252 FINCHLEY ROAD, LONDON

BAT SURVEY

A Report to: Gapland Ltd

Report No: RT-MME-120535

Date: September 2015

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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	16/09/2015	Indre Barsketyte Grad CIEEM (Ecological Consultant)	Colin Bundy MCIEEM (Associate Director)	Dr Philip Fermor 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 July 2015 Douglas and King Architects, on behalf of Gapland Ltd, commissioned Middlemarch Environmental Ltd to undertake Bat Surveys at 252 Finchley Road, London. This assessment is required to inform a planning application associated with the construction of a new residential building containing twelve apartments.

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

The Daytime bat survey was undertaken on 10th August 2015. This identified a number of features that could be utilised by bats for roosting or as entrance points into the interior of the building, such as lifted/missing hanging tiles, gaps under ridge and roof tiles, lifted lead flashing, damaged brickwork, as well as gaps at the soffit box and wooden facia. This building was deemed to be of high potential to support roosting bats.

Nocturnal emergence and dawn re-entry surveys were undertaken between 24th August and 7th September 2015. No bats were recorded emerging from or re-entering the building on site and therefore it can be concluded that bats are not currently roosting within the building.

High levels of commuting and foraging activity by common and soprano pipistrelles were recorded within the back garden of the property.

The following recommendations have been made:

R1 252 Finchley Road has been subject to a full suite of activity surveys in line with Bat Surveys: Good Practice Guidelines, published by the Bat Conservation Trust (Hundt, 2012) and no bat roosts were identified. The survey data obtained for the site is valid for 12 months from the survey date. If development works to the surveyed building have not commenced within this timeframe it will be essential to update the survey effort to establish if bats have colonised the building in the interim. *Updated daytime surveys can be undertaken at any time of year. Updated surveys requiring nocturnal or dawn assessment will need to adhere to the BCT Guidance with the surveys undertaken between April and September inclusive.*

In the unlikely event that a bat is found during site works all works in that area must immediately cease and a suitably qualified ecologist should be contacted.

R2 The lighting strategy for the site should not lead in increase of lighting around the boundary features at night and the boundary vegetation within the back garden should be retained.

CONTENTS

1. INTRODUCTION

1.1 PROJECT BACKGROUND

In July 2015 Douglas and King Architects, on behalf of Gapland Ltd, commissioned Middlemarch Environmental Ltd to undertake Bat Surveys at 252 Finchley Road, London. This assessment is required to inform a planning application associated with the construction of a new residential building containing twelve apartments.

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 development site is located at 252 Finchley Road, London, at National Grid Reference TQ 2566 8539. The site measures approximately 0.14 ha in size and is situated in a predominately residential area. At the time of the survey, the site comprised a large three storey brick house, surrounded by areas of amenity grassland and shrub. Species-poor intact hedgerow and scattered trees were also present at the boundaries of the site.

The wider landscape comprised residential housing to the north, east and west of the survey area with Finchley Road along the southern boundary.

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
Tree protection plan / 15073-BT1	Barrel Tree Consultancy
Proposed ground floor / FINc252_ga 101	Douglas and King Architects

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

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

As part of the Preliminary Ecological Appraisal (Report RT-MME-120428-01) an ecological desk study (which included a search for records of bats) was undertaken within a 1 km radius of the site. The consultees for the desk study were Greenspace Information for Greater London (GIGL).

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by these organisations. 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.

2.2 DAYTIME SURVEY

In line with the specifications detailed in Bat Mitigation Guidelines (English Nature, 2004) and Bat Surveys: Good Practice Guidelines (Hundt, 2012), a daytime survey of the site was conducted.

A visual assessment was undertaken to determine the potential roosting value of the site, together with a general appraisal of the suitability of the site for foraging and commuting. Suitable roosting areas and accessible features which could allow bat access into potential roosting areas were inspected using a torch and endoscope for evidence of possible bat presence. Building were surveyed externally only.

