

24 November 2020

Our ref: 20SYD - 17804

Mirvac
Level 28, 200 George Street,
Sydney, 2000

Attention: Lachlan Attiwill

Dear Lachlan,

Harbourside Redevelopment Microbat Survey

Eco Logical Australia Pty Ltd (ELA) was engaged by Mirvac to undertake a diurnal microbat survey across the development footprint of the Stage 1 Redevelopment of Harbourside Shopping Centre at Darling Harbour. This survey was conducted to fulfil the requirements for an assessment of microbat habitat outlined by the Department of Planning, Industry and Environment (DPIE) Environment, Energy and Science group (EES) in their response to the Stage 1 Development Application. The assessment of microbat habitat was undertaken in a manner in adherence to the methodology outlined on page nine of the 'Species credit' threatened bats and their habitats, NSW survey guide for the Biodiversity Assessment Method (OEH 2019).

A diurnal visual and auditory survey of all existing buildings was undertaken on 23 November 2020 by ELA ecologist Julia Ryeland over a period of 4.5 hours. The entire building (internal and external) was visually inspected for cracks, gaps, holes, crevices, expansion joints or seams in the roof and walls that may provide potential microbat roosting habitat using binoculars and a spotlight. Additionally, a handheld bat detector was used to capture any calls being made during the survey period. Photos of all potential microbat roosting habitat were taken and any signs of bats (calls, guano or roosting individuals) were noted.

No bats were heard or observed during the survey and no signs of bat activity (i.e. guano) were observed. No ultrasonic bat calls were recorded on the ultrasonic detector. Most areas within the building were unsuitable for microbats, with high levels of light, noise, or pedestrian disturbance. Most areas on the exterior of the building were also unsuitable as microbat roosting habitat because they were exposed to high levels of light, noise, pedestrian and vehicular disturbance or contained only shallow depressions that could not provide optimal roosting habitat for large numbers of microbats.

The main shopping region had a highly exposed open panel roof across most of the centre, unsuitable as roosting habitat for microbats. Two electrical and water service areas had several small crevices present that could be used as microbat roosting habitat with low levels of both light and noise disturbance. Several work plant facilities were noted to have potential microbat roosting habitat, with

many gaps and holes between roofing panels. These areas were dark, with low levels of human disturbance. However, these areas are unlikely to be suitable for microbats due to the high noise disturbance (from machinery and electronic equipment). Due to safety reasons, visual and auditory survey was restricted to board walks in these rooms and all cracks and crevices were not able to be inspected closely.

Two overpass pedestrian walkways and one disused monorail platform were also inspected. Both overpass walkways (above Darling Avenue) were highly exposed to light, noise, vehicular and wind disturbance. The expansion joints between concrete slabs comprising the deck of the walkways and between the headstocks and walkway deck appeared to be mostly superficial on both walkway structures, extending only a short way into the concrete (~ 20 mm). The disused monorail station contained potential microbat roosting habitat, with gaps in the roofing panels which may provide shelter for microbats; although no guano was observed beneath these panels. The area underneath the security office in the loading dock had an open hatch which may provide an entrance point to potential microbat roosting habitat below. A full inspection underneath this building was not possible. The Transgrid work space near the dock area was not accessible to Harbourside staff, and was therefore not inspected.

Based on the diurnal visual inspection made of Harbourside Shopping Centre, all aforementioned localities within the Harbourside Shopping Centre Redevelopment footprint are unlikely to contain significant microbat roosts, primarily due to:

1. A lack of suitable entry / exit points to potential roosting locations
2. High levels of light, noise, pedestrian or vehicular disturbance; and
3. The lack of any signs of usage by bats (cobwebs over most of the roof and gaps/cracks, no guano and no calls recorded).

Observations made at each locality are summarised in Appendix 1 with photo examples of localities given in Appendix 2 – 6.

