

3 Methodology

3.1 Desk Study

The following desk study exercises were undertaken as part of the PEA of the Site undertaken by ADAS in December 2020:

- *Biological records were obtained from Cambridgeshire & Peterborough Environmental Records Centre (CPERC) and Suffolk Biological Information Service (SBIS) to identify bat species recorded within 2km of the Site.*
- *A search for all designated sites for bats within 10km of the site was conducted as well as a search for any active European Protected Species Mitigation Licences specifically for bat species within 2km of the Site.*

3.2 Bat Survey

A bat survey was undertaken on both Woodland House (B1) and Main Yard (B2) in accordance with guidance provided by the Bat Conservation Trust (Collins, 2016). Two dusk emergence surveys and one dawn re-entry survey was undertaken at each building. Surveys were undertaken between 5 May 2021 – 29 June 2021. Dusk emergence surveys commenced 15 minutes prior to sunset and continued for 90 – 120 minutes after sunset. Dawn re-entry surveys commenced 90 minutes prior to sunrise and continued until 15 minutes after sunrise. Four surveyors experienced in undertaking bat surveys and trained in the use of handheld bat recording equipment undertook each survey. Surveyors were positioned to view all identified bat entry/exit points from each building (see Appendix 3 for surveyor locations).

Bat sightings and behaviours were recorded, along with time of observation, species and whether they emerged from or re-entered the buildings. Dates, timings and weather conditions¹ are presented in Tables 3 and 4. Surveyors used handheld bat detectors (EM Touch 2 and Anabat Scout) to record bat activity during the surveys.

Surveys were undertaken by James Salisbury BSc (hons) ACIEEM (Level 2 (CL18) Bat Survey Class Licence (licence reference: 2019-41384-CLS-CLS)), Tristan Varney MSc (Hons) ACIEEM (Level 1 (CL17) Bat Survey Class Licence (licence reference: 2017-32625-CLS-CLS)), Laura Farrar MSc QCIEEM (Level 1 (CL17) Bat Survey Class Licence (licence reference: 2020-44517-CLS-CLS)), Jack Morphet BSc (Hons) ACIEEM, Suzanne Dry BSc (Hons) and Megan Downes BSc (Hons). Information on the lead surveyors' experience is provided in Appendix 4.

¹ Beaufort scale = a scale of wind speed based on a visual estimation of the wind's effects, ranging from force 0 (less than 1 knot or 1 km/h, 'calm') to force 12 (64 knots or 118 km/h and above, 'hurricane').

Table 3: Woodland House (B1) Survey Details

Survey	Surveyors	Start / End Temperature	Weather Conditions	Sunset / Sunrise (hrs)	Start / End Time (hrs)
Emergence (1st June 2021)	Jack Morphet (P1) Laura Farrar (P2) Suzanne Dry (P3) Megan Downes (P4)	15°C / 10°C	0/8 cloud cover, dry, Beaufort Scale 2	20:54 / 04:43	20:55 – 22:55
Re-entry (15th June 2021)	Laura Farrar (P1) Tristan Varney (P2) Megan Downes (P3) Suzanne Dry (P4)	14°C / 13°C	7/8 cloud cover, dry, Beaufort Scale 0	21:20 / 04:42	03:00 - 04:51
Emergence (29th June 2021)	James Salisbury (P1) Suzanne Dry (P2) Jack Morphet (P3) Megan Downes (P4)	15°C / 14°C	3/8 cloud cover, dry, Beaufort Scale 2	21:21 / 04:46	21:08 – 23:08

Table 4: Main Yard (B2) Survey Details

Survey	Surveyors	Start / End Temperature	Weather Conditions	Sunset / Sunrise (hrs)	Start / End Time (hrs)
Emergence (5th May 2021)	Tristan Varney (P1) Laura Farrar (P2) Jack Morphet (P3) Megan Downes (P4)	8°C / 4°C	1/8 cloud cover, dry, Beaufort Scale 2	20:31 / 06:04	20:15 – 22:01
Re-entry (4th June 2021)	James Salisbury (P1) Laura Farrar (P2) Jack Morphet (P3) Megan Downes (P4)	14°C / 13°C	1/8 cloud cover, dry, Beaufort Scale 1.	20:57 / 04:41	03:11 – 04:51
Emergence (23rd June 2021)	James Salisbury (P1) Tristan Varney (P2) Megan Downes (P3) Suzanne Dry (P4)	16°C / 13°C	1/8 cloud cover, dry, Beaufort Scale 0.	21:21 / 04:44	21:09 – 23:10