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

2.3 ACTIVITY SURVEYS

2.3.1 Overview of Nocturnal Emergence and Dawn Re-entry Surveys

The building was classed as having high potential to support roosting bats due to the numerous features of potential interest to roosting bats identified during the daytime survey. In line with The Bat Conservation Trust (Hundt, 2012) guidance, three bat surveys were carried out consisting two nocturnal emergence bat surveys and one dawn re-entry bat survey. The aim of these surveys was to detect whether bats are roosting within the buildings, and to enable a profile of site utilisation by bats to be compiled.

2.3.2 Nocturnal Emergence Bat Surveys

In line with the specifications detailed Bat Surveys: Good Practice Guidelines (Hundt, 2012), two nocturnal emergence bat surveys were conducted on site. The surveys commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. The nocturnal emergence surveys were conducted using electronic bat detectors (Echo Meter Touch and Bat Box Duet with associated recording devices) to facilitate the detection of bats and to aid in the determination of species of bat using the site. Subsequent computer analysis of recordings allowed all species of bat using the site to be identified.

2.3.3 Dawn Re-Entry Bat Survey

Bats swarm at their roost site 10-90 minutes prior to entering the roost at dawn (Mitchell-Jones & McLeish, 2004). Surveying for dawn swarming by bats is an efficient way of detecting new bat roosts. In line with the specifications detailed by Bat Surveys: Good Practice Guidelines (Hundt, 2012) the dawn survey commenced 120 minutes prior to sunrise and continued until sunrise. To facilitate the detection of bats and to aid in the determination of species of bat using the site, the dawn survey was conducted using electronic bat detectors (Echo Meter Touch and Bat Box Duet with associated recording devices). Computer analysis of bat detector information collected was utilised to identify all species recorded on the site.

3. DAYTIME SURVEY RESULTS

3.1 DESK STUDY

3.1.1 Statutory Nature Conservation Sites

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

3.1.2 Species Records

Records of bat species within a 1 km radius of the survey area provided by the local record centre 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?	Local BAP?	Legislation / Conservation Status
Nyctalus Bat *Nyctalus* sp.	1	2014	780 m west	#	✓	ECH 4, WCA 5, WCA 6
Leisler's bat *Nyctalus leisleri*	1	2014	780 m west	-	✓	ECH 4, WCA 5, WCA 6
Noctule *Nyctalus noctula*	2	2014	780 m west	✓	✓	ECH 4, WCA 5, WCA 6
Pipistrelle *Pipistrellus* sp.	9	2014	632 m north	#	✓	ECH 4, WCA 5, WCA 6
Common pipistrelle *Pipistrellus pipistrellus*	22	2014	565 m north	-	✓	ECH 4, WCA 5, WCA 6
Soprano pipistrelle *Pipistrellus pygmaeus*	2	2014	780 m west	✓	✓	ECH 4, WCA 5, WCA 6
Bats *Vespertilionidae*	1	2002	412 m north	-	✓	ECH 4, WCA 5, WCA 6
Natterer's bat *Myotis nattereri*	1	2002	Potentially within 1 km	-	✓	ECH 4, WCA 5, WCA 6
Brown long-eared bat *Plecotus auritus*	5	2006	Potentially within 1 km	✓	✓	ECH 4, WCA 5, WCA 6

Key:
#: Dependent on species

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.

Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.
Local BAP: Biological Action Plan Priority London

Note. This table does not include reference to the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats), the Bonn Convention on the Conservation of Migratory Species of Wild Animals or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

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

3.2 INTRODUCTION

The Daytime Bat Survey was conducted on 10th August 2015 by Indre Barsketyte, Ecological Consultant.

Weather conditions were recorded and are presented in Table 3.2.

Parameter	Conditions
Temperature (°C)	20
Cloud Cover (%)	100
Precipitation	Light Rain
Wind Speed (Beaufort)	F0

Table 3.2: Weather Conditions During the Daytime Survey

3.3 CONSTRAINTS

No access into the interior of the building was possible.

