



Environmental Planning
Design & Management

Mr John Weston and Ms Rachel Lord
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Our reference 6318 92 Fitzjohn's Avenue, Hampstead
Date 20/01/2015

Dear Mr Weston and Ms Lord

92 Fitzjohn's Avenue, Hampstead: Revised Planning Application 2014 and Ecological Implications

I understand that it is proposed to submit a revised full planning application for a replacement dwelling at 92 Fitzjohn's Avenue, Hampstead.

LUC previously provided a bat survey report which was approved as part of an earlier, still extant, planning permission for a similar development on the same site¹ (**LUC, 2013, 92 Fitzjohn's Avenue Bat Surveys** – appended to this letter). The surveys comprised an internal and external bat inspection and subsequent emergence/return surveys undertaken in accordance with best practice guidance. The surveys did not find any evidence of bats using the existing buildings for roosting. Bat activity levels in the garden and adjacent areas were relatively low and comprised species of pipistrelle - species which are relatively widely recorded in urban situations.

Given the findings of the survey and the date that these were undertaken, I am satisfied that no further ecological surveys are required to support a revised planning application given that a) the mitigation and enhancement measures identified in the 2013 report will be implemented, and b) that the revised planning application is to be submitted this year (i.e. prior to 2016).

Should the submission be delayed until 2016 or later, we would recommend that updated bat surveys are undertaken. Given the seasonal requirements for bat surveys these would need to be undertaken between May to September.

In summary, the mitigation proposals comprise:

- Implementation of a precautionary approach to building demolition given the low risk of roosting bats. To comprise the careful removal by hand of features which could support bats, including roof tiles, lead flashing and fascia boards. If bats or signs of bats are recorded during these works, works must halt and an ecologist should be contacted to determine how best to proceed.

¹ Conservation area consent for demolition of the existing dwelling (ref 2013/1448/C) and planning permission for the erection of a new house (ref 2013/1119/P).

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- Principals for landscape planting to include incorporation of opportunities for wildlife, including for foraging bats.
- Green roof proposed.
- Installation of bird and bat boxes within retained trees or the proposed building.

The extant planning permission on the site includes a condition requiring details of bird and bat boxes, the last item in the above list. In order to provide greater clarity up front, and to avoid the need for a similar condition, we are providing these details as part of this new planning application. The details are explained below:

- Three bat boxes (of a self-cleaning design suitable for summer roosting by crevice dwelling bats, for example www.nhbs.com/title/195745/nhbs-kent-bat-box) to be installed in tree on the south east side of the property. These should be installed at a height of at least 3-4m and at various aspects, ideally south, east and west facing (although this may in part be determined by accessibility and the form of the tree). The north face of the tree should be avoided if at all possible. Once installed, ecological advice should be sought should the boxes need to be removed or disturbed given the risk of impacting on any bats roosting within.
- Two bird boxes to be installed in the tree on the north west side (many designs are available for common garden bird species which would be appropriate for this location, for example the 1B Schwegler Nest Box for garden bird species <http://www.nhbs.com/title/158587/1b-schwegler-nest-box>). These should ideally be installed above 2m (to reduce disturbance), and facing between north and east to avoid strong sunlight and prevailing weather (if sheltered other aspects may be suitable).

The tree locations are shown on the below sketch plan. These were selected as they are within the clients ownership and are of a size and maturity suitable for the attachment of the boxes (in terms of size of the trunk and stability). The mature canopies are also likely to make the trees attractive for birds and bats improving the likelihood of success.



If you require any further assistance, please do not hesitate to get in touch.

Yours sincerely

A handwritten signature in blue ink that reads "Peter Lawrence". The signature is written in a cursive style with a large initial 'P'.

