

**SHELDON HOUSE, CROMWELL ROAD,  
TEDDINGTON, GREATER LONDON**

**PRELIMINARY BAT ROOST  
ASSESSMENT**

A Report to: Clive Chapman Architects

Report No: RT-MME-154365-02

Date: March 2021



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## REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

Report Version	Date	Completed by:	Checked by:	Approved by:
Final	09/03/2020	Margarita Smoldareva BSc (Hons), PGDip (Ecological Consultant)	Paul Roebuck MCIEEM (South East Manager)	Tom Docker MCIEEM (Managing Director)

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

## DISCLAIMER

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

## VALIDITY OF DATA

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

## NON-TECHNICAL SUMMARY

In January 2021, Clive Chapman Architects commissioned Middlemarch Environmental Ltd to undertake a Preliminary Bat Roost Assessment at Sheldon House, Cromwell Road, Teddington, Greater London. This assessment is required to inform a planning application associated with demolition of existing building and construction of a replacement residential building.

To fulfil the above brief to assess the potential for the existing buildings on site to support roosting bats, a Preliminary Bat Roost Assessment was undertaken on 5<sup>th</sup> February 2021.

The Preliminary Bat Roost Assessment has identified that the main building and the external garage structures have high potential to support roosting bats. Multiple potential features were noted during the survey that could not be fully inspected due to a lack of internal access. Therefore, it was not possible to investigate if any bats could be roosting within the plant/boiler room on the rooftop of the main building and inside the garages. Additionally, externally both the lifted lead flashing on the top of the lift tower and the weep holes above the window lintels could not be fully inspected due to their location and the height. These features may have the potential to be used by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions. No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

Following the results of the Preliminary Bat Roost Assessment, the following recommendations have been made:

### **R1 Sheldon House (Main Building) and Attached Garage Structures**

Sheldon House and attached garage structures been identified as having high potential to support roosting bats. Bat Surveys: Good Practice Guidelines published by the Bat Conservation Trust (Collins, 2016) recommends that for structures with high bat roosting potential at least three dusk emergence and/or dawn re-entry surveys be undertaken during the bat emergence/re-entry survey season to determine the presence/absence of roosting bats within the structures. The bat emergence/re-entry survey season extends from May to September. At least two of the surveys should be undertaken during the peak season for emergence/re-entry surveys between May and August and one of the three surveys should be a dawn re-entry survey. If a roost is discovered during these surveys, a Natural England licence application may be required.

### **R2 Lighting**

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice are in Chapter 6.

### **R3 Habitat Enhancement**

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive full/partial sun, although installing boxes in a variety of orientations will provide a range of climatic conditions. Position boxes at least 4 m above ground to prevent disturbance from people and/or predators. The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: evening primrose, goldenrod, honeysuckle and fleabane.

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## 1. INTRODUCTION

### 1.1 PROJECT BACKGROUND

In January 2021, Clive Chapman Architects commissioned Middlemarch Environmental Ltd to undertake a Preliminary Bat Roost Assessment at Sheldon House, Cromwell Road, Teddington, Greater London. This assessment is required to inform a planning application associated with demolition of existing building and construction of a replacement residential building.

Middlemarch Environmental Ltd has previously carried out Preliminary Ecological Appraisal for Clive Chapman Architects at this site. The findings of this survey are detailed in Report RT-MME-154365-01.

To fulfil the above brief to assess the potential for the existing buildings on site to support roosting bats, a Preliminary Bat Roost Assessment was undertaken on 5<sup>th</sup> February 2021.

All UK bat species are European protected species and they are capable of being material considerations in the planning process. A summary of the legislation protecting bats is included within Appendix 1. This section also provides some brief information on the ecology of British bat species.

### 1.2 SITE DESCRIPTION AND CONTEXT

The site under consideration is an irregular pocket of land consisting of a residential tower block and communal gardens situated on the corner of Cromwell Road, Teddington, Greater London. It is centred at Ordnance Survey Grid Reference TQ 16264 70630 and covers an area of 0.191 ha.

