

3 October 2019

Our ref: 14209 Roseville College BDAR Waiver

Roseville College
C/- EMP Projects Pty Ltd
Level 2, 146 Arthur St
North Sydney NSW 2060

Attention: Matthew Alder

Dear Matthew,

Roseville College Ecological Constraints Assessment and Biodiversity Development Assessment Report Waiver

Eco Logical Australia Pty Ltd (ELA) was commissioned by EPM Projects Pty Ltd (on behalf of Roseville College) to conduct an ecological constraints assessment for a proposed development site owned by Roseville College on Bancroft Avenue, Roseville (**Figure 1**).

The proposed development will be assessed as State Significant Development (SSD-9912) by the Department of Planning, Industry and Environment. The Secretary's Environmental Assessment Requirements (SEARs) dated 21st March 2019 stated that a Biodiversity Development Assessment Report (BDAR) may be required. It is understood that the client intends to submit a waiver for the BDAR.

ELA conducted an ecological constraints assessment to determine potential and known constraints within the development site.

The proposed development includes the construction of a new Sport and Wellbeing Centre. The Centre will include a car park, 25m swimming pool, rooftop sports courts, learning spaces, staff areas, gym, amenities and landscaping. The works will involve the demolition of a large detached house, tennis courts and small swimming pool and the removal of planted exotic and native vegetation. Field surveys identified that no remnant vegetation was present within the development site. Additionally, there were no additional biodiversity values identified, however, there is potential that the planted vegetation recorded may provide potential marginal foraging habitat for one threatened fauna species, *Pteropus poliocephalus* (Grey-headed Flying-fox).

The detached house at 37 Bancroft Avenue, Roseville to be demolished was initially considered to provide potential roosting habitat for microbats. Following additional survey for threatened microbat species, it was concluded that the detached house is unlikely to represent a significant roost site for any threatened species of microbat (**Appendix A**).

To waive the requirements for a BDAR, it must be demonstrated that the site does not contain biodiversity values in accordance with Clause 1.5 of the *Biodiversity Conservation Act 2016* and Clause 1.4 of the *Biodiversity Conservation Regulation 2017*. The requirements for a BDAR waiver been addressed in **Appendix B**. It was determined that the proposed development is not likely to have any significant impact on biodiversity values, as such, a BDAR would not be required.

Regards,

A handwritten signature in black ink, appearing to read 'Toni Frecker'.

Toni Frecker
Senior Ecologist

1. Introduction

Roseville College proposes to develop a site within the school grounds for the construction of a new Sports and Wellbeing Centre. This proposed development is within Ku-ring-gai Council local government area (LGA). The development site (**Figure 1**), described as the study area within this report, is located on Bancroft Avenue Roseville and is bordered by school, residential and recreational areas. The study area includes a portion of 27 – 29 Bancroft Avenue and 37 Bancroft Avenue, Roseville and covers an area of 0.4 ha.

2. Methods

2.1 Literature and database search

Prior to the field survey, ELA conducted a database assessment of the study area using relevant vegetation, database and aerial photography interpretation. This assessment included:

- The Native Vegetation of the Sydney Metropolitan Area Mapping (OEH 2016)
- NSW BioNet / Atlas of NSW Wildlife database search (5 km)
- NSW Government Biodiversity Values Map
- BioNet Vegetation Classification
- Local government planning instruments – Ku-ring-gai LEP and DCP.

2.2 Field Survey

The field survey was conducted over two hours by ELA senior ecologist Toni Frecker on 13 September 2019. The aim of the field survey was to validate any vegetation communities identified within the study area, record any habitat features for threatened and non-threatened flora and fauna, and identify any other potential ecological constraints.

An assessment of microbat habitat was carried out over two evenings by ELA ecologists, Kirsten Velthuis and Toni Frecker, on 23rd September and 24th September at 37 Bancroft Avenue Roseville. Two Anabat recorders were held in the hand opposite two potential microbat roost entrances during a dusk emergence survey. The survey duration was 1.5 hours per Anabat per night, starting at 30 minutes before sunset and finishing 1 hour after sunset each night.