Due to the position of the house with regards to neighbouring properties, the north western elevation of the house was blocked from the view and therefore could not be fully inspected. However it is understood that all the loft spaces have been converted into accommodation and therefore there are no accessible roof spaces present

3.4 SURVEY RESULTS

Two structures were present on site: 252 Finchley Road and a wooden shed. The wooden shed (Plate 3.1) located at the back of the garden was fully inspected and was deemed to have no potential to support roosting bats and therefore is not further discussed within this report.

Plate 3.1: Wooden shed

3.4.1 252 Finchley Road

External Assessment
252 Finchley Road was a three storey brick building with a mixture of pitched, hipped and flat, clay tiled roofs (Plate 3.2). The building included a single storey, brick conservatory along the northern elevation (Plate 3.3) and a single storey, brick garage with a roof terrace along the eastern elevation (Plate 3.4). A number of chimneys and dormer windows were also present (Plate 3.5). Windows were a mixture of double glazed uPVC and wooden frame windows which were tightly sealed. Hanging tiles at gable ends were also present (Plate 3.2).

Plate 3.2: 252 Finchley Road

Plate 3.3: Single-storey conservatory

Plate 3.4: Garage

Plate 3.5: Chimneys and dormer window

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:

- Gaps under roof tiles (Plate 3.6).
- Gaps under ridge tiles (Plate 3.7).
- Lifted and missing hanging tiles (Plate 3.8).
- Lifted wooden facia (Plate 3.9).
- Gaps around the soffit box (Plate 3.10).
- Lifted lead flashing around the base of the chimney and around dormer windows (Plate 3.11 and 3.12).
- Cracks or holes in brickwork (Plate 3.13).

Plate 3.6: Gaps under roof tiles

Plate 3.7: Gaps under ridge tiles

Plate 3.8: Missing hanging tile

Plate 3.9: Lifted wooden facia

Plate 3.10: Gap at soffit box

Plate 3.11: Lifted lead flashing

Plate 3.12: Lifted lead flashing

Plate 3.13: Damaged brickwork

It was not possible to fully 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.

3.4.2 Site and Surrounding Habitats

The site provides good quality of foraging and commuting habitats for bats in the form of trees and shrub present along the site boundaries. Hampstead Heath with associated woodland, grassland and running and standing waterbodies is located approximately 900 m north east of the site, Regents Park is located approximately 2.7 km south east of the site.

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

- Residential houses and associated gardens.
- Pockets of woodland.
- Churches, schools and associated grounds.
- Cemeteries.
- Railway lines with vegetated banks.

The site is well connected to these wider habitats through a network of residential gardens.

4. ACTIVITY SURVEY RESULTS

4.1 FIRST NOCTURNAL EMERGENCE SURVEY

The nocturnal emergence survey was undertaken on 24th August 2015 by Indre Barsketyte, Ecological Consultant, Jamie Fletcher, Ecological Projects Officer and Victoria Aelen, Ecological Projects Officer. The weather conditions recorded at the time of the survey are detailed in Table 4.1.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	16	15
Cloud Cover (%)	100	80
Precipitation	None	None
Wind Speed (Beaufort)	F1	F0

Table 4.1: Weather Conditions During First Nocturnal Emergence Survey

The nocturnal emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:05 hrs (BBC Weather Centre Data for London). One species of bat, common pipistrelle was recorded during the survey. Survey results are plotted on Drawing C120535-01 in Chapter 7.

Common Pipistrelle
At 20:46 (41 minutes after sunset) a common pipistrelle bat entered the site from the south east and commuted offsite along the south western boundary. This bat did not emerge from or re-enter the building on site.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

4.2 DAWN RE-ENTRY SURVEY

The dawn re-entry bat survey was undertaken on 28th June 2015 by Indre Barsketyte, Ecological Consultant, Colin Morris, Field Ecologist and Will Rees, Ecological Projects Officer. The weather conditions recorded at the time of the survey are detailed in Table 4.2.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	13	12
Cloud Cover (%)	10	0
Precipitation	None	None
Wind Speed (Beaufort)	F0	F0

Table 4.2: Weather Conditions During Dawn Re-entry Survey

The dawn re-entry survey commenced 120 minutes prior to sunrise and continued until sunrise. Sunrise was at 06:06 hrs (BBC Weather Centre Data for London). Two species of bat, common pipistrelle and noctule, were recorded during the survey. Survey results are plotted on Drawing C120535-02 in Chapter 7.