The site contains an access road from Cromwell Road and area of hardstanding which is currently used a car park. There are small patches of introduced shrubs within the hardstanding to the north and west of the site boundary. To the south of the site, there is a communal garden with scattered mature trees and amenity grassland.

The site is bordered to the east by residential buildings on Fairfax Road, to the north by Cromwell Road and further residential buildings, to the west by a neighbouring residential property with associated soft landscaped gardens and to the south by railway embankments and further residential properties.

Notable areas in the wider landscape included Teddington Cemetery and Strawberry Woods Play Area located 1.35 and 1.70 km north-west respectively. The River Thames, Ham Common and Ham House and Gardens (National Trust) were located 900 m north-east, 1.85 km north-east and 2.40 km north respectively. To the south, located 230 m from the survey area, Bushy Park, Hampton Wick and Hampton Court Park are all connected together to form an extensive green space.

### 1.3 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
SH-SK03 FEASIBILITY SITE LAYOUT & FLOOR PLANS	Clive Chapman Architects

**Table 1.1: Documentation Provided by Client**

## **2. METHODOLOGY**

### **2.1 DESK STUDY**

As part of the Preliminary Ecological Appraisal (Report RT-MME-154365-01) an ecological desk study (which included a search for records of bats) was undertaken within a 1 km radius of the site. The consultee for the desk study was Greenspace Information for Greater London CIC.

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by this organisation. Relevant bat data are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

The desk study included a search for statutory nature conservation sites designated for bats within a 10 km radius of the site.

### **2.2 FIELD SURVEY**

In line with the specifications detailed in Bat Mitigation Guidelines (English Nature, 2004) and Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), a Preliminary Bat Roost Assessment of the building was conducted during daylight hours. A visual assessment was undertaken to determine the presence of any Potential Roost Features (PRFs), together with a general appraisal of the suitability of the site for foraging and commuting. Table 2.1 provides examples of PRFs. Any accessible PRFs were inspected using binoculars, a torch and endoscope for evidence of possible bat presence. Building was surveyed externally only. Due to Covid-19 restrictions, internal inspection was not feasible.

For reasons of health and safety, the survey was only undertaken in areas accessible from 3.5 m ladders.

Based on the PRF's present, the survey area was assessed using the suitability classes detailed within Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), as detailed in Table 2.2.

Example of Potential Roost Features	
<u>Externally</u>	
<ul style="list-style-type: none"> <li>• Access through window panes, doors and walls;</li> <li>• behind peeling paintwork or lifted rendering;</li> <li>• behind hanging tiles;</li> <li>• weatherboarding;</li> <li>• eaves;</li> <li>• soffit boxes;</li> <li>• fascias;</li> <li>• lead flashing;</li> <li>• gaps under felt (even including those of flat roofs);</li> <li>• under tiles/slates;</li> <li>• existing bat and bird boxes; and</li> <li>• any gaps in brickwork or stonework permitting access into access to cavity- or rubble-filled walls.</li> </ul>	
<u>Internally</u>	
<ul style="list-style-type: none"> <li>• behind wooden panelling;</li> <li>• in lintels above doors and windows;</li> <li>• behind window shutters and curtains;</li> <li>• behind pictures, posters, furniture, peeling paintwork;</li> <li>• peeling wallpaper, lifted plaster and boarded-up windows;</li> <li>• inside cupboards and in chimneys accessible from fireplaces.</li> <li>• within attic voids:</li> <li>• the top of gable end or dividing walls;</li> <li>• the top of chimney breasts;</li> <li>• ridge and hip beams and other roof beams;</li> <li>• mortise and tenon joints;</li> <li>• all beams (free-hanging bats);</li> <li>• the junction of roof timbers, especially where ridge and hip beams meet;</li> <li>• behind purlins;</li> <li>• between tiles and the roof lining; and</li> <li>• under flat felt roofs.</li> </ul>	

**Table 2.1: Potential Roost Features (Adapted from Collins, 2016)**

Suitability	Description
<b>High</b>	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their <u>size, shelter, protection, conditions and surrounding habitat.</u>
<b>Moderate</b>	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
<b>Low</b>	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
<b>Negligible</b>	Negligible habitat features on site likely to be used by roosting bats.

