L1 unit having a high to extreme water erosion risk

Over the majority Bassendean B1 phase area water-logging risk is low at three to 10 per cent of the mapped L2 unit having a moderate to very high water-logging risk. However, in the Bassendean B4 western section greater than 70 per cent of the mapped H2 unit has a moderate to very high water-logging risk

The western end of the application area lies within a Multiple Use Wetland and the application area is the vicinity of a Resource Enhancement Wetland. The proposed clearing of vegetation within the wetland areas may increase water-logging. Although water-logging may occur it can be managed through appropriate design and is not likely to cause appreciable land degradation. The majority of the application area consists of dunal sands associated with the Bassendean B1 phase soil type that is at risk of wind erosion. The proposed clearing of vegetation within this area may lead to wind erosion. Although wind erosion may occur it can be managed through standard staged construction techniques, and commencing construction within two months of clearing, and is not likely to cause appreciable land degradation. Proposed clearing is not likely to be at variance with this principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing may be at variance with this principle.

The entire application area is located within an Environmentally Sensitive Area (ESA) (ID 1900) associated with surrounding wetlands.

Twenty reserves vested in the Conservation Commission, and managed by DBCA for conservation purposes under section 8a of the *Conservation and Land Management Act 1984*, occur within 10 kilometres of the application area, as well as 40 Bushforever sites, 20 nominated areas for Bushforever, and 38 DBCA Land for Wildlife sites.

The land parcel within which the application area is located (Lot 2 on Diagram 75868) is surrounded by DBCA managed lands to the south and east, associated with the Jandakot Regional Park and the values of the Gibbs Road Swamp System. These lands managed for conservation occur within 66 metres to the south of the application area, and 300 metres to the west of the application area.

The 662 hectare Bushforever Site 344 (Government of Western Australia 2000b) is broadly consistent with the DBCA managed lands described above in association with the Jandakot Regional Park, within 66 metres of the application area. An additional Bushforever site, the 344.5 hectare Site 345 - Forrestdale Lake and Adjacent Bushland, is not associated with DBCA managed lands, and is located approximately 560 metres to the east of the application area.

The proposed clearing forms a component of the Carey Baptist College Forrestdale Campus Concept Master Plan, and the applicant is not proposing to clear within 50 metres of the Jandakot Regional Park Bush Forever site 344. Nevertheless, given the results of dieback interpretation and mapping undertaken over the site it is possible that the proposed clearing may indirectly impact on the conservation values of the Jandakot Regional Park due to the potential spread of dieback and/or weeds. Proposed clearing may be at variance with this principle. Weed and dieback management techniques will mitigate impacts to nearby conservation reserves.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance with this principle.

No *Rights in Water and Irrigation Act 1914* (RIWI Act) rivers, surface water areas, or irrigation districts occur within the vicinity of the application area.

The application area is located within the proclaimed RIWI Act Jandakot Groundwater Area. The Jandakot Mound Groundwater Resources is also a Ministerial Boundary in respect to the management and abstraction of groundwater from the Jandakot Mound with provision for environmental water requirements (Ministerial Statement No. 688: Jandakot Mound Groundwater Resources (Government of Western Australia 2005)). The application area, however, is not located within any Public Drinking Water Source Areas, with the nearest located 925 metres to the west. That is, the Jandakot Underground Water Pollution Control Area.

The groundwater level over the location is approximately one to five metres below ground level (BGL) (Coterra 2019b). Groundwater flow is easterly toward Forrestdale Lake located approximately 880 metres to the east of the application area (Coterra 2019b). Groundwater salinity over the application area is mapped at recording Total Dissolved Solids (TDS) at less than 500 milligrams per litre (mg/L). This level of groundwater salinity is considered to be marginal. Furthermore, less than three per cent of the mapped L1 unit over the application area has a moderate or high hazard or is presently saline. The clearing of 1.21 hectares is not considered likely to have a significant impact on the quality of groundwater in the local area.

0.141 hectares of a Multiple Use Wetland occurs over the western side of the application area and a Resource Enhancement Wetland occurs in proximity to the application area. These wetlands are seasonally dry through summer and damp (Coterra 2019b), or with shallow standing water only (Bennett 2011), in winter. The Multiple Use Wetland is generally in a degraded condition (DEC 2012a), and given there is no significant surface water flow from the application area, the proposed clearing is unlikely to impact surface water.