3. Results

3.1 Literature review

The study area is currently zoned as SP2 (Infrastructure) and R2 (Low Density Residential), under the Ku-ring-gai Local Environmental Plan 2015 (LEP). A desktop assessment undertaken on 15 September 2019, identified that the study area (portion of 27 – 29 Bancroft Avenue and 37 Bancroft Avenue) did not contain any areas identified on the Biodiversity Values Map. Additionally, the study area does not contain any areas identified as Biodiversity under the Ku-ring-gai Local Environment Plan 2015.

There are no BioNet records of threatened flora and fauna species previously recorded within the study area. A total of 35 threatened flora species and 38 threatened fauna species listed under *Biodiversity Conservation Act 2016* were previously recorded within a five km radius of the study area.

There are also no riparian corridors within the study area.

Previous vegetation mapping by Office of Environment and Heritage (2016) has identified the vegetation within the study area as “Urban exotic /native”.

3.2 Field survey

3.2.1 Vegetation communities

The field survey confirmed that the vegetation within the study area has been cleared of remnant vegetation and the original soil profile has been altered. The vegetation was confirmed to be Urban exotic/native comprising planted exotic and native landscape species (**Figure 2**).

The area of planted exotic/native landscaping vegetation to be impacted within the study area is 0.09 ha.

Mature trees to be cleared include a *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Cedrus deodara* (Himalayan Cedar), *Cupressus macrocarpa* (Monterey cypress), *Liquidambar styraciflua* (Liquidambar) and *Cinnamomum camphora* (Camphor laurel). No hollow bearing trees were identified within the study area.

One mature *Agathis robusta* (Queensland Kauri Pine) is to be retained within the study area.

Additional vegetation within the study area comprised planted gardens, including both small trees, shrubs and groundcovers. Species include both native and exotic plantings. The native species included species which are locally indigenous, however with historic soil disturbance and development, and their common occurrence as planted garden additions, these were not considered representative of remnant native vegetation communities. Such species were distributed across the study area, and included *Tristania laurina* (Water Gum), *Pittosporum undulatum* (Native Daphne), *Archontophoenix cunninghamiana* (Bangalow Palm) and *Livistona australis* (Cabbage Fan Palm).

Exotic species recorded include *Olea europaea* subsp. *cuspidata* (African Olive), *Camellia* spp., *Prunus serratifolia* (Japanese Flowering Cherry), *Cestrum parqui* (Green Cestrum), *Murraya paniculata* (Murraya), *Jacaranda mimosifolia* (Jacaranda), *Michelia figo* (Port Wine Magnolia), *Agapanthus* and *Jasminum polyanthum* (Star Jasmine).

3.2.2 Threatened species

No threatened flora and fauna species were identified during the field survey or microbat assessment.

Additionally, no habitat was identified for threatened flora species within the study area.

Limited marginal foraging resources were considered to be present within the study area for the highly mobile species *Pteropus poliocephalus* (Grey-headed Flying-fox).



Figure 1: Location of study area.