Common pipistrelle
At 05:03, 05:05 and 05:34 (63, 61 and 32 minutes before sunrise) a common pipistrelle bat entered the site from the north and commuted offsite along the eastern boundary.

At 05:53 (13 minutes before sunrise) a common pipistrelle bat entered the site from the north west and commuted off site along north eastern boundary.

Noctule
At 4:25 (101 minutes before sunrise) noctule bat entered the site from the site south east and commuted off site to the north.

None of the bats recorded on site emerged from or re-entered the building on site. No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

4.3 SECOND NOCTURNAL EMERGENCE SURVEY

The nocturnal emergence survey was undertaken on 7th September 2015 by Indre Barsketyte, Ecological Consultant, Jamie Fletcher, Ecological Projects Officer and Victoria Allen, Ecological Projects Officer. The weather conditions recorded at the time of the survey are detailed in Table 4.3.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	15	14
Cloud Cover (%)	100	100
Precipitation	None	None
Wind Speed (Beaufort)	F0	F0

Table 4.3: Weather Conditions During First Nocturnal Emergence Survey

The nocturnal emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 19:34 hrs (BBC Weather Centre Data for London). Two species of bat, common pipistrelle and soprano pipistrelle, were recorded during the survey. Survey results are plotted on Drawing C120535-03 in Chapter 7.

Common pipistrelle
At 19:40 (6 minutes after sunset) two common pipistrelles entered the site from the north east, proceeded to forage around the back garden until 19:52 (18 minutes after sunset) and left the site to the north east.

At 20:09 (33 minutes after sunset) a common pipistrelle bat entered the site from the west, proceeded to forage around the back garden until 20:11 (35 minutes after sunset) and left the site to the west.

At 20:15 (39 minutes after sunset) a common pipistrelle entered the from the north east, commuted over the along south eastern boundary and left the site to the north west.

Intermittent foraging by common pipistrelles was recorded within the back garden of the house from 20:21 (47 minutes after sunset) until the end of survey.

Soprano pipistrelle
At 19:52 (18 minutes after sunset) a soprano pipistrelle entered the site from the north, foraged around the north western boundary of the site until 19:55 (21 minutes after sunset) and left the site to the north.

At 19:57 and 20:07 (23 and 43 minutes after sunset) soprano pipistrelles entered the site from the south east, foraged on site for approximately 1 minute and left the site to the west.

None of the bats recorded on site emerged from or re-entered the building on site. No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

5. DISCUSSION AND CONCLUSIONS

5.1 SUMMARY OF PROPOSALS

It is proposed to demolish the existing building and build a new residential building containing twelve apartments with associated hard and soft landscaping

5.2 ASSESSMENT OF BUILDINGS

External assessment of the building has revealed a number of features that could be utilised by bats for roosting or as entrance points into the interior of the building, such as lifted/missing hanging tiles, gaps under ridge and roof tiles, lifted lead flashing, damaged brickwork, as well as gaps at the soffit box and wooden facia.

Due to the height of these features they could not be fully inspected during daytime survey and therefore a set of bat activity surveys was undertaken.

Due to a presence of large number of suitable roosting features, this building was deemed to be of high potential to support roosting bats.

5.3 POTENTIAL VALUE OF SITE TO BATS

The site provides good quality foraging and commuting opportunities to bats in the form of trees and shrub located along the boundaries. Furthermore the site is well connected to the wider good quality habitats such us pockets of woodland, parks, cemeteries, railway line and recreation grounds through a network of residential gardens.