Given the size of the proposed clearing, the distance to the Resource Enhancement Wetland, and unlikely impacts to groundwater proposed clearing is not likely to cause deterioration in the quality of surface or underground water. Proposed clearing is not likely to be at variance with this principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance with this principle.

The application area is located within a low risk L1 area, whereby under three per cent of the mapped L1 unit has a moderate to high flood risk.

However, the western end of the application area lies within a Multiple Use Wetland. This area of Bassendean B4 soil type (DPIRD 2017; Schoknecht et al. 2004) has a higher water-logging risk, and therefore there is the potential for some short-term water-logging. This can be managed through appropriate design, and proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding and is therefore not likely to be at variance with this principle.

Planning instruments and other relevant matters.

The application was advertised on the DWER website for a 21 day public comment period on 22 January 2020. No public submissions were received in relation to this application.

The application area is zoned 'Rural' under the Metropolitan Region Scheme (MRS) and 'Rural Living' under the City of Armadale's Town Planning Scheme 4 (TPS4).

The application is to clear 1.21 hectares of native vegetation required to facilitate the initial components of the Stage 2 development of the Carey Baptist College Forrestdale Campus. In particular, for the construction of a STEAM centre (Science, Technology, Engineering, Arts and Mathematics), with associated car park and access road together with the associated Asset Protection Zones required under an approved Bushfire Management Plan.

A Development Application for the above was submitted to the City of Armadale on the 17 December 2019 (City of Armadale 2019) with development approval obtained in July 2020 (Coterra 2020a).

The entire development of the Carey Baptist College Forrestdale Campus was referred to the former Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (now under the Department of Agriculture, Water and the Environment) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in September 2012. SEWPaC advised that the project was 'Not a Controlled Action' (EPBC Ref: 2012/6561), and that development could proceed without further Federal assessment (Coterra 2014a). Consultation was undertaken by the applicant with the Department during 2017, following the Federal listing of the *Banksia Woodlands of the Swan Coastal Plain* Threatened Ecological Community (Endangered), to confirm the 'Not a Controlled Action' decision was still valid, and that no additional referrals are required. The Department confirmed that this was the case on 22 June 2017 (Coterra 2020b).

The application area is located within the boundaries of the Whadjuk People Indigenous Land Use Agreement. No Aboriginal sites of significance have been recorded within the application area. There are no registered heritage places over the application area. The nearest is Lake Forrestdale (ID 3713) approximately 900 metres to the east. An artefact / scatter site is also located 760 metres to the east. It is the applicant's responsibility to ensure compliance with any obligations under the *Aboriginal Heritage Act 1972*.

5. Applicant's submissions

On 13 July 2020 the applicant provided an offset proposal package for Stage 2 of the Carey Baptist College Forrestdale Campus (Coterra 2020c) that included a rehabilitation plan consistent with DWER guidance (Coterra 2020d).

6. Offsets considered after the assessment

Offset proposal

The assessment against the ten clearing principles has identified that the proposed clearing is at variance with principles (a), (b), and (f). Although Principle (e) was found to be at variance, an offset is not required as the threshold is reduced to a minimum of 10 per cent within the Metropolitan Regional Scheme. An offset is not required for principle (f), as the impacts to the riparian vegetation within the application area is not considered to be significant.

Bennett (2011) undertook a Level 2 flora and vegetation survey incorporating the application area and described and mapped the 'Ba' vegetation type consisting of:

- Low Woodland of *Banksia attenuata*, *Banksia menziesii*, *Nuytsia floribunda* and *Eucalyptus tottiana* over Heath dominated by *Acacia pulchella* var. *glaberrima* over Tall Grass dominated by **Ehrharta calycina*.

Approximately 0.97 hectares of this banksia low woodland was assessed to be in 'Good' to 'Very Good' condition (Bennett 2011) and constitutes quality foraging habitat (Commonwealth of Australia (2017) for Carnaby's Cockatoo (**Figure 3**) (Coterra 2019b). After consideration of the proposed avoidance and minimisation measures, it is considered that the proposed clearing will result in the following significant residual impact:

- Loss of up to 0.97 hectares of foraging habitat suitable for the Endangered Carnaby's Cockatoo.