If you have any further questions, please don't hesitate to contact us on 02 9259 3780

Regards,



Julia Ryeland
Ecologist

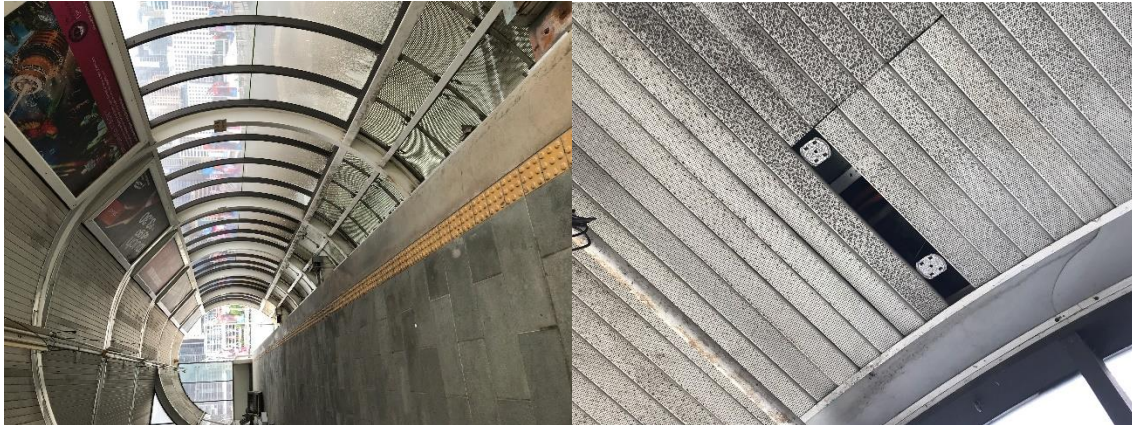
APPENDIX 1 POTENTIAL LOCALITIES OF ROOSTING HABITAT

Region	Interior / Exterior	Microbat habitat features	Likelihood of occurrence
Dock Region (including security office)	Exterior	Lots of cracks were observed near the docks but this area experiences very high noise and light disturbance. The space underneath the security office was accessible by an open manhole and may provide potential habitat. This was not able to be visually inspected completely underneath	Unlikely
Gas Valve Room	Interior	Small gaps where roof meets bricks. No signs of stains or bats, but no cobwebs over gaps	Unlikely
Grease Arrestor Room (near Docks)	Interior	Couldn't see back of roof cavity and electrical cavity on roof has some gaps, though no signs of bats. Low noise disturbance, medium light disturbance.	Unlikely
Meter Room No 4	Interior	Cracks between roof and wall. Low light, no noise disturbance. No signs of bats. Water pit in room. Large hole on outside of building near room	Unlikely
Monorail	Exterior	Holes throughout old monorail roof, with insulation visible in roof. No signs of bats or calls heard. Likely very windy, but some coverage to wind (depending on direction). Low noise and light exposure compared to surrounding area. Old building (closed shop at station) doesn't look suitable with an open vent roof with no covered cracks	Unlikely
Overpass to Car Park (Over Darling Drive)	Exterior	Superficial expansion joints provide potential habitat, though it is very exposed. High light, wind and noise disturbance. No signs of bats	Unlikely
Plant Room Second Floor	Interior	Very dark and lots of cracks and holes in roof. High noise disturbance from machinery. Holes in roof accessing roof cavity (small). Whole room unable to be surveyed due to safety reasons and we were unable to determine whether entry/exit points to the outside were present.	Unlikely
Plant Room Second Floor (no 2)	Interior	Lots of cracks and hidden areas (e.g. behind large pipes or panels). Low light disturbance but high noise disturbance from machinery. Whole room unable to be surveyed due to safety reasons	Unlikely
Plant Room Second Floor (Cooling Tower)	Interior	Very dark and lots of cracks and holes in roof. High noise disturbance from machinery. Holes in roof accessing roof cavity (small). Whole room unable to be surveyed due to safety reasons	Unlikely
Water Meter Room	Interior	Dark with little noise disturbance. Lots of cracks. Cobwebs over most cracks. Small hole in wall. Lots of areas for bats, but lots of cobwebs suggestion little movements/disturbance	Unlikely
Workshop (near Docks)	Interior	Moderate light and noise disturbance. Cracks in roof (concrete). No signs of bats. Some staining of roof (not bats). No cobwebs	Unlikely
Transgrid Workspace	Interior	Not accessible by Harbourside staff	Unlikely
Control Room (near Docks)	Interior	Control room with pipes and electronics. Very noisy. High disturbance. Machinery in operation. No bat signs. No obvious gaps suitable for microbats	No