**Table 2.2: Classification of Structures with Bat Potential (Adapted from Collins, 2016)**

### 3. DESK STUDY

#### 3.1 STATUTORY NATURE CONSERVATION SITES

The site is not located within 10 km of any statutory nature conservation sites designated for the presence of bats.

#### 3.2 SPECIES RECORDS

The data search was carried out in January 2021 by Greenspace Information for Greater London CIC. Records of bat species within a 1 km radius of the survey area provided by the consultee are summarised in Table 3.1. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Species of Principal Importance?	Legislation
Unidentified bat <i>Vespertilionidae</i> sp.	135	2008	115 m south-east	#	#
Unidentified bat <i>Chiroptera</i> sp.	4	2019	191 m north-east	#	#
Serotine bat <i>Eptesicus serotinus</i>	11	2019	191 m north-east	-	ECH 4, WCA 5, WCA 6
Unidentified myotis <i>Myotis</i> sp.	1	2019	191 m north-east	-	ECH 4, WCA 5, WCA 6
Unidentified nyctalus <i>Nyctalus</i> sp.	3	2019	191 m north-east	#	#
Leisler's bat <i>Nyctalus leisleri</i>	10	2019	191 m north-east	-	ECH 4, WCA 5, WCA 6
Noctule <i>Nyctalus noctula</i>	19	2019	191 m north-east	✓	ECH 4, WCA 5, WCA 6
Nathusius's Pipistrelle <i>Pipistrellus nathusii</i>	1	2019	191 m north-east	-	ECH 4, WCA 5, WCA 6
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	67	2019	191 m north-east	✓	ECH 4, WCA 5, WCA 6
Common pipistrelle <i>Pipistrellus pipistrellus</i>	38	2009	323 m north	-	ECH 4, WCA 5, WCA 6
Pipistrelle <i>Pipistrellus</i> sp.	8	2005	439 m north	#	ECH 4, WCA 5, WCA 6
Daubenton's bat <i>Myotis daubentonii</i>	19	2012	643 m south-east	-	ECH 4, WCA 5, WCA 6
Brown long-eared bat <i>Plecotus auritus</i>	3	2005	849 m south-west	✓	ECH 4, WCA 5, WCA 6
<p><b>Key:</b> #: Dependent on species.</p> <p>ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection. WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods.</p> <p>Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.</p>					

**Table 3.1: Bat Species Records Within 1 km of Survey Area**



## 4. SURVEY RESULTS

### 4.1 INTRODUCTION

The Preliminary Bat Roost Assessment was conducted on 5<sup>th</sup> February 2021 by Margarita Smoldareva (Ecological Consultant). Drawing C154365-02, illustrating the layout of the building on site and the results of the survey is provided in Chapter 7.

Weather conditions were recorded and are presented in Table 4.1.

Parameter	Conditions
Temperature (°C)	9
Cloud Cover (%)	10
Precipitation	Nil
Wind Speed (Beaufort)	F0

**Table 4.1: Weather Conditions During the Preliminary Bat Roost Assessment**

### 4.2 CONSTRAINTS

Due to the height and access restrictions, it was not possible to inspect certain features to determine absence/presence of bats.

### 4.3 SURVEY RESULTS

#### 4.3.1 Sheldon House

##### *External Assessment*

The main building on site was block of apartments with a boiler/plant room on the flat rooftop. The building was six storey, brick built with double glazed UPVC framed windows on all elevations (Plate 4.1). On the northern elevation, a lift tower was present that was in use at the time of the survey. On the eastern elevation, single storey garages were attached to the building (Plate 4.2). Overall, the building was in good condition although general signs of wear and tear were recorded.

The roof appeared to be in a good state of repair as viewed from the ground level, however, the boiler/plant room on the roof top (Plate 4.3) could not be accessed for external or internal inspection on the day. It was also noted that a small fraction of lead flashing around the lift lower was lifted therefore creating a gap between the lead flashing and the brickwork (Plate 4.4). This gap creates potential roosting opportunities for bats.