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Appendix 1: LUC, 2013, 92 Fitzjohn's Avenue Bat Surveys



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92 Fitzjohn's Avenue Bat Surveys

Prepared by LUC
May 2013

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Project Title: 92 Fitzjohn's Avenue Bat Surveys

Client: Mr Weston and Ms Lord

Version	Date	Version Details	Prepared by	Checked by	Approved by Principal
1.0	10/05/2013	Issue 1	Corey Cannon/Peter Lawrence	Peter Lawrence	Steve Jackson-Matthews
2.0	14/05/2013	Final Issue (following client comment)	Corey Cannon/Peter Lawrence	Peter Lawrence	Steve Jackson-Matthews

Contents

1	Introduction	1
2	Survey Method	2
	Desk Study	2
	Bat Inspection	2
	Bat Emergence Surveys	3
	Limitations	3
3	Results	5
	Desk Study	5
	Bat Inspections	5
	Bat Emergence Surveys	7
4	Recommendations	9
Appendix 1		10
	Legal protection afforded to bats	10
Appendix 2		11
	Photographs	11
Appendix 3		14
	Bat emergence survey results	14

Tables

Table 2.1 Bat Roost Potential Categories	2
Table 3.1: Weather Conditions For Emergence Surveys	3

1 Introduction

- 1.1 In April 2013, LUC was appointed by Mr Weston and Ms Lord to undertake bat surveys of a residential property at 92 Fitzjohn's Avenue, London, NW3 6PD (the Site).
- 1.2 A planning application for the demolition of the Site's existing buildings, and development of a new residential property, was submitted to the London Borough of Croydon in February 2013 (application for Conservation Area Consent for demolition (2013/1448) and Planning Permission for new building (2013/1119)). The bat inspection was required following comment from The London Borough of Camden in April 2013. Bats and their roosts are subject to legal protection in the UK as European Protected Species (see Appendix 1).
- 1.3 An internal and external survey was undertaken of buildings on the Site in April 2013, and following this bat emergence surveys were undertaken in May 2013 focusing on the residential property. This report detailed the findings of both surveys.
- 1.4 The property is set back from Fitzjohn's Avenue to the rear of St Anthony's Preparatory School, and comprises a residential property with a garage set in a garden. The area is largely residential in character (although the immediate neighbours include three schools, a residential care home and a large block of flats), being well developed, with numerous gardens and trees present in the vicinity. Hampstead Heath is located some 500m to the north east of the Site. Given the nature of the habitats in the vicinity, it was considered likely that bats may be present in the locality, using gardens and treed habitats for foraging and as flightlines, and potentially using trees and buildings for roosting.

2 Survey Method

Desk Study

- 2.1 A desk study was undertaken to identify any pre-existing records of bats or their roosts within a 4x4km grid square of the Site. The records were provided by The London Bat Group in April 2013.
- 2.2 Biological records provide a useful indication of the species present within a searched locality. It should be noted that the absence of a given species from the dataset cannot be taken to represent actual absence. Furthermore, species distribution patterns should be interpreted with caution, as they may reflect survey or recording effort.

Bat Inspection

- 2.3 A bat inspection was undertaken on 12 April 2013 in accordance with Bat Conservation Trust (BCT) best practice guidance (2012)¹ by Peter Lawrence (Natural England bat survey licence no. CLS01003). This comprised a ground-based inspection of the exteriors of the buildings using binoculars and a high powered torch, and an inspection of the internal loft voids using a high powered torch. Both the residential property and garage were inspected.
- 2.4 The buildings were classified according to their potential to support bat roosts in accordance with the criteria detailed in **Table 2.1** (adapted from BCT guidance).

Table 2.1 Bat Roost Potential Categories

Category	Description
Known or confirmed bat roost	Bats or evidence of bats recorded, both of recent and/or historic activity. Works affecting a roost are licensable. Further survey (e.g. dusk emergence/dawn re-entry survey in accordance with best practice) is required to determine the bat species present, nature of roost and level of use before mitigation can be determined. Seasonal constraints may apply.
1 High BRP Buildings/trees with features capable of supporting a bat roost.	Features include holes, cracks or crevices that extend or appear to extend back to cavities suitable for bats. In buildings, examples include eaves, barge boards, gable ends and corners of adjoining beams, ridge and hanging tiles, behind roofing felt or within cavity walls. In trees, examples include rot holes, woodpecker holes, splits and flaking or raised bark which could provide roosting opportunities. Any ivy cover is sufficiently well-established and matted so as to create potential crevices beneath. Further survey is required to determine whether or not bats are present and if so, the bat species present, nature of roost and level of use. Appropriate mitigation and potentially licensing requirements may then be determined. Seasonal constraints may apply.
2 Low BRP	From the ground, building/tree appears to have features (e.g. holes, cavities or cracks) that may extend back into a cavity. However,