3.3 Limitations

The first emergence survey of B2 on 5 May 2021 was undertaken during a sunset air temperature of 8°C, which is lower than the optimal air temperature of 10°C (Collins, 2016). This was not considered to affect the overall validity of the survey data as BCT guidance states that *'it is recognised that in spring...some of the survey may need to be carried out at lower temperatures'*, the surveys were undertaken within the optimal period for bat surveys (May-September inclusive), and the proximity of B2 to B1 and total number of surveys undertaken on site (six) allowed for a sufficient assessment of roosting bat presence at each building.

The commencement of stable yard activity from approximately 04:00 and requirement for stable hand parking spaces resulted in the dawn re-entry surveys finishing slightly earlier than 15 minutes after sunrise. This was not considered to affect the overall validity of the survey data as any bats present would be expected to have acclimatised to the activity on site and no bats were recorded during the final 40 minutes of either dawn re-entry survey.

4 Results

4.1 Desk Study

CPERC and SBIS returned records of six bat species known to be roosting within 2km of the site. These comprised common pipistrelle, serotine, Leisler's bat (*Nyctalus leisleri*), common noctule, soprano pipistrelle and brown long-eared bat (BLE).

No designated sites specifically for bats were located within 10km of the site and no active European Protected Species Mitigation Licences specifically for bat were present within 2km of the site.

4.2 Woodland House (B1) Emergence and Re-entry Surveys

Key observations from the dusk emergence and dawn re-entry surveys are provided below, with full survey data provided in Appendix 5. Bat roost locations in context of the proposed development and photographs are provided in Appendices 1 and 2 respectively.

4.2.1 Evening Emergence Survey (1st June 2021)

Bat species recorded during the survey comprised common pipistrelle, brown long-eared bat, soprano pipistrelle, common noctule and serotine. The earliest record of a bat was a common pipistrelle emerging from beneath a roof tile in the south-east corner of B1 at 21:19 (hereafter referred to as 'Roost 1'). Common pipistrelle and soprano pipistrelle bats were observed foraging to the east of Woodland House for the majority of the survey, with occasional commuting common noctule, BLE and serotine bats recorded. The latest recording of a bat was a commuting common pipistrelle at 22:49.

4.2.2 Dawn Re-entry Survey (15th June 2021)

Bat species recorded during the survey comprised common pipistrelle, brown long-eared bat, serotine, common noctule and soprano pipistrelle. The earliest record of a bat was a commuting common pipistrelle at 03:01. Individual common pipistrelle bats were observed foraging and commuting around Woodland House throughout the survey and commuting to foraging areas in the wider landscape to the south-west of the Site. An individual brown long-eared bat was observed commuting to the north-east of the Site across the north-west elevation of Woodland House at 03:39. Two common pipistrelle were observed commuting to the south-east of the Site at 03:40. Occasional records for common noctule and serotine commuting beyond the Site were recorded. A single bat was observed to enter B1 on the western elevation (hereafter referred to as 'Roost 2'). An echolocation recording of this bat was not made, but records of common pipistrelle present in the area between 03:39 – 04:05 indicate that it was likely a common pipistrelle². An individual common pipistrelle was also observed flying to the south of B1 at 04:03

² This conclusion was confirmed during the final survey visit (29 June 2021) when an echolocating individual common pipistrelle was observed emerging from this approximate location.

and into the entrance of the horse wash box lean-to structure on the western elevation of B2. The common pipistrelle was not observed going to roost within the lean-to structure. A supplementary endoscopic assessment of the lean-to structure was undertaken on 23 June 2021 (see Section 4.4). The latest record of a bat was of a commuting common pipistrelle at 04:08.

4.2.3 Evening Emergence Survey (29th June 2021)

Bat species recorded during the survey comprised common pipistrelle, serotine, brown long-eared bat and common noctule. The first recorded bat, a common pipistrelle, was recorded emerging from beneath the guttering in the approximate location of Roost 2 at 21:45. Bouts of continuous and intermittent foraging by individual and pairs of common pipistrelle bats were observed on Site around B1 for the majority of the survey, with common pipistrelle observed commuting north and south across the Site to foraging habitat in the wider landscape. Occasional records of commuting brown long-eared bat, common noctule and serotine were recorded during the survey. The last recorded bat was of a commuting soprano pipistrelle at 23:06.