Presence of good quality foraging and commuting habitats as well as high levels of foraging and commuting activity recorded during activity surveys makes this site of high value to bats.

5.4 SUMMARY OF BAT ACTIVITY SURVEYS

Nocturnal Surveys
Two bat species were recorded during the nocturnal surveys; common pipistrelle and soprano pipistrelle. During first nocturnal emergence survey one common pipistrelle bat was recorded commuting over site.

During the second nocturnal continuous foraging and commuting activity by common and soprano pipistrelles was recorded along the boundary vegetation in the back garden.

No bats emerged from or re-entered the building on site.

Dawn Swarm Survey
Two bat species were recorded during the nocturnal surveys; common pipistrelle and noctule. These bats were recorded commuting over the site using boundary vegetation in the back garden.

No bats emerged from or re-entered the building on site.

5.5 CONCLUSIONS

Following the suite of survey work undertaken on site it can be confirmed that the 252 Finchley Road does not currently contain a bat roost and therefore works can proceed as planned.

A large amount of foraging and commuting activity concentrated within the back garden was also observed from pipistrelle bats during the second nocturnal emergence surveys, indicating that the site is of high value to local bat population and therefore bats should be taken into consideration in post development landscaping choices as well as in designing a lighting strategy.

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.

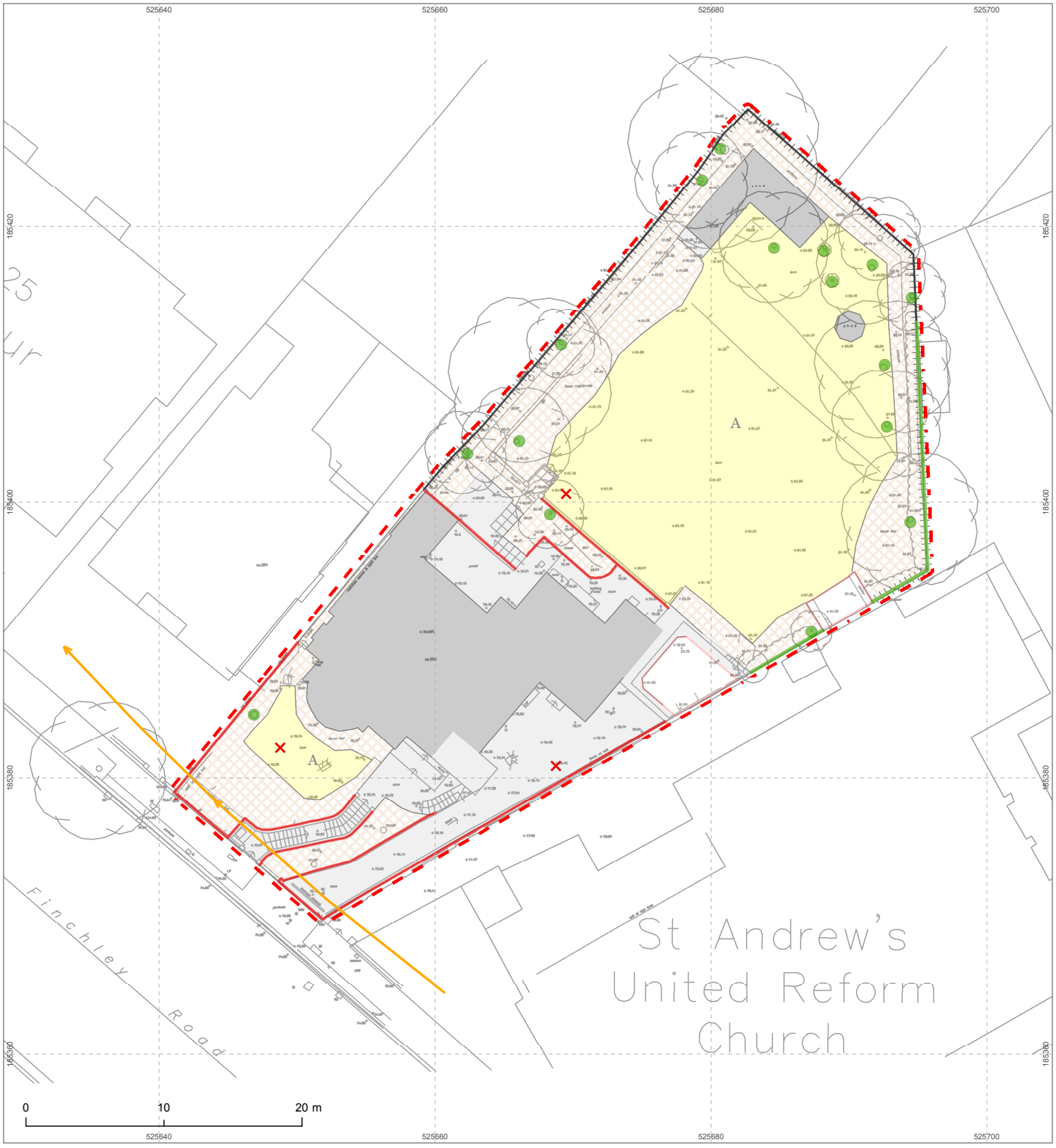
R1 252 Finchley Road have been subject to a full suite of activity surveys in line with Bat Surveys: Good Practice Guidelines, published by the Bat Conservation Trust (Hundt, 2012) and no bat roosts were identified. The survey data obtained for the site is valid for 12 months from the survey date. If development works to the surveyed building have not commenced within this timeframe it will be essential to update the survey effort to establish if bats have colonised the building in the interim. *Updated daytime surveys can be undertaken at any time of year. Updated surveys requiring nocturnal or dawn assessment will need to adhere to the BCT Guidance with the surveys undertaken between April and September inclusive.*