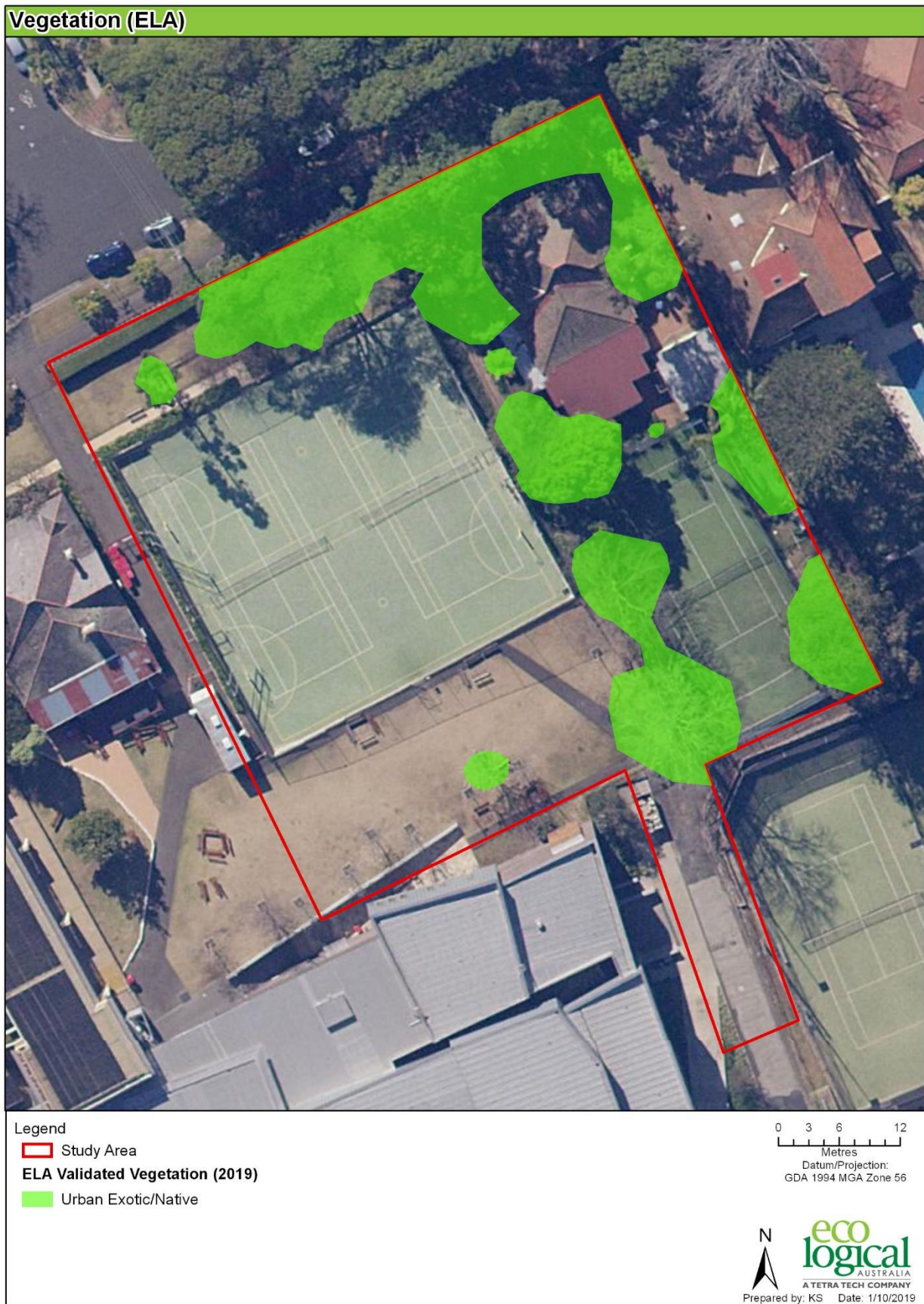


Figure 2: Vegetation with the study area.

4. Impacts

As discussed, the proposal involves the demolition of one building and clearing of *Urban exotic/native* vegetation within the grounds of Roseville College in Ku-ring-gai LGA.

Two native trees, *Melaleuca quinquenervia* and *Tristaniopsis laurina* which do not form part of a remnant vegetation community, are proposed for removal along with other planted exotic and native species.

It is also considered unlikely that the study area provides any habitat for threatened fauna species other than limited foraging resources for the highly mobile Grey-headed Flying-fox. This is considered to be negligible on a local scale and would not result in a long-term decline of any threatened species.

The removal of vegetation from the study area would not result in a significant impact on any threatened species or ecological community under the *Biodiversity Conservation Act 2016* or *Environment Protection and Biodiversity Conservation Act 1999*.



Figure 3: Study area photos

Appendix A Ultrasonic Analysis Report

1. Project background

Eco Logical Australia (ELA) were engaged by EPM projects to undertake a microbat assessment as part of a SSD application at Roseville College to construct a new sports and wellness centre across the current campus at Roseville, Sydney. Development of the sports and wellness centre involves demolition of Roseville Cottage, a residential dwelling that is currently occupied. Roseville Cottage contains potential microbat roosting habitat in the form of small entrances into voids within the wall and roof cavities. Roseville Cottage is surrounded by residential areas.