4.3 Main Yard (B2) Emergence and Re-entry Surveys

4.3.1 Evening Emergence Survey (5th May 2021)

No bat activity was recorded during this survey; no bats were observed to be emerging from or entering B2.

4.3.2 Dawn Re-entry Survey (4th June 2021)

Bat species recorded comprised common pipistrelle and myotis species. The first bat, a common pipistrelle, was recorded at 03:14. A pair of social calling common pipistrelle were recorded to the west of B2 and south-west of B1 at 03:18 and 03:43, and commuting south to the north of B2 at 03:36. The last incidental bat was a common pipistrelle recorded at 03:43. No bats were observed to be emerging from or entering B2.

4.3.3 Evening Emergence Survey (23rd June 2021)

Bat species recorded comprised common pipistrelle, common noctule and serotine. The earliest recorded bat was a common pipistrelle emerging from the eastern elevation of the clocktower of B2 at 21:39 (hereafter referred to as 'Roost 3'). Individual common pipistrelle bats foraged to the north-east and north of B2 for the majority of the survey, occasionally commuting to the north and south of the Site. Intermittent serotine and common noctule were recorded from 22:15 to 23:06, indicating that these species may be using habitat adjacent to the site for foraging purposes. The latest recording was of a commuting common noctule at 23:07.

4.4 Endoscope inspection of B2

An additional endoscope inspection of the lean-to structure that abuts the western elevation of B2 at ground floor level was undertaken by James Salisbury BSc (hons) ACIEEM (Level 2 (CL18) Bat Survey Class Licence (licence reference: 2019-41384-CLS-CLS)) on 23 June 2021. This additional inspection was undertaken to supplement survey data obtained during the dawn re-entry survey of B1 on 15 June 2021, where a single common pipistrelle was observed to fly through the entrance of the lean-to. The bat was not observed to go to roost in this location at the time of survey, but an additional inspection for potential roosting features within the lean-to was undertaken to assess for signs of roosting bats. Equipment used included a telescopic ladder, high-powered torch and a Rigid Micro CA-300 endoscope with extension. No signs of roosting bat presence were recorded within an area of damaged brickwork (see Appendix 6: Photograph 2), and the crevice was heavily cobwebbed and did not lead to the interior of B2. No signs of roosting bat presence were recorded along the narrow gap present between roofing battens and the external brick wall of B2 (see Appendix 6: Photograph 3), and this feature was considered to be of limited suitability to support roosting bats as daylight could be seen through the gap, indicating that the feature did not support a roof to protect bats from the elements. Gaps in external weather boarding on the north and south elevation and fact that the lean-to is open to the elements along the western elevation provide multiple points for the bat observed on 15 June 2021 to have flown through/exited the structure without roosting. The lean-to was not present on site during the PEA undertaken in December 2020, so is not considered to be an established potential roosting area for roosting bats.

Photographs of inspected potential roost features are included in Appendix 6.

5 Discussion

The bat survey identified three common pipistrelle day roosts: Roost 1 and Roost 2 within B1 (Woodland House) and Roost 3 within B2 (Main Yard) (Appendix 1 and 2). Six species of bat were recorded to be using the Site and adjacent habitat for foraging and commuting purposes: common pipistrelle, serotine, myotis species, common noctule, BLE, and soprano pipistrelle.

5.1 Roost 1

Roost 1 was located beneath a roof tile on the western elevation of the roof of B1, in the section of B1 that is to be retained as part of the proposed development (see Appendix 1 and Appendix 2 – Photographs 1 and 2). A single common pipistrelle was recorded emerging from this location on one occasion. This roost has therefore been identified as a common pipistrelle day roost. In the absence of mitigation there is a risk of disturbing bats using this roost as a result of the proposed development.

5.2 Roost 2

Roost 2 was located in the western elevation of B1, and comprised an area of missing mortar and damaged brickwork and guttering at eaves level in the section of B1 to be demolished (see Appendix 2 – Photograph 3). A single common pipistrelle entered B1 in this location during the second survey visit, and a single common pipistrelle emerged from this location during the final survey visit (see Appendix 2 – Photograph 4). This roost has therefore been identified as a common pipistrelle day roost. This roost will be lost as a result of the proposed development, and in the absence of mitigation there is a risk of directly impacting bats using this roost.

