

19 August 2021

Our ref: 21SUT-19269

FDC Fitout & Refurbishment (NSW) Pty Ltd
22 -24 Junction Street,
Forest Lodge,
NSW 2037

Attention: George Karvountzis

Dear George,

Sydney Swans HQ Microbat Exclusion

Approval conditions of the State Significant Development Application (SSD-9726) require compensatory habitat installation and microbat exclusion for the Sydney Swans Headquarters redevelopment at Moore Park. A Microbat Management Plan (MMP) (ELA 2021) was prepared for APP on behalf of the Sydney Swans and approved by the Environment Energy and Science Group (EES) in the Department of Planning, Industry and Environment. The MMP identifies actions to avoid harm to any microbats that may be residing in the building.

Eco Logical Australia Pty Ltd (ELA) was engaged by FDC Fitout & Refurbishment to implement the MMP. This letter demonstrates how pre-construction mitigation and management measures have been implemented consistent with the approved MMP to meet SSDA conditions B2 and B3. The details of the installed compensatory habitat and completed exclusion are outlined below, with evidence provided in Figure 1 and 2.

Future actions to be undertaken as per the approved MMP include:

- Monitoring bat boxes and the roof cavity for five years for microbat usage post-installation and construction. This will be done by ELA.
- Maintaining permanent exclusions before and during construction to ensure they remain adequately attached. This will be done by FDC.

Please contact me on 0408917675 if additional information is required.



Julia Ryeland
Ecologist

SSD CONSENT CONDITIONS

The State Significant Development Application (SSD-9726) conditions B1-B3 are replicated below for reference. Condition B1 was completed by ELA for APP on behalf of the Sydney Swans, with EES approval provided by email on 9 August and by letter on 11 August 2021. This report summarises how condition B2 and B3 have been fulfilled, in line with the approved MMP.

B1. Prior to issue of any construction certificate the Applicant shall:

- a) Undertake surveys of potential microbat roosts with thermal imagers in association with acoustic detectors, for the Large Bent-winged Bat (*Miniopterus orianae oceanensis*), targeting the potential entry/exit points to the building, for multiple nights (5 nights minimum) in suitable weather conditions and at times of year most appropriate for this species. 'Suitable weather conditions' means conditions of no rain, little or no wind and when the maximum day time temperature has reached no less than 18 degrees Celsius on the afternoon preceding the survey. 'Most appropriate time of year' for the Large Bent-winged Bat in Sydney is from autumn through to early winter. A report of the surveys and results must be submitted to EES and City of Sydney Council's Urban Ecology Coordinator for endorsement.*
- b) If the surveys determine that any threatened microbat species roost, or are likely to roost in the RHI, identify avoidance measures including retention of identified or potential microbat roosting habitat. If this requirement can't be satisfied, the Applicant must demonstrate why this cannot be achieved to the satisfaction of the EES, and Council and purchase and retire biodiversity credits to offset the prescribed impacts, or other conservation measures, in consultation with the approval authority.*
- c) Prepare a Microbat Management Plan specifying mitigation measures to be taken prior to and during construction; adaptive measures; provision of compensatory habitat; consideration of lighting and vegetation and requirements for monitoring and reporting. The plan must be prepared by a fauna ecologist with specialist knowledge in nest boxes for microbats, in consultation with EES and the City of Sydney's Council's Urban Ecology Coordinator and the final version endorsed by EES and the City of Sydney.*

B2. All pre-construction mitigation and management measures in the approved Microbat Management Plan must be implemented prior to the issue of a Construction Certificate.

B3. The Applicant must provide evidence to the Certifying Authority that Conditions B1 and B2 of this consent have been complied with.

MMP ACTIONS

The key actions outlined in the MMP (page 13) include:

- Compensatory habitat creation: Microbat boxes will be installed prior to construction and the roof void within the RHI building will be retained to allow for suitable habitat for microbats post-construction.
- Exclusion: Exclusion of microbats from the RHI building will be conducted by a suitably qualified ecologist, with monitoring of exclusion devices occurring over multiple nights to ensure any exiting microbats relocate successfully. This will be conducted during non-breeding or maternity seasons or overwinter hibernation and extended torpor seasons for microbats.
- Construction monitoring and reporting: Environmental inductions to advise contractors of the biodiversity values present onsite, risks to human health and safeguards for dealing with unexpected finds.

COMPENSATORY HABITAT CREATION (MICROBAT BOXES)

ELA installed four nest boxes in trees in the Greater Sydney Parklands adjacent to the Royal Hall of Industries prior to microbat exclusion commencing. Boxes were installed by ELA ecologists Tim Finter and Dr Rodney Armistead. Two double chamber and two triple chamber boxes were installed, as per the specifications in the MMP. The boxes were installed under canopy to provide roosting microbats with adequate shelter, and the box wire attachments (Habisure system wires) were fitted with hose pipe to avoid any damage to trees. The details of each box installed and example photos are provided below (Table 1, Figure 1).

Table 1: Microbat box details

Box	Type	GPS	Tree Species	Height above ground	Aspect	Tree DBH
1	Double chamber	-33.893438, 151.223353	Ficus spp.	15-20m	South	Large (>100cm)
2	Triple chamber	-33.894229, 151.223661	Ficus spp.	5-10m	North East	Large (>100cm)
3	Triple chamber	-33.894229, 151.223661	Ficus spp.	5-10m	North	Large (>100cm)
4	Double chamber	-33.894229, 151.223661	Ficus spp.	5-10m	West	Large (>100cm)



Figure 1: Examples of installed boxes

EXCLUSION

The exclusion protocol was carried out by ELA ecologists from 11 to 14 August 2021 following the installation of microbat boxes. This involved installing one-way valves on each entry/exit hole identified in the MMP following the first emergence survey.