In the unlikely event that a bat is found during site works all works in that area must immediately cease and a suitably qualified ecologist should be contacted.

R2 The lighting strategy for the site should not lead in increase of lighting around the boundary features at night and the boundary vegetation within the back garden should be retained.

7. DRAWINGS

Drawing C120535-01 – First Nocturnal Emergence Survey
Drawing C120535-02 – First Dawn Re-entry Survey
Drawing C120535-03 – Second Dawn Re-entry Survey



Legend

- Surveyor location
- Common pipistrelle activity
- Site boundary
- Scattered tree
- Fence
- Species-poor intact hedgerow
- Wall
- A — Amenity grassland
- Building
- Hardstanding
- Shrub
- Other habitat

Project	252 Finchley road, London
Drawing	1st Nocturnal Emergence Survey
Client	Douglas and King Architects
Drawing Number: C120535-01	Revision: 00
Scale @ A4: 1:400	Date: September 2015
Approved By: IB	Drawn By: CD

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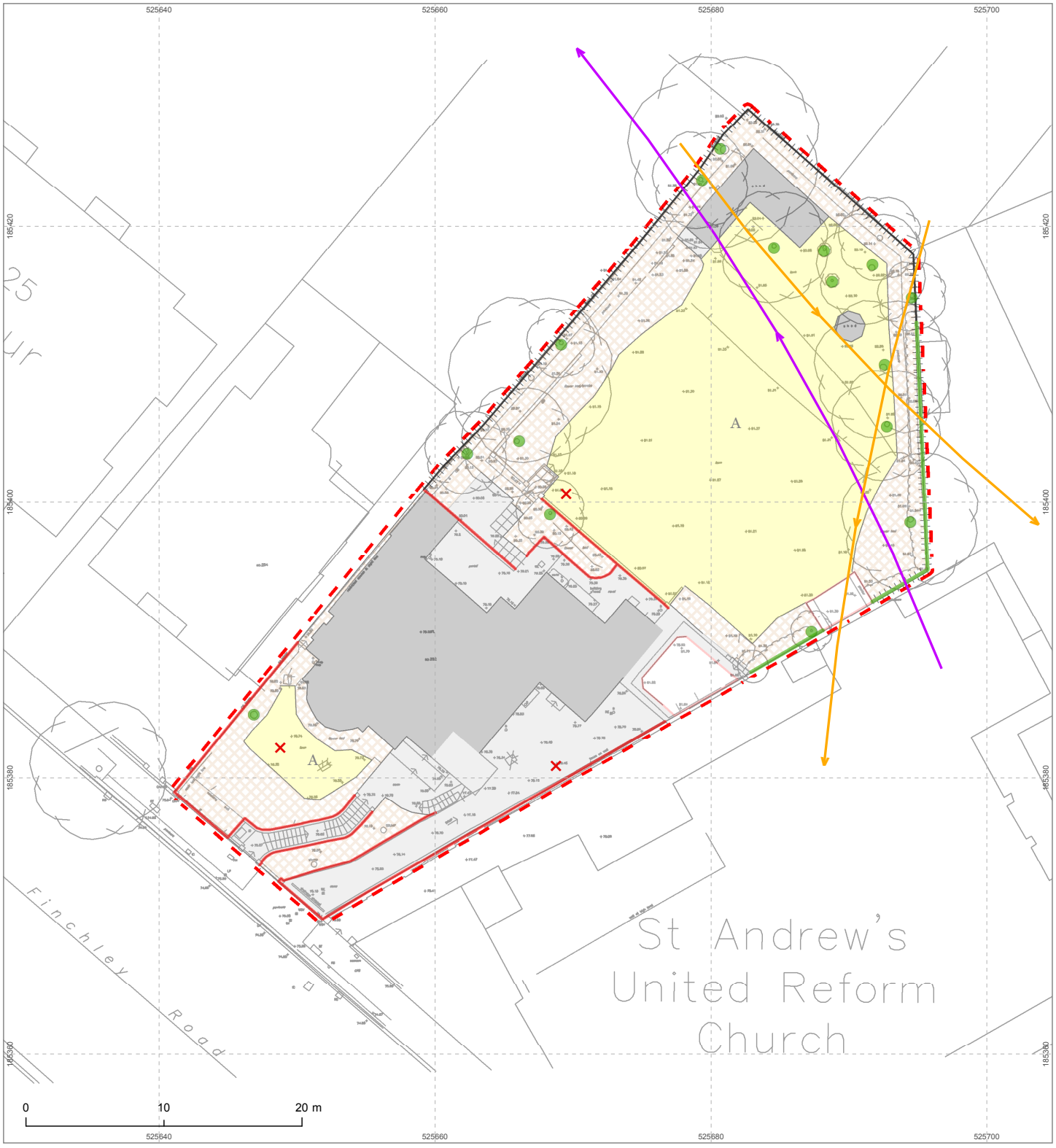

Legend

- Surveyor location
- Common pipistrelle activity
- Noctule bat activity
- Site boundary
- Scattered tree
- Fence
- Species-poor intact hedgerow
- Wall
- A — Amenity grassland
- Building
- Hardstanding
- Shrub
- Other habitat