Region	Interior / Exterior	Microbat habitat features	Likelihood of occurrence
Electrical Room Near Plant Room (high Voltage)	Interior	All sealed, no gaps, cracks crevices	No
First Floor	Interior	Open roof panels where electrical wire is exposed. Unlikely to be suitable due to exposure and high disturbance	No
First Floor (east)	Interior	Open roof panels where electrical wire is exposed. Unlikely to be suitable due to exposure and high disturbance	No
First Floor (west)	Interior	Open roof panels where electrical wire is exposed. Unlikely to be suitable due to exposure and high disturbance. Some sections have glass roof only	No
Ground Floor	Interior	Open roof panels where electrical wire is exposed. Unlikely to be suitable due to exposure and high disturbance	No
Meter Room 1	Interior	No cracks between bricks and wall. No cracks in ceiling	No
Exterior Northern Extent (near Access to Pyrmont Bridge)	Interior	Small cracks where tin is lifting away from roof. Roof has lots of cracks, though they look superficial. Very exposed. Very windy. High light and noise pollution	No
Office Space (near Docks)	Interior	Office space with main computer. Roof space with wiring has gaps but is very exposed. No signs of bats. Can't see most of inside of room but no gaps to outside present and roof cavity filled with wiring	No
Outer perimeter (eastern)	Exterior	Very open exposed roof. Guano from birds. No covered cracks that look suitable	No
Outside perimeter (bayside)	Exterior	Very open exposed roof. Guano from birds. No covered cracks that look suitable	No
Outside perimeter (near Pyrmont Bridge)	Exterior	Very open. May be cracks near top roof but does not look likely. Small cracks in wall, but these are very exposed to light and noise. No signs of bats.	No
Outside perimeter (south)	Exterior	Few cracks on south side exterior. Very exposed to light, sound and wind. Some small drainpipes though no signs of bats. Some exposed holes with open cavity for electrical wiring, but these do not look accessible. No signs of guano around holes but unable to look inside.	No
Safety Room (fire Warden Equips).	Interior	Sealed roof, no signs of bats or cracks where they could enter	No
Small Electrical Room	Interior	Sealed roof. No gaps or places for bats to enter / exit	No
Sprinkler Valve Rooms	Interior	High dark space above valves, but no entry / exit point for bats	No

Region	Interior / Exterior	Microbat habitat features	Likelihood of occurrence
Stairwell (eastern)	Interior	Surface cracks but no deep cracks (< 1cm). Medium light disturbance. Low noise disturbance.	No
Stairwell (north)	Interior	Surface cracks but no deep cracks (< 1cm). Medium light disturbance. Low noise disturbance.	No
Stairwell (north)	Interior	Surface cracks but no deep cracks (< 1cm). Medium light disturbance. Low noise disturbance.	No
Stairwell (west)	Interior	Surface cracks but no deep cracks (< 1cm). Medium light disturbance. Low noise disturbance.	No
Switchboard Room (near Docks).	Interior	Mostly electronics. Some holes for bats, but no signs anywhere. High light and noise disturbance. Gaps mostly covered by electrical wire	No
Top Floor	Interior	Glass ceiling	No

APPENDIX 2 EXAMPLES OF CRACKS AND CREVICES OBSERVED DURING THE SURVEY – DISUSED MONORAIL



APPENDIX 3 EXAMPLES OF CRACKS AND CREVICES OBSERVED DURING THE SURVEY – UNDERNEATH OF SECURITY BUILDING



APPENDIX 4 EXAMPLES OF CRACKS AND CREVICES OBSERVED DURING THE SURVEY – HOLE NEAR METER ROOM NO 4



APPENDIX 5 EXAMPLES OF CRACKS AND CREVICES OBSERVED DURING THE SURVEY – PLANT ROOM ON SECOND FLOOR



APPENDIX 3 EXAMPLES OF CRACKS AND CREVICES OBSERVED DURING THE SURVEY – OVERPASS TO CARPARK