Figure 3 – extent of the 'Ba' vegetation type over the application area

To counter balance the significant residual impact to Carnaby's Cockatoo foraging habitat, the applicant has submitted an offset proposal (Coterra 2020c) and a revegetation plan (Coterra 2020d) consistent with DWER's Guide to Preparing Revegetation Plans (DWER 2018) that involves the rehabilitation and revegetation, and long-term protection of 2.09 hectares of quality Carnaby's Cockatoo foraging habitat (Figure 4). The offset proposal includes:

- 1.22 hectares of Banksia woodland rehabilitated to 'Good to Very Good' condition;
- 0.30 hectares of Banksia woodland revegetated to 'Good to Very Good' condition; and
- 0.57 hectares of Mesic woodland revegetated to 'Good to Very Good' condition.

The resultant output will provide at least 2.09 hectares of Carnaby's Cockatoo foraging habitat, at a vegetation condition of Good to Very Good, and quality foraging habitat equal to or exceeding the existing 'Ba' vegetation type. The 2.09 hectares of Carnaby's Cockatoo foraging habitat will be fenced and protected within the Carey Baptist College Forrestdale Campus land holding (Lot 2 on Diagram 75868) and managed in perpetuity as Carnaby's Cockatoo foraging habitat via a conservation covenant placed on the property title under section 30B of the *Soil and Land Conservation Act 1945*.

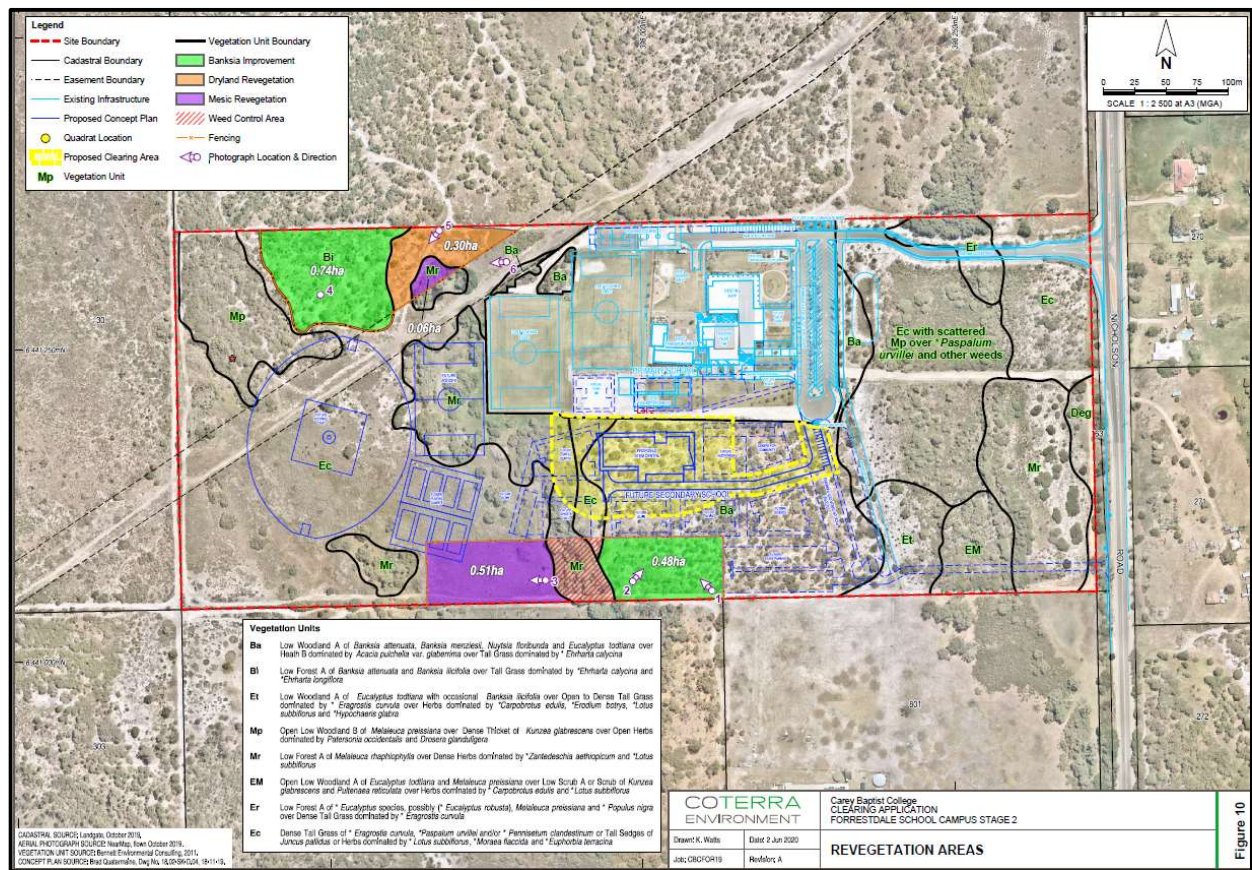


Figure 4 – Location of offset sites (Coterra 2020d)

Offset suitability

In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values being impacted, DWER undertook a calculation using the Department of Agriculture, Water and the Environment (DAWE) Offsets Assessment Guide ‘calculator’ (Table 3).