Project	252 Finchley road, London
Drawing	Dawn Re-entry Survey
Client	Douglas and King Architects
Drawing Number	C120535-02
Revision	00
Scale @ A4	1:400
Date	September 2015
Approved By	IB
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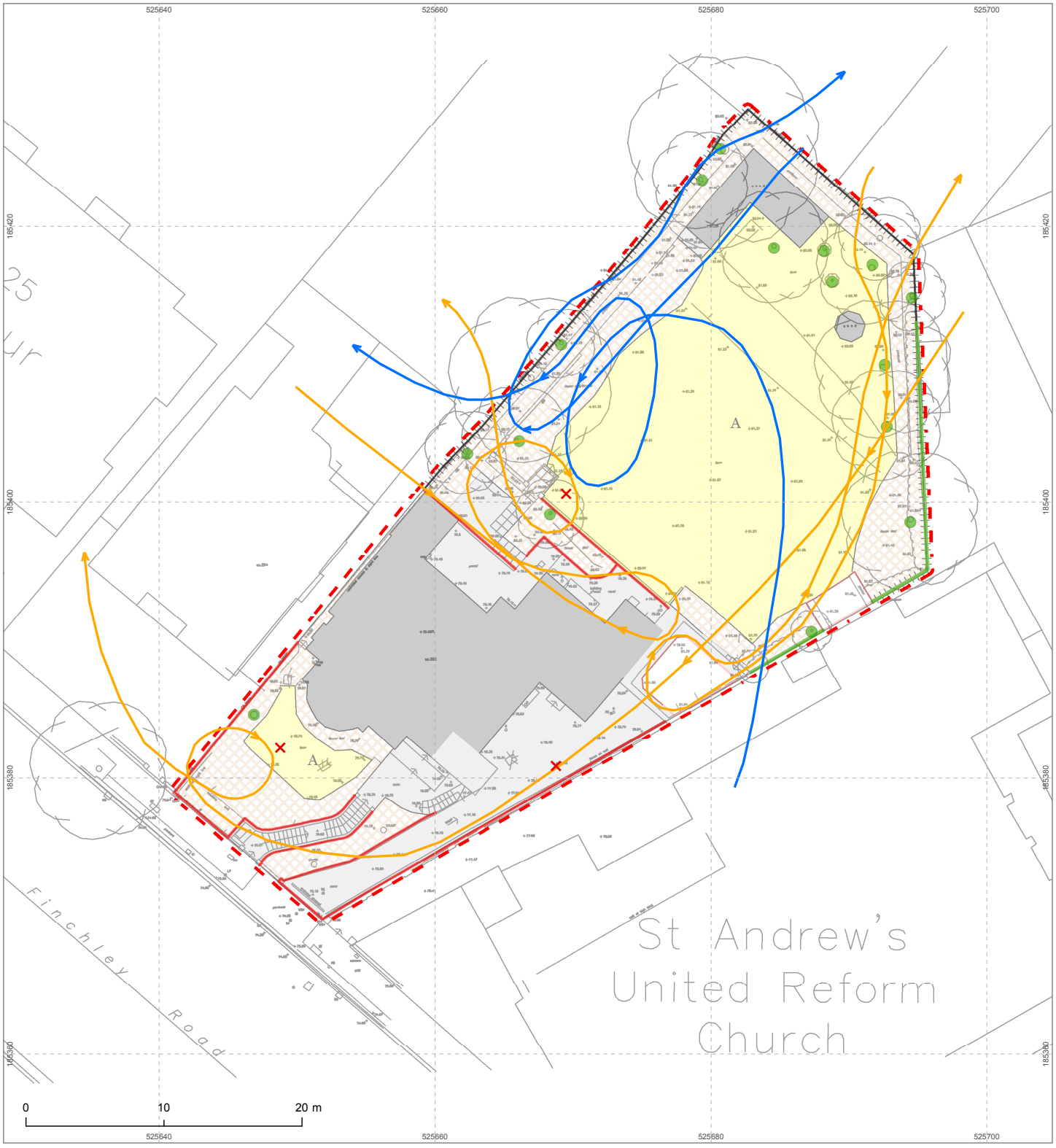

Legend

Feature

- Surveyor location
- Common pipistrelle activity
- Soprano pipistrelle activity
- Site boundary
- Scattered tree
- Fence
- Species-poor intact hedgerow
- Wall

- A Amenity grassland
- Building
- Hardstanding
- Shrub
- Other habitat

Project	252 Finchley road, London
Drawing	2nd Nocturnal Emergence Survey
Client	Douglas and King Architects
Drawing Number: C120535-03	Revision: 00
Scale @ A4: 1:400	Date: September 2015
Approved By: IB	Drawn By: CD

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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 2010, as amended (Habitats Regulations 2010, as amended). 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 2010 (as amended), 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 2010 (as amended) 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* (rather than deliberately) 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.