The window frames were all tightly fitted within the brickwork and window lintels. Multiple weep holes were recorded on all aspects of the building, located on the top of the window lintels (Plate 4.5). These weep holes extended into a cavity wall which provides a suitable roosting feature potentially for a large number of bats. Therefore, these weep holes provide a high potential roosting feature for bats. The feature could not be fully inspected as it extends into the cavity wall of the building and could not be accessed by the surveyor.



**Plate 4.1: Overview of the Building (Northern Aspect)**



**Plate 4.2: Garages on the Eastern Elevation**

Numerous features were recorded around the building which could be utilised by bats to gain entry into the building and potential roost locations. These features include:

- Boiler room on the rooftop;
- Lifted LED flashing on the lift tower: and
- Weep holes leading into a cavity wall.



Plate 4.3: Boiler/Plant Room



Plate 4.4: Lifted Lead Flashing on the Lift Tower



Plate 4.5: Weep Holes Above Window Lintels

It was not possible to inspect these features due to the height at which they were located and as such it was not possible to establish if bats had used these features to enter a roost location at the time of surveying. No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

#### *Internal Assessment*

No internal access was feasible due to Covid-19 restrictions.

#### **4.3.2 Garages**

##### *External Assessment*

There were three external garages on site that were attached to Sheldon House on the eastern aspect (Plate 4.6). Two more garages were built-in within the Sheldon House building. The external garages were generally modern and in a good state of repair, with flat bituminous roof and brick walls. The metal doors were not tightly fitted around the brickwork therefore creating gaps between doors and walls. These gaps were noted to be free of cobwebs (Plate 4.7) which indicates that the garages may be in regular use and could also be used by fauna.

##### *Internal Assessment*

No internal access was feasible due to Covid-19 restrictions.



**Plate 4.6: External Garages Plate**



**4.7 Gaps Between Doors and Brickwork**

#### **4.4 SITE AND SURROUNDING HABITATS**

The site is situated within a residential area of Teddington, Greater London. It is considered that the site has suitability for use by foraging and commuting bats due to abundance of established vegetation including mature trees on site. Areas of amenity grassland, introduced shrubs and mixture of young and mature scattered trees within the survey area provide foraging and commuting opportunities for bats. Adjacent residential gardens and amenity green space provide more suitable habitat mosaics which could be utilised by foraging and commuting bats. The site is connected to suitable foraging and commuting habitat in the surrounding landscapes, such as the presence of Bushy Park and Home Park (SSSI, SINC) 210 m south, Ham Lands (LNR) 1km north-west and Churchyard of St. Mary with St. Alban, Teddington (SINC) 700 m north-east.

Habitats within 1 km of the site suitable for roosting, commuting and foraging include:

- Residential houses and associated gardens;
- Running water and standing waterbodies;
- Pockets of woodland;
- Churches, schools, hospitals and associated grounds;
- Golf courses with associated open grassland habitats; and,
- Railway lines with vegetated banks.

## **5. DISCUSSION AND CONCLUSIONS**

### **5.1 SUMMARY OF PROPOSALS**

This assessment is required to inform a planning application with demolition of existing building and construction of a replacement residential building.

### **5.2 ASSESSMENT OF BUILDINGS**

The Preliminary Bat Roost Assessment has identified that the main building and the external garage structures have high potential to support roosting bats. Multiple potential features were noted during the survey that could not be fully inspected due to a lack of internal access. Therefore, it was not possible to investigate if any bats could be roosting within the plant/boiler room on the rooftop of the main building and inside the garages. Additionally, externally both the lifted lead flashing on the top of the lift tower and the weep holes above the window lintels could not be fully inspected due to their location and the height. These features may have the potential to be used by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions. No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

### **5.3 POTENTIAL IMPACTS ON BATS**

It is anticipated that the current proposals would have negative implications on roosting bats as the main building and attached garage structures were identified as having high potential to support roosting bats. Demolition of these buildings are likely to harm, injure or disturb any bats roosting within the site, if present. As such, recommendations have been made in Chapter 6 of this report.