2. Methods

Two Anabat recorders were held in the hand by two ecologists standing opposite two potential microbat roost entrances during a dusk emergence survey conducted outside Roseville Cottage, on Bancroft Ave in Roseville, Sydney on 23rd September and repeated on 24th September 2019. The survey duration was 1.5 hours per Anabat per night, starting at 30 minutes before sunset and finishing 1 hour after sunset each night.

The potential microbat roost entrances consisted of an opening into the underfloor cavity of the Cottage adjacent to the driveway on the eastern side of the house. The entrance to this cavity comprised multiple small gaps (between 30 mm X 30 mm and 30 mm X 150 mm) between loose sections of sandstone blockwork that had been removed and partially replaced. All entrances were within 700 mm of ground level.

The second potential microbat roost entrance was located above an external doorway on the south-western side of the Cottage. The gap formed between the doorframe and lintel and consisted of a longitudinal slot of approximately 20 mm X 1500 mm, at a height of approximately 2200 mm.

The grounds of Roseville Cottage contain landscaped gardens comprising species such as *Chamaecyparis lawsoniana*, *Melaleuca quinquenervia* and *Jacaranda mimosifolia*, as well as shrubs and small trees including *Camellia sasanqua*, *Murraya paniculata*, *Michelia figo*, *Pittosporum undulatum*, and *Callistemon citrinus*. The nearest patch of native vegetation is approximately 600 m to the west in Lane Cove National Park.

3. Data Analysis

Bat calls were analysed by Alicia Scanlon using the program AnalookW (Version 4.2n 16 March 2017, written by Chris Corben, www.hoarybat.com). Call identifications are made using regional based guides to the echolocation calls of microbats in New South Wales (Pennay et al 2004); and south-east Queensland and north-east New South Wales (Reinhold et al 2001) and the accompanying reference library of over 200 calls from Sydney Basin, NSW (which is available at

<http://www.forest.nsw.gov.au/research/bats/default.asp>). Alicia has over twelve years of experience in the identification of ultrasonic call recordings.

Bat calls are analysed using species-specific call profile parameters including call shape, characteristic frequency, initial slope and time between pulses (Reinhold et al. 2001). To ensure reliable and accurate results the following protocols (adapted from Lloyd et al 2006) are followed:

- Search phase calls are used in the analysis, rather than cruise phase calls or feeding buzzes (McKenzie et al 2002). Cruise phase or feeding calls are labelled as being unidentifiable.
- Recorded calls containing less than three pulses are not analysed and these sequences are labelled as unidentifiable, being too short to confidently determine the identity of the species making the call (Law et al 1999).
- For those calls that are useful to identify the species making the call, two categories of confidence are used (Mills et al 1996):
 - Definitely present – the quality and structure of the call profile is such that the identity of the bat species making the calls is not in doubt
 - Potentially present – the quality and structure of the call profile is such that there is some / low probability of confusion with species that produce similar calls profiles.
- Calls made by bats which cannot be used for identification purposes such as social calls, short and low-quality calls, cruise and approach phase calls are labelled as unidentifiable.
- Sequences labelled as unidentifiable are of inferior quality and therefore not able to be identified to any microbat species, they can however be used as an indicator of microbat activity at the site.
- *Nyctophilus* spp. (Long-eared bats) are difficult to identify confidently from their calls and no attempt is made to identify this genus to species level (Pennay et al 2004).
- The Free-tailed Bats (previously referred to as the genus *Mormopterus*) have recently undergone taxonomic revision (Reardon et al 2014) and published reference calls for this group of species (Pennay et al 2004) are believed to contain errors (Greg Ford pers comm.). This report uses nomenclature for Free-tailed bat species as referred to in Jackson and Groves (2015). The correlation between nomenclature used in this report and that used in NSW State legislation is presented in **Table 1** below.
- Sequences not attributed to microbat echolocation calls (e.g. insect buzzes, wind, train and vehicle movement) were dismissed from the analysis.