Table 3: DAWE Offsets Assessment Guide Calculator summary results

Category	Description	Area (ha)	Start Quality	Completion quality	Percentage contribution
Rehabilitation	Banksia Woodland	1.22	4	5	45.2 %
Revegetation	Degraded areas - Dryland	0.30	1	5	54.8 %
Revegetation	Degraded areas - Mesic	0.57	1	5	
TOTAL		2.09		5	100 %

The calculator indicated that rehabilitating 1.22 hectares of Banksia woodland from condition 4 to 5 and protecting it in perpetuity contributed to a 45.2 per cent counterbalance to the residual impact. Revegetating 0.87 hectares of currently degraded land to condition 5 and protecting it in perpetuity contributed to a 54.8 per cent counterbalance to the residual impact. The project in total is adequate to counterbalance the significant residual impact upon 0.97 hectares of Carnaby’s Cockatoo foraging habitat from the proposed clearing. This is consistent with the WA Environmental Offsets Policy September 2011 (Government of Western Australia 2011). In addition, the proposed offsets are consistent with the WA Environmental Offsets Guidelines September 2014 (Government of Western Australia 2014) by enhancing ecological linkages between conservation areas, as the offsets site is adjacent to Jandakot Regional Park and Bush Forever Site 344 to the south.

Further to the above, the applicant will fence the offset sites to reduce the impact of trespass and associated degradation (Figure 5). This approach will protect the offset sites from immediate impacts. Offset areas will be managed in perpetuity as Carnaby’s Cockatoo foraging habitat, and the applicant will place a conservation covenant on the property title under section 30B of the *Soil and Land Conservation Act 1945*.

Principle 1 of the WA Environmental Offsets Policy outlines that environmental offsets will only be considered after avoidance and mitigation options have been pursued. The WA Environmental Offsets Guidelines outline a four step mitigation hierarchy; avoid, minimise, rehabilitate and offset. The mitigation measures within Section 3, are deemed to be adequate in addressing this requirement. Although not forming part of the offset, the initial 2014 Stage 1 development of the Carey Baptist College development incorporated a Revegetation Plan (Coterra 2014a; Coterra 2014b) that included the revegetation of a fenced 5.4

hectare area over the eastern end of the site incorporating a Resource Enhancement Wetland. Coterra (2019a) report that completion criteria associated with the Stage 1B revegetation area (2.9 hectares), commenced in 2015, were met during the spring 2018 and autumn 2019 monitoring periods (Tranen 2019). The smaller Stage 1A (Drainage Basin) revegetation was commenced in 2017 and is ongoing, with a focus on weed control to allow the established plants to further expand their current 85 percent cover (Coterra 2019a).



Figure 5: Stage 1 revegetation areas and fencing (Coterra 2020d)

The initial Stage 2 development of the Carey Baptist College considered here will expand the current revegetation program at Carey Baptist College and incorporate new areas within a Banksia Low Forest to be rehabilitated, as well as a Multiple Use Wetland, and incorporate targeted locally-provenanced species utilising methodologies consistent with Department of Water and Environmental Regulation guidance on revegetation plans (DWER 2018). Completion criteria (Coterra 2020d) are consistent with DWER (2018) and will ensure the core objective is attained. That is, at least 2.09 hectares of Carnaby's Cockatoo foraging habitat, at a vegetation condition of Good to Very Good, and quality Carnaby's Cockatoo foraging habitat equal to or exceeding the existing 'Ba' vegetation type.