The site is connected to suitable foraging and commuting habitat in the surrounding landscape. Therefore, due care and attention is required during and after the proposed works to ensure that foraging and commuting bats are not negatively affected. The proposed development is likely to create increases in lighting within areas of the site suitable for foraging and commuting for bats. As such, recommendations have been made in Chapter 6.

## 6. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

### R1 Sheldon House (Main Building) and Attached Garage Structures

Sheldon House and attached garage structures been identified as having high potential to support roosting bats. Bat Surveys: Good Practice Guidelines published by the Bat Conservation Trust (Collins, 2016) recommends that for structures with high bat roosting potential at least three dusk emergence and/or dawn re-entry surveys be undertaken during the bat emergence/re-entry survey season to determine the presence/absence of roosting bats within the structures. The bat emergence/re-entry survey season extends from May to September. At least two of the surveys should be undertaken during the peak season for emergence/re-entry surveys between May and August and one of the three surveys should be a dawn re-entry survey. If a roost is discovered during these surveys, a Natural England licence application may be required.

### R2 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice include:

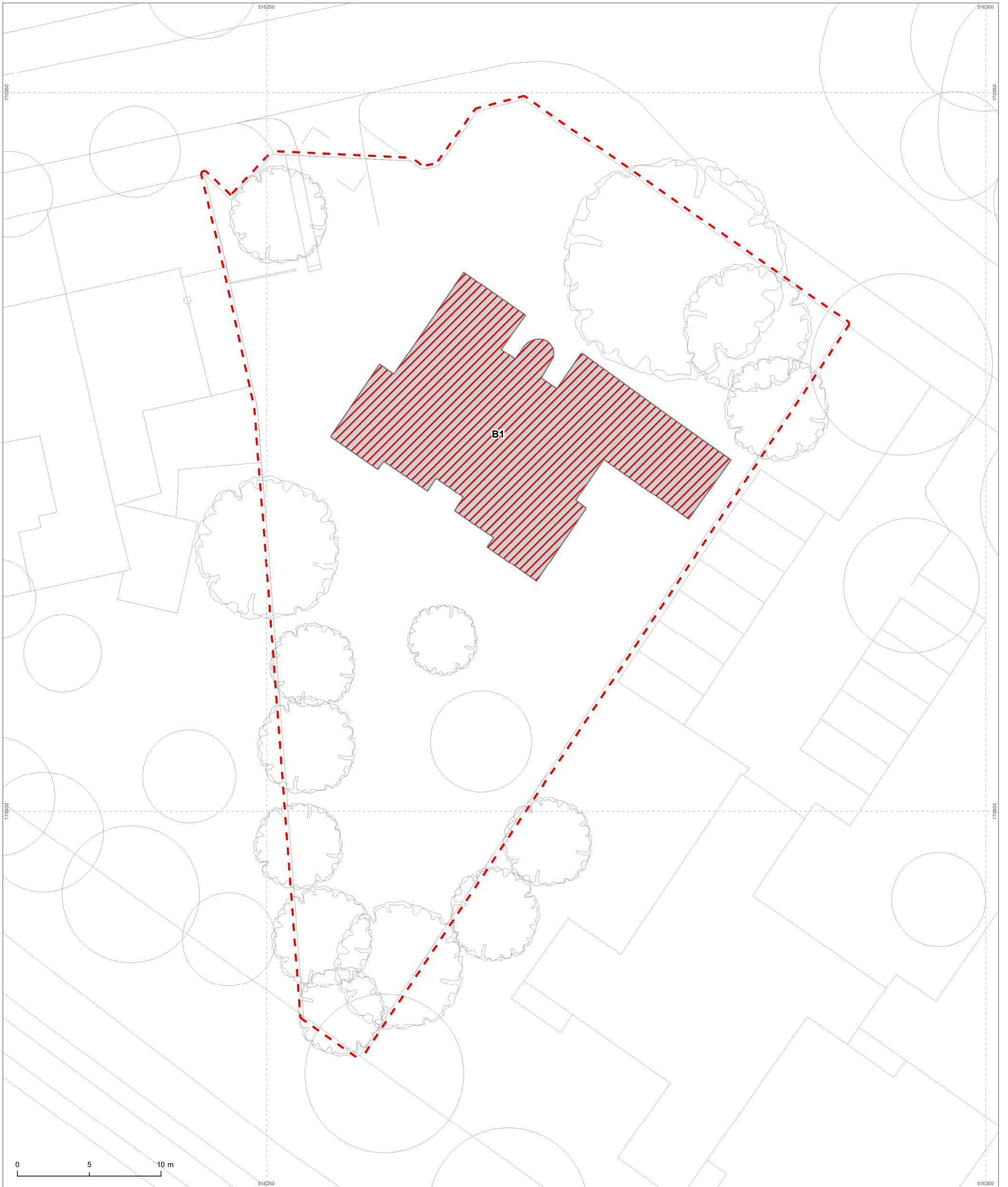
- Avoiding the installation of new lighting in proximity to key ecological features, such as scattered mature and young trees and amenity grassland to the south of the site.
- Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.
- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.
- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.
- For internal lights, recessed light fittings cause significantly less glare than pendant type fittings. The use of low-glare glass may also be appropriate where internal lighting has the potential to influence sensitive ecological receptors.