¹ **Hundt, L. (2012)** *Bat Surveys: Good Practice Guidelines, 2nd edition*. Bat Conservation Trust, London

	<p>owing to the characteristics of the feature, they are deemed to be sub-optimal for roosting bats. Alternatively, if no features are visible but owing to the size and age and structure, hidden features, sub-optimal for roosting bats, may occur that only an elevated inspection may reveal. In respect of ivy cover, this is not dense (i.e. providing BRP in itself) but may mask presence of BRP features.</p> <p>No further survey is required. Works may proceed using reasonable precautions (e.g. controlled working methods, supervision of a bat worker. Seasonal constraints may apply).</p>
3 Negligible	<p>An inspected building/tree that is considered not to have potential for roosting bats. No further survey or mitigation required.</p>

Bat Emergence Surveys

- 2.5 Two emergence surveys were carried out on the 1st and 7th May 2013, with three experienced surveyors on each occasion. This was considered an appropriate level of survey given the nature of the building/environs and considering the findings of the surveys. Surveyors were positioned around the building to ensure all features with bat roost potential could be adequately viewed. All surveyors were appropriately qualified and experienced ecologists:
- Survey 1: Peter Lawrence (Natural England bat survey licence no. CLS01003), Eric Heath and Corey Cannon.
 - Survey 2: Peter Lawrence (Natural England bat survey licence no. CLS01003), Eric Heath and Steve Jackson-Matthews (Scottish Natural Heritage bat survey licence no. 13809).
- 2.6 Both surveys were conducted using Bat Box Duet and Pettersson D 240x heterodyne and time expansion detectors. Bat calls were recorded using TASCAM digital records and iRiver MP3 players, for subsequent analysis using BatSound software (if required).
- 2.7 Bat foraging and commuting activity was also recorded during the surveys, with species, number, time and direction of flight recorded to gain an insight as to how the Site is utilised by foraging or commuting bats.
- 2.8 **Table 3.1** below provides weather conditions for the emergence surveys.

Table 2.2: Weather Conditions For Emergence Surveys

Date	Weather conditions
01 May 2013	Dry, slight breeze, and mostly clear. Approx. 12 °C at the start of the survey.
07 May 2013	Dry, slight breeze, and clear. Approx. 14 °C at the start of the survey.

Limitations

- 2.9 The inspection survey followed an evening of light rain and therefore signs of bats (droppings) may have been dislodged from the building exteriors.
- 2.10 The south east face of the roof (on the eastern section of the building) could not be viewed during the inspection or emergence survey as this elevation of the building abutted the neighbouring property. However, this was taken in to consideration when interpreting the survey results including times of bat passes (in comparison to emergence times for different species of bat) and the direction of flight of bats. All other aspects of the building could be viewed.

- 2.11 Ecological surveys provide baseline information for a site at that time only. Specifically with regard to bat surveys, bats can use certain roosts occasionally or only at certain times of year and therefore there remains a risk that surveys do not identify such roosts. This has been considered during the development of recommendations relating to building demolition. If a significant amount of time lapses between the surveys and the further development or implementation of proposals, updated ecological surveys may be required to identify any change in the baseline conditions. Therefore, if a year lapses between the survey and progression of development proposals, it is recommended that ecological advice is sought regarding the applicability of survey findings.

3 Results

Desk Study

- 3.1 Pre-existing records of bat roosts within 4 x 4km grid square of the Site were provided by The London Bat Group. A large number of records were obtained of bats and bat roosts but the majority of these were records from Hampstead Heath. The species records are summarised in **Table 3.1**.

Table 3.1 Summary of bat species recorded within 4x4km of the Site

Roosts and field records
Common Pipistrelle <i>Pipistrellus pipistrellus</i>
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>
Brown long-eared <i>Plecotus auritus</i>
Natterer's bat <i>Myotis nattereri</i>
Daubenton's <i>Myotis daubentonii</i>
Noctule <i>Nyctalus noctula</i>
Serotine <i>Eptesicus serotinus</i>

- 3.2 The data includes 24 roost records, including those to the south of Hampstead Heath in the vicinity of the Site. The closest roost record was for a *Pipistrelle* sp. roost at Frognall Way, approximately 300-400m to the west of the Site (exact location unknown).