Table 1: Correlations between current and previous nomenclature for the Free-tailed bats of NSW

Jackson and Groves 2015	Previously known as	Common Name	BC Act
<i>Austronomus australis</i>	<i>Tadarida australis</i>	White-striped Free-tailed Bat	
<i>Micronomus norfolkensis</i>	<i>Mormopterus norfolkensis</i>	Eastern Coastal Free-tailed Bat	Vulnerable
<i>Ozimops petersi</i>	<i>Mormopterus</i> species 3 (small penis)	Inland Free-tailed Bat	
<i>Ozimops planiceps</i>	<i>Mormopterus</i> species 4 (long penis eastern form)	Southern Free-tailed Bat	
<i>Ozimops ridei</i>	<i>Mormopterus</i> species 2	Ride's Free-tailed Bat	
<i>Setirostris eleryi</i>	<i>Mormopterus</i> species 6	Bristle-faced Free-tailed Bat	Endangered

4. Results

There were no identifiable microbat call sequences recorded during this survey from either Anabat detector on either night of survey. Weather conditions during surveys were considered to be optimal for microbat activity with minimum temperatures of 14 degrees on 23rd September 2019 and 13.8 degrees on 24th September 2019 with low to moderate winds both evenings. It was reported that no microbats were observed exiting the building nor were any observed flying overhead during emergence surveys.

5. Conclusions

Roseville Cottage is unlikely to represent a significant roost site for any threatened species of microbat for several reasons:

- there were no microbats observed exiting either of the two potential roost spaces on either of two consecutive surveys evenings under optimal survey conditions for microbat activity
- there was no microbat activity at the site recorded ultrasonically over two consecutive emergence surveys for a total of 6 Anabat hours
- there was no evidence of sustained microbat occupation at either of the two potential roost entrances in the form of guano or staining and there were cobwebs present across parts of the entrance to the cavity above the doorway indicating a lack of use by microbats
- Roseville Cottage is currently occupied with no reports of microbat activity within the wall or roof cavities
- the site is surrounded by high density residential dwellings and is unlikely to support a significant threatened microbat roost
- one of the potential roost space entrances was located within 700 mm of ground level which exposes it to significant predation risks.

6. References

Jackson, C. and Groves, S. (2015) *Taxonomy of Australian Mammals*. CSIRO Publishing.

Law, B. S., Anderson, J., and Chidel, M. (1999). *Bat communities in a fragmented forest landscape on the south-west slopes of New South Wales, Australia*. Biological Conservation 88, 333-345.

Lloyd, A.M., Law, B.S., and Goldingay, R. (2006) *Bat activity on riparian zones and upper slopes in Australian timber production forests and the effectiveness of riparian buffers*. Biological Conservation 129, 207-220.

McKenzie, N. L., Start, A. N., and Bullen, R. D. (2002). *Foraging ecology and organisation of a desert bat fauna*. Australian Journal of Zoology 50, 529-548.

Mills, D. J., Norton, T. W., Parnaby, H. E., Cunningham, R. B., and Nix, H. A. (1996). *Designing surveys for microchiropteran bats in complex forest landscapes - a pilot study from south-east Australia*. Special issue: Conservation of biological diversity in temperate and boreal forest ecosystems 85, 149-161.

Pennay, M., Law, B., and Reinhold, L. (2004). *Bat calls of New South Wales: Region based guide to echolocation calls of Microchiropteran bats*. NSW Department of Environment and Conservation, Hurstville.

Reardon, T.B., McKenzie, N.L., Cooper, S.J.B., Appleton, B., Carthew, S. and Adams, M. 2014. *A molecular and morphological investigation of species boundaries and phylogenetic relationships in Australian free-tailed bats Mormopterus (Chiroptera: Molossidae)*. Australian Journal of Zoology 62: 109 – 136.

Reinhold, L., Law, B., Ford, G., and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. 2001. Queensland, DNR.

