

Ecology Technical Note: Review of Lighting Assessment in Relation to Bats

CWL1 Swansea, Crymlyn Burrows, Swansea

Presented to Amazon UK Services Ltd

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1.0 Context and Purpose

Delta-Simons Ltd has been requested by Amazon UK Services Ltd (the 'Client') to carry out a review of the Lighting Assessment (Tetra Tech, 2023) in relation to bats for a new proposed external lighting scheme at CWL1 Swansea, Crymlyn Burrows, Swansea (hereafter referred to as the 'Site').

2.0 External Lighting Proposals

It is understood the proposed external lighting scheme comprises the installation of 20 x 6m lighting columns at the southern Site boundary, utilising the following luminaire:

- Sylvania Zephyr - Large Zephyr 5500Lm 4k CLI Grey 0050081

3.0 Automated Bat Detector Activity Survey Results

Two automated bat detectors (Song Meter Mini Bat Detectors) were deployed within the vegetated corridor south of the Site that may be impacted as a result of the installation of new external lighting scheme. The automated detectors were deployed for seven consecutive nights (14th June - 21st June 2023) during suitable weather conditions, and the results analysed in order to sample the extent to which the vegetated corridor is utilised by foraging and commuting bats.

A summary of the data collected during the automated detector activity survey is provided in Table 1 below. Bat activity recorded is presented in passes per night. This is calculated as follows:

Bat Activity Index = Number of Bat Passes/Night

Table 1: Bat Activity Index

Species	Detector Location	
	Detector 1 East	Detector 2 West
Common pipistrelle <i>Pipistrellus pipistrellus</i>	74.7	2.9
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	36.3	0.4
Noctule <i>Nyctalus noctula</i>	4	3.1
Myotis species <i>Myotis sp.</i>	0.14	0.14

The most frequently recorded species were common and soprano pipistrelle, making up over 90 % of the bat activity recorded at each detector location. Low numbers of noctule passes were recorded and a single myotis call was recorded at each detector location across the survey period.

The detector located in the east of the corridor recorded the highest level of activity bat activity.

Over the survey period, the first bat calls each night were of common pipistrelles, however, these were detected more than 2 hours after sunset which indicates that there are no roosts in close proximity to the Site.

The results show that the vegetated corridor along the southern aspect of the Site is utilised predominately by more light tolerant species for foraging/commuting purposes. This is indicative of the wider landscape and the existing light levels both emitted from the current light scheme within the Site and from the A438 dual carriageway to the south.

4.0 External Lighting Review

Detailed external lighting plans have been designed by Ashton Smith and were reviewed by Tetra Tech in the preparation of their Lighting Assessment.

To minimise any adverse impact upon commuting and foraging bats along the vegetated corridor south of the Site, the proposed external lighting scheme has been designed in order to provide a safe environment for the movement of employees when natural lighting levels fall, whilst also meet light obtrusion limitations in order to avoid detriment to wildlife, most notably bats.

With reference to the BCT & ILP (2018) Bats and Artificial Lighting in the UK Guidance Note 08/18, the specification / justification is set out below:

- The proposed luminaire utilises LEDs without a UV component, therefore, reducing the attraction of invertebrates to the lights, such that bat species more tolerant to lighting will not be drawn to them. This is in line with Guidance Note 08/18: Bats and artificial lighting in the UK (ILP/Bat Conservation Trust);
- Luminaires have been chosen to have minimal upwards light spill to minimise disturbance to bats. This is in line with Guidance Note 08/18: Bats and artificial lighting in the UK (ILP/Bat Conservation Trust); and

- The detailed lighting strategy has been designed in order to limit light levels across nearby ecological receptors, most significantly the vegetated corridor south of the Site, without compromising the external lux levels that are required on this project. Light trespass at each of the 18 ecological receptors modelled by Tetra Tech within the Lighting Assessment did not exceed 1 lux, with a maximum predicted model illuminance of 0.74 lux. This low level of illumination is considered adequate to minimise impacts upon foraging and commuting bats utilising the vegetated corridor, such that any likely adverse impacts upon bats as a result of illumination levels are considered negligible.

5.0 Conclusions

Considering the results of the bat survey and a review of the proposed lighting scheme, it is considered bats will continue to utilise the vegetated corridor for the purposes of foraging and commuting, and therefore that the lighting strategy will not result in any significant adverse ecological effects.