Bat Inspections

- 3.3 The buildings on the Site comprised a garage and residential property. The residential property was a relatively modern, brick built two-storey building with a tiled roof. Broadly speaking it comprised a western, rectangular section (with a small, single storey ground floor extension to the rear); and an 'L' shaped eastern section. Both sections were linked and fully connected at ground and first floor; however the roof voids of each section were separated by a brick wall. Both voids were fully accessible for the internal bat inspection. Photographs are provided in **Appendix 2**.

Garage

- 3.4 The garage was a flat roofed structure with no opportunities for roosting bats, such as raised edges to the roof lining. This was therefore classified as having **negligible bat roost potential**. There are no constraints regarding the demolition of this building and it is not considered further in this report.

Residential property: Western section

Internal inspection

- 3.5 The internal space of the eastern roof void was uncluttered with few items stored and much of the floor clear for inspection. The floor was lined with board, aiding access, and did not appear to

have been swept or cleaned recently which would aid the identification of signs of bats, such as droppings, if present.

- 3.6 A window at the western gable end allowed light in to the roof void reducing its suitability to support roosting bats, whilst lighting was also present within the void.
- 3.7 The roof void of this section was formed of 'A-frame' rafters with the underside lined by a damp-proof membrane. There was a gap between the tiles and roof lining which could provide roosting opportunities for bats if there were external access points to this gap. In locations the membrane was damaged exposing the underside of the tiles. At these locations the tiles fitted together tightly and therefore there were no gaps between the tiles which would allow bats to access gap between the tiles and roof lining, or the roof void. No openings to the roof void were identified at the roof eaves.
- 3.8 No bats or signs of bats were identified within the void, or at locations where the roof lining was damaged and therefore the gap between the tiles and lining could be inspected.

External inspection

- 3.9 No opportunities were identified for roosting bats on the elevations of this section of the building, such as around the edges of window frames, and no signs of bats were identified on the external surfaces.
- 3.10 Soffits at the roof eaves were tightly fitting, and the gable ends of the roofs were tightly sealed with cementing between tiles. Occasional tiles adjacent to the gable ends were slightly raised providing few possible bat access points to the space between the tiles and roof membrane (although the potential for bats to access here may be restricted given the cement observed at the gable ends).
- 3.11 The join between the roof and a chimney (comprising tiles and lead flashing) at the rear of this section of the building appeared tightly fitting with restricted opportunities for bats to roost.
- 3.12 No opportunities for roosting bats were identified associated with the single storey extension to the rear of the western section of the building. Tiles and edges of the roof adjoining the building walls were tightly fitting.

Conclusion

- 3.13 The western section of the building was assessed as having **low bat roost potential** supported several features which, although unlikely, could technically support individual or small numbers of roosting bats.

Residential property: Eastern section

Internal inspection

- 3.14 Again this section of the roof void was uncluttered with access available throughout. A water tank was located at the western end. The floor was mostly unlined, with insulating wool material exposed between rafters.
- 3.15 The roof was again formed of 'A-frame' rafters. The very west end of this section of the roof was lined with damp proof membrane with some damaged sections through which the underside of tightly fitting tiles could be seen. These did not appear to offer roosting or access opportunities. The remainder, and majority, of the roof was lined with timber boards, providing a potential cavity for bats to roost between the tiles and lining, if gaps were present to allow bats to access this cavity.
- 3.16 Again no bats or signs of bats were recorded in the roof void.

External inspection

- 3.17 Again, no opportunities were identified for roosting bats on the elevations of this section of the building, such as at window frames, and no signs of bats were identified on the external surfaces.
- 3.18 This section of the building did not have soffits, although barge boards were located along the edge of the roof with guttering attached. On the whole this was tightly fitting, although small lengths were noted with gaps which could potentially provide a cavity suitable for individual or

small numbers of crevice dwelling bat species. Such gaps were identified at the following locations:

- On the south east elevation of a small flat roofed section on the south west face of the roof, above the front entrance to the house.
- Two locations at the rear of the building, one on the north east elevation near the corner of the 'L' shape and one on the north west elevation.

3.19 Small gaps were also identified at joints between different areas of roofing, below tiles or associated with lead flashing, including:

- Under lead flashing/tiles at the join between the roofs of the eastern and western sections.
- Under lead flashing where the above flat roofed section joins the main roof.
- Under lead flashing