Appendix B : Application to waive assessment under the *Biodiversity Conservation Act* (BC Act)

In March 2019 the NSW Department of Planning, Industry and Environment issued SEARs for the proposed development at Roseville College in Bancroft Avenue Roseville. The SEARs outlined the requirement for assessment of the proposal under the *Biodiversity Conservation Act 2016* (BC Act). It is understood that the client intends to submit a request to waive the requirement for assessment under the BC Act. To waive the requirements, it must be demonstrated that the site does not contain biodiversity values in accordance with Clause 1.5 of the BC Act and Clause 1.4 of the *Biodiversity Conservation Regulation 2017*.

Legislation criteria	Discussion of values within study area
Biodiversity Conservation Act 2016 (Clause 1.5)	
<i>2 a) Vegetation integrity – being the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state;</i>	Vegetation within the study area is composed of mixed exotic and planted native vegetation. Exotic and native species have been planted within the study area as landscape specimens in an urban environment. Vegetation present within the study area is not consistent with any listed Plant Community Type (PCT). Overall, vegetation within the study area is highly modified and altered from its natural state. Given the highly modified nature of the study area, rehabilitation to its natural state would not be achievable.
<i>b) Habitat suitability – being the degree to which the habitat needs of threatened species are present at the particular site;</i>	Suitable habitat for threatened species is highly limited within the study area. No habitat is available for any threatened flora species. Marginal foraging habitat is available only for highly mobile fauna species such as <i>Pteropus poliocephalus</i> (Grey-headed Flying-fox). Considering the small amount of planted native vegetation present, the study area does not contain sufficient foraging resources to sustain any threatened fauna species. No nesting habitat is available within the study area for any threatened fauna species, and roosting habitat is considered unlikely to be present.
Biodiversity Conservation Regulation (Clause 1.4)	
<i>a) Threatened species abundance – being the occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site</i>	No threatened ecological communities were present within the study area. No habitat was available for threatened flora species due to the high level of modification of vegetation within the study area. No threatened fauna species were observed within the study area during the site survey. Marginal foraging habitat is available only for highly mobile fauna species such as Grey-headed Flying-fox. Considering the small amount of planted native vegetation present, the study area does not contain sufficient foraging resources to sustain any threatened fauna species. Roosting habitat is considered unlikely within the study area for any threatened fauna species.
<i>b) Vegetative abundance – being the occurrence and abundance of vegetation at a particular site;</i>	Vegetation within the study area was generally of low abundance. The majority of the study area was composed of a building, landscaped gardens and tennis courts which contained little to no native vegetation. The majority of vegetation within the study

Legislation criteria	Discussion of values within study area
	area was present surrounding the residential building and tennis courts and consisted of planted exotic and native species. Vegetation within the study area was not consistent with any remnant native vegetation communities and did not conform to any listed PCTs.
<i>c) Habitat connectivity – being the degree to which a particular site connects different areas of habitat of threatened species to facilitate movement of those species across their range;</i>	<p>Vegetation within the study area is part of a highly fragmented urbanised landscape. Limited connectivity exists between areas of vegetation within the study area and within the locality.</p> <p>The study area does not provide any significant level of connectivity to facilitate movement of threatened species across their range.</p>
<i>d) Threatened species movement – being the degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle;</i>	The study area contains limited vegetation which is fragmented by buildings, paths, recreational facilities, hard landscaped areas and fencing. Movement for less mobile threatened fauna such as mammals across the study area is highly unlikely due to fencing, cleared open areas and a lack of connective vegetation. Opportunities for movement across the study area for more mobile threatened fauna including birds and bats are available, however the study area is not considered to be significant for the movement of any threatened species to maintain their lifecycle.
<i>e) Flight path integrity – being the degree to which the flight paths of protected animals over a particular site are free from interference; and</i>	The landscape surrounding the site is highly urbanised. Given the lack of native vegetation within the study area, and the high level of urbanisation of the locality, it is unlikely that the study area would be a significantly important flight path for protected animals to travel between areas of habitat.
<i>f) Water sustainability – being the degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.</i>	No natural drainage lines run through the study area. Given the urbanised nature of the locality, drainage is managed through Ku-ring-gai Council's underground stormwater system, such that the study area does not contain or impact on water quality, water bodies or hydrological processes which might sustain threatened species or threatened ecological communities.