Utilizing results of the DAWE offsets calculator, the Delegated Officer determined that the rehabilitation and revegetation of 2.09 hectares of quality Carnaby's foraging habitat (Commonwealth of Australia 2017) is required to counterbalance the loss of 0.97 hectares of the banksia low woodland. Justifications used for values in the offsets calculator can be found in Appendices A and B. The proposed offset is considered suitable due to:

- The offset site providing foraging habitat on the Swan Coastal Plain within foraging distance of known Carnaby's Cockatoo roost sites. Food resources within the range of these roost sites are important to sustain Carnaby's Cockatoo populations during the non-breeding season.
- The 2.09 hectare offset site being located within the local area and within the Carey Baptist College Forrestdale Campus land holding (Lot 2 on Diagram 75868) that can be managed as a component of the greater Carey Baptist College Forrestdale Campus revegetation strategy. This incorporates a current fenced and protected 5.4 hectare area within the school grounds as an element of the Carey Baptist College Masterplan (Coterra 2020d).
- The applicant having a track record of previous successful revegetation at the site, including revegetation with species palatable to Carnaby's Cockatoo (Coterra 2014b; Coterra 2019a) (Figure 5).
- The offset site being located adjacent to Jandakot Regional Park and Bush Forever Site 344 and thereby enhancing and protecting an ecological linkage to the south.
- Long term protection of foraging habitat that will be fenced and managed in perpetuity as Carnaby's Cockatoo foraging habitat via a conservation covenant placed on the property title under section 30B of the *Soil and Land Conservation Act 1945*.
- Passive surveillance of the rehabilitated and revegetation areas that can be undertaken by maintenance staff at Carey Baptist College, as well as students and teachers utilising adjacent college facilities.

Ongoing management and maintenance of both the 2.09 offset site, as well as the 5.4 hectare revegetated protected area, within the Carey Baptist College Forrestdale Campus grounds will include, but is not limited to:

- Boundary fencing installation and fence maintenance;
- Ongoing twice annual (spring and autumn) weed control for three years, or until performance criteria have been achieved;
- Ongoing twice annual (spring and autumn) vegetation condition and weed mapping surveys for three years, or until performance criteria have been achieved;
- Planting utilising seed collected from the site, as well as purchased locally-provenanced tubestock if additional species or volumes are required; and
- Annual reporting.

Contingency actions and remedial works will include (Coterra 2020d):

- Additional revegetation works to increase plant densities and targeted species representation;
- Weed management;
- Rubbish removal;
- Pest fauna control; and

- Continuing/maintaining plant protection measures (e.g. tree guards) and removal when no longer required.

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8. GIS Datasets

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)

- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

Appendix A: Justification of values used in the EPCB offsets calculator (Revegetation)

Field Name	Description	Justification for value used (Revegetation)
<i>IUCN Criteria</i>	The IUCN criteria for the value being impacted	The annual probability of extinction has been set at (1.2%) based on Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>) being listed as Endangered under IUCN categories, Endangered under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> , and <i>Biodiversity Conservation Act 2016</i> .
<i>Area of impact (habitat/community) or Quantum of impact (features/individuals)</i>	The area of habitat/community impacted or number of features/individuals impacted	(0.97) hectares has been assigned based on the proposed clearing resulting in the loss of 0.97 hectares of foraging habitat incorporating Banksia Woodland beneficial to the Endangered Carnaby's Cockatoo.
<i>Quality of impacted area (habitat/community)</i>	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability.	A quality score of (5) has been assigned based on the vegetation condition of Banksia Woodland being assessed as Good to Very Good by a flora and vegetation survey undertaken by Bennett (2011), corresponding to Quality foraging habitat for Carnaby's Cockatoo (Commonwealth of Australia 2017), and assessed by Coterra (2019b) as Poor to Good quality.
<i>Time over which loss is averted (habitat/community)</i>	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	(20) years has been assigned based on the offset site being fenced, managed, and protected. Twenty years is the maximum value associated with this field.
<i>Time until ecological benefit (habitat/community) or Time horizon (features/individuals)</i>	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	(10) years has been assigned. Revegetation of Banksia Woodland producing fruiting propagules that provide foraging benefit to the Endangered Carnaby's Cockatoo are likely to appear within ten years in consideration of the flora species specifically selected to provide the benefit; including <i>Banksia attenuata</i> , <i>Banksia menziesii</i> and <i>Eucalyptus tottiana</i> , as well as <i>Banksia littoralis</i> and <i>Callistemon phoeniceus</i> in more mesic areas.
<i>Start area (habitat/community) or Start value (features/individuals)</i>	The area of habitat/community or number of features/individuals proposed to offset the impacts	(0.87) hectares has been assigned based on the potential revegetation offset covering 0.87 hectares of land and thereby providing 54.8% of the offset requirement. The 0.87 hectares incorporates 0.30 hectares of dryland vegetation and 0.57 hectares in more mesic areas.
<i>Start quality (habitat/community)</i>	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	A start quality score of (1) has been assigned based on the vegetation condition being assessed as Degraded to Completely Degraded by a flora and vegetation survey undertaken by Bennett (2011).
<i>Future quality without offset (habitat/community) or Future value without offset (features/individuals)</i>	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	A future quality without offset score of (0) has been assigned based on the relevant area degrading further to Completely Degraded without management intervention. This is due to the relevant area currently containing some elements of native vegetation that are likely to degrade further over time.
<i>Future quality with offset (habitat/community) or Future value with offset (features/individuals)</i>	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	A future quality with offset score of (5) has been assigned based on the likelihood of the offset area providing foraging habitat for Carnaby's Cockatoo comparable to, or better, than that being impacted. This is based upon revegetation focusing on Banksia Woodland species palatable to Carnaby's Cockatoo including <i>Banksia attenuata</i> , <i>Banksia menziesii</i> and <i>Eucalyptus tottiana</i> , as well as <i>Banksia littoralis</i> and <i>Callistemon phoeniceus</i> in more mesic areas. The applicant has a track record of previous successful revegetation at the site, including revegetation with species palatable to Carnaby's Cockatoo (Coterra 2014b; Coterra 2019a).