One microbat (species unidentified) was seen exiting a hole within the eaves on the eastern side of the building during installation (8:30pm on 11 August). No other microbats were observed exiting the building during the three emergence surveys (4:30 – 7:30 pm) and three dawn surveys (6:30 – 7:30 am). As a precaution, to allow additional time for any residing microbats to relocate given that one was observed, one-way valves were left in place for an additional three nights, with permanent exclusion put into place on 17 August 2021.

Emergence surveys included four ELA ecologists positioned at the four-potential entry/exit locations identified in the MMP. Each ecologist was equipped with an ultrasonic detector and thermal camera to aid in detection of emerging microbats. The MMP outlined requirements for microbat emergence surveys to occur half an hour before and at least one hour after sunset. Given how infrequently microbats were observed emerging in previous surveys, ELA conducted these emergence surveys over a longer duration (one hour before sunset and two hours after sunset), to ensure any emerging microbats were recorded.

Although all other small gaps and holes were all deemed unlikely to allow entry by microbats, additional one-way valves were installed to minimise any chance of microbats using alternative gaps while exclusion devices were in place. One-way valves were created by thick plastic attached to either side of the hole to allow microbats to exit but not to re-enter the building. Holes and gaps were filled with expanding foam sealant, which will be kept in place for the duration of construction (Figure 2).

FUTURE WORKS: DURING AND POST-EXCLUSION

ELA will prepare an information pamphlet for FDC to provide to staff during construction on the environmental sensitivity of the site and the procedures that need to be followed to ensure that if any microbats are found, they are not harmed during construction. This document will outline required daily checks of exclusion devices, as well procedures to be followed if microbats or signs of microbats are found during construction.

As per the MMP, installed bat boxes will be monitored twice a year for five years. The roof cavity will also be monitored at the same intervals and duration, once construction is completed.

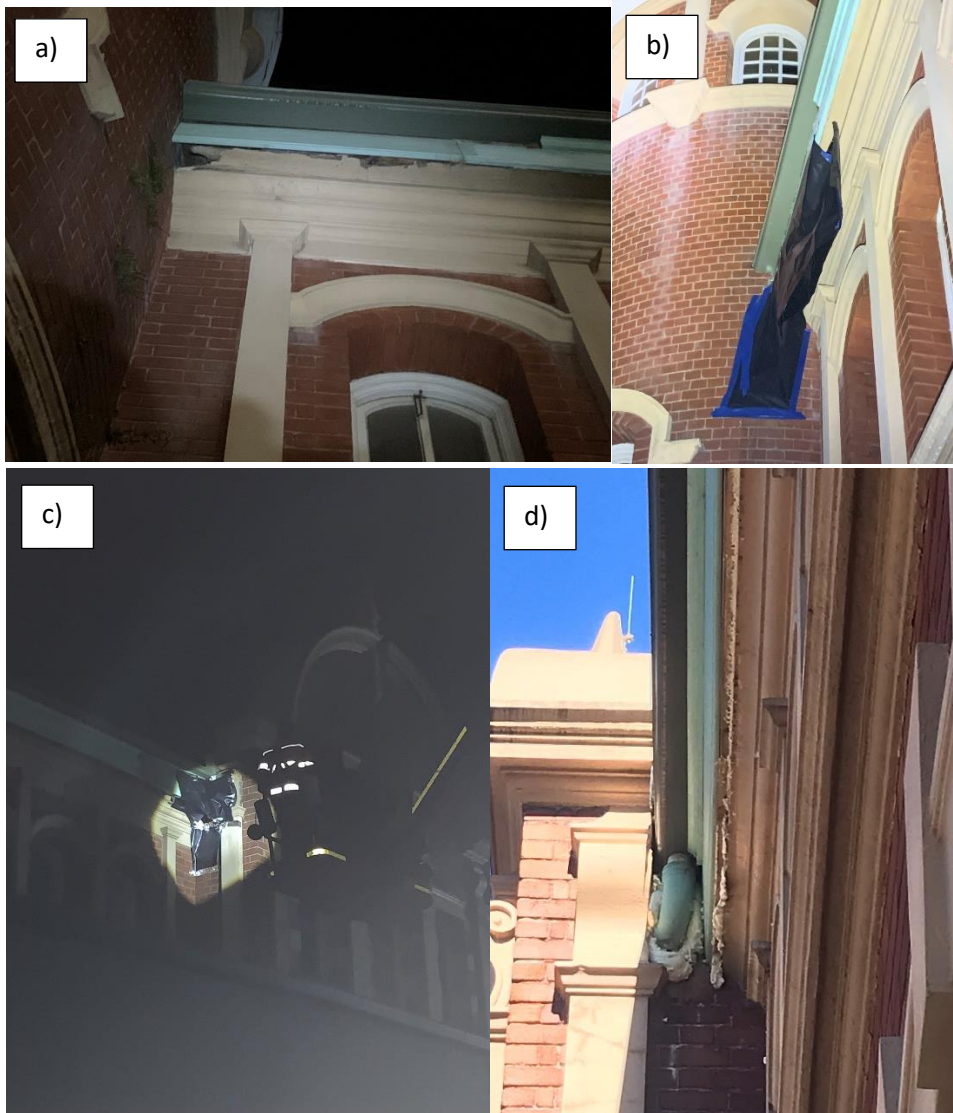


Figure 2: One-way and permanent exclusion devices, with a) before exclusion, b) & c) one-way valves and d) permanent exclusion