5.3 Roost 3

Roost 3 was located within the clocktower of B2, which is to be retained as part of the development proposal. A single common pipistrelle emerged from the south-east elevation of the clocktower on the final survey (see Appendix 2 – Photograph 5). This roost has therefore been identified as a common pipistrelle day roost. No records of bats entering or emerging from the section (hayloft) of B2 that is to be converted as part of the development proposals were recorded during the survey, and no evidence of roosting bat presence was recorded during the internal inspection of the hayloft as part of the PEA in December 2020. There is a potential route for bats between the hayloft and clocktower via a small gap between the southernmost internal wall of the hayloft and the ceiling apex (see Appendix 2 – Photograph 6). In the absence of mitigation there is a risk of directly impacting or disturbing bats using this roost as a result of the proposed development.

6 Mitigation and Recommendations

The bat survey identified three common pipistrelle day roosts: Roost 1 and Roost 2 within B1 (Woodland House) and Roost 3 within B2 (Main Yard) (see Appendix 1 and 2). As a result of the proposed development Roost 1 and Roost 3 will be retained, and Roost 2 will be lost. In the absence of mitigation, there is a risk of disturbing roosting bats using Roost 1, a risk of directly impacting roosting bats in Roost 2 and a risk of directly impacting or disturbing bats using Roost 3.

As bats are protected by UK and European legislation, making it an offence to kill or injure bats, cause disturbance at their resting places or to block access to, damage or destroy their roost sites, a European Protected Species Mitigation Licence (EPSML) will therefore be required from Natural England to undertake the demolition works of Woodland House (B1) and conversion works of Main Yard (B2). An EPSML application should be submitted as a condition of a successful planning application and the licence should be granted prior to the commencement of works on site.

The EPSML will include a method statement produced by a suitably qualified ecologist and is expected to include the following measures to be undertaken by or under the supervision of a Suitably Qualified Ecologist depending on the season in which demolition is undertaken: the installation of temporary bat boxes on Site during a period of exclusion and soft stripping works; the inspection of identified roosts and installation of one-way excluders; the permanent blocking of access points to roosts and potential entry points to areas associated with the proposed development; the soft stripping of potential roosting features prior to demolition works; and the installation of compensatory roosting habitat in order to provide 'like-for-like' roosting habitat to replace the roosting habitat lost (examples of bat boxes are provided in Appendix 7). The temporary bat boxes installed on Site during the mitigation and construction period would likely comprise two 2F Schwegler Bat Boxes, or bat boxes of similar design. It is recommended that the temporary bat boxes remain on site as an enhancement measure post-construction works. Compensatory roosting habitat will likely comprise two 1FF Schwegler Bat Boxes, or integrated bat boxes of similar design.

It is recommended that the mitigation, building demolition and conversion works are carried out during the key hibernation months (October to March) to avoid the period when roosting bats are likely to be present. The EPSM Licence will provide further details about how to proceed with the proposed works without having an impact on roosting bats.

It is recommended that night-time work is avoided, and a sensitive lighting scheme is followed during the construction works.

In the unlikely event that bats are discovered elsewhere on site during development works, work should cease while advice is sought from Natural England or a Suitably Qualified Ecologist.

7 Conclusion

Three common pipistrelle day roosts were found within the two surveyed buildings on site: two within B1 and one within B2. The surveys also identified six species of bats using the site and adjacent habitat for foraging and commuting purposes.

The proposed development will impact on common pipistrelle bats by destroying one roost in B1 and disturbing one roost in B1 and one roost in B2.

A European Protected Species Mitigation Licence will need to be obtained prior to the development commencing and the mitigation and enhancement measures outlined in Section 5 and detailed within the mitigation licence documentation should be followed to reduce any potential impacts to bats. Following the mitigation and enhancement recommendations will also ensure that the development is in line with the relevant legislation protecting bats, as well as Policy NKT16 from the – Newmarket Neighbourhood Plan 2018-2031 and the National Planning Policy Framework.

It is recommended that if the work is not undertaken within two years (by June 2022) then the bat emergence and re-entry surveys should be updated.