Field Name	Description	Justification for value used (Revegetation)
<i>Risk of loss (%) without offset (habitat/community)</i>	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	A risk of loss percentage of (40%) has been assigned based upon vegetation in the region being subject to continuing land degradation pressures including unauthorised access, weed invasion, dieback disease (<i>Phytopthera</i> sp), and frequent fire.
<i>Risk of loss (%) with offset (habitat/community)</i>	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	A risk of loss percentage of (10%) has been assigned based upon the risk reduction of a managed site that includes fencing, revegetating, weed control, dieback control, installation of firebreaks, and monitoring. This includes management in perpetuity as Carnaby's Cockatoo foraging habitat via a conservation covenant placed on the property title under section 30B of the <i>Soil and Land Conservation Act 1945</i> .
<i>Confidence in result (%) – risk of loss (habitat/community)</i>	The capacity of measures to mitigate risk of loss of the proposed offset site	A confidence in result percentage of (80%) for the risk of loss has been assigned as there is a high level of confidence that proven management strategies undertaken at Carey Baptist College will mitigate the risk of loss.
<i>Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)</i>	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	A confidence in result percentage of (80%) for the change in quality has been assigned as there is a high level of confidence that the proven revegetation strategies will result in providing foraging habitat for Carnaby's Cockatoo based upon the applicant's track record of previous successful revegetation at Carey Baptist College (Coterra 2014a; Coterra 2019b). Species for revegetation will include species known to be favoured including <i>Banksia attenuata</i> , <i>Banksia menziesii</i> and <i>Eucalyptus todtiana</i> , as well as <i>Banksia littoralis</i> and <i>Callistemon phoeniceus</i> in more mesic areas.
<i>% of impact offset</i>	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	A percentage of impact offset of (54.8%) has been assigned based upon the revegetation component being one of a two part solution providing strategies to offset the loss of 0.97 hectares of foraging habitat for Carnaby's Cockatoo. A separate rehabilitation component will provide for the rehabilitation of 1.22 hectares of Banksia Woodland vegetation to provide an additional 45.2% of impact offset equating to 100% in total.

Appendix B: Justification of values used in the EPCB offsets calculator (Rehabilitation)