### R3 Habitat Enhancement

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive full/partial sun, although installing boxes in a variety of orientations will provide a range of climatic conditions. Position boxes at least 4 m above ground to prevent disturbance from people and/or predators. The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: evening primrose *Oenothera biennis*, goldenrod *Solidago virgaurea*, honeysuckle *Lonicera periclymenum* and fleabane *Pulicaria dysenterica*.


## 7. DRAWINGS

Drawing C154365-02 – Preliminary Bat Roost Assessment



**Legend**

- - - Site boundary
- Building
- /// High potential to support roosting bats

<b>Project</b>	Sheldon House, Cromwell Road, Teddington, Greater London	
<b>Drawing</b>	Preliminary Roost Assessment	
<b>Client</b>	Clive Chapman Architects	
<b>Drawing Number</b>	C154365-02	<b>Revision</b> 00
<b>Scale @ A3</b>	1:250	<b>Date</b> March 2021
<b>Approved By</b>	MS	<b>Drawn By</b> VO
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C154365-02



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## APPENDIX 1

### LEGISLATION

Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly\** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly\** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

\*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*.

The reader should refer to the original legislation for the definitive interpretation.

## ECOLOGY

At present, 18 species of bats are known to live within the United Kingdom, of which 17 species are confirmed as breeding. All UK bat species are classed as insectivorous, feeding on a variety of invertebrates including midges, mosquitoes, lacewings, moths, beetles and small spiders.

Bats will roost within a variety of different roosting locations, included houses, farm buildings, churches, bridges, walls, trees, culverts, caves and tunnels. At different times of the year the bats roosting requirements alter and they can have different roosting locations for maternity roosts, mating roosts and hibernation roosts. Certain bat species will also change roosts throughout the bat activity season with the bat colony using the site to roost for a few days, abandoning the roost and then returning a few days or weeks later. This change can be for a variety of reasons including climatic conditions and prey availability. Bats are known live for several years and if the climatic conditions are unfavourable at a particular roost, they may abandon it for a number of years, before returning when conditions change. Due to the matriarchal nature of bat colonies, the locations of these roosts can be passed down through the generations.

Bats usually start to come out of hibernation in March and early April (weather dependent), when they start to forage and replenish the body weight lost during the hibernation period. The female bats then start to congregate together in maternity roosts prior to giving birth and a single baby is born in June or July. The female then works hard to feed her young so that they can become independent and of a sufficient weight to survive the winter before the weather gets too cold and invertebrate activity reduces. Males generally live solitary lives, or in small groups with other males, although in some species the males can be found living with the females all year. The mating season begins in the autumn. During the winter bats hibernate in safe locations which provide relatively constant conditions, although they may venture outside to forage on warmer winter nights.