Field Name	Description	Justification for value used (Rehabilitation)
<i>IUCN Criteria</i>	The IUCN criteria for the value being impacted	The annual probability of extinction has been set at (1.2%) based on Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>) being listed as Endangered under IUCN categories, Endangered under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> , and <i>Biodiversity Conservation Act 2016</i> .
<i>Area of impact (habitat/community) or Quantum of impact (features/individuals)</i>	The area of habitat/community impacted or number of features/individuals impacted	(0.97) hectares has been assigned based on the proposed clearing resulting in the loss of 0.97 hectares of foraging habitat incorporating Banksia Woodland beneficial to the Endangered Carnaby's Cockatoo.
<i>Quality of impacted area (habitat/community)</i>	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability.	A quality score of (5) has been assigned based on the vegetation condition of Banksia Woodland being assessed as Good to Very Good by a flora and vegetation survey undertaken by Bennett (2011), corresponding to Quality foraging habitat for Carnaby's Cockatoo (Commonwealth of Australia 2017), and assessed by Coterra (2019b) as Poor to Good quality.
<i>Time over which loss is averted (habitat/community)</i>	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	(20) years has been assigned based on the offset site being fenced, managed, and protected. Twenty years is the maximum value associated with this field.
<i>Time until ecological benefit (habitat/community) or Time horizon (features/individuals)</i>	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	(10) years has been assigned. Rehabilitation strategies of infill planting with appropriate species, weed control, dieback mitigation, fencing and firebreak installation are likely to increase fruiting propagule productivity, thereby providing foraging benefit to the Endangered Carnaby's Cockatoo, and improved condition of the Banksia Woodland, within ten years of commencement. This is in consideration of the flora species specifically selected to provide the benefit; including <i>Banksia attenuata</i> , <i>Banksia menziesii</i> , and <i>Eucalyptus todiana</i> and the management intervention to improve vegetation condition.
<i>Start area (habitat/community) or Start value (features/individuals)</i>	The area of habitat/community or number of features/individuals proposed to offset the impacts	(1.22) hectares has been assigned based on the rehabilitation offset covering 1.2 hectares of land and thereby providing 45.2% of the offset requirement.
<i>Start quality (habitat/community)</i>	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	A start quality score of (4) has been assigned based on the Banksia Woodland vegetation condition being assessed as Good by a flora and vegetation survey undertaken by Bennett (2011).
<i>Future quality without offset (habitat/community) or Future value without offset (features/individuals)</i>	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	A future quality without offset score of (3) has been assigned based on the relevant Banksia Woodland area degrading further without management intervention. This is due to the relevant area of native vegetation currently being subjected to impacts such as weed invasion, dieback, frequent fire, and unauthorised access and likely to degrade further over time.
<i>Future quality with offset (habitat/community) or Future value with offset (features/individuals)</i>	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	A future quality with offset score of (5) has been assigned based on the likelihood of the offset area providing foraging habitat for Carnaby's Cockatoo better than that being impacted. This is based upon rehabilitation focusing on species palatable to Carnaby's Cockatoo and the reduction of threatening processes to improve vegetation condition of the Banksia Woodland. Strategies will include fencing, infill planting with appropriate species, weed control, dieback mitigation, firebreak installation and monitoring. The applicant has a track record of previous successful rehabilitation at the site, including revegetation

Field Name	Description	Justification for value used (Rehabilitation)
		with species palatable to Carnaby's Cockatoo (Coterra 2014a; Coterra 2019b).
<i>Risk of loss (%) without offset (habitat/community)</i>	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	A risk of loss percentage of (40%) has been assigned based upon vegetation in the region being subject to continuing land degradation pressures including unauthorised access, weed invasion, dieback disease (<i>Phytophthora</i> sp), and frequent fire.
<i>Risk of loss (%) with offset (habitat/community)</i>	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	A risk of loss percentage of (10%) has been assigned based upon the risk reduction of a managed site that includes fencing, revegetating, weed control, dieback control, installation of firebreaks, and monitoring. This includes management in perpetuity as Carnaby's Cockatoo foraging habitat via a conservation covenant placed on the property title under section 30B of the <i>Soil and Land Conservation Act 1945</i> .
<i>Confidence in result (%) – risk of loss (habitat/community)</i>	The capacity of measures to mitigate risk of loss of the proposed offset site	A confidence in result percentage of (80%) for the risk of loss has been assigned as there is a high level of confidence that proven management strategies undertaken at Carey Baptist College will mitigate the risk of loss.
<i>Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)</i>	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	A confidence in result percentage of (80%) for the change in quality has been assigned as there is a high level of confidence that the proven rehabilitation strategies will result in providing improved foraging habitat for Carnaby's Cockatoo and increased condition of the Banksia Woodland based upon the applicant's track record of previous successful revegetation at the site (Coterra 2014b; Coterra 2019a).
<i>% of impact offset</i>	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	A percentage of impact offset of (45.2%) has been assigned based upon this rehabilitation component being one of a two-part solution providing strategies to offset the loss of 0.97 hectares of foraging habitat for Carnaby's Cockatoo. A separate revegetation component will provide for the revegetation of 0.87 hectares of native vegetation incorporating Banksia Woodland, to provide an additional 54.8% of impact offset equating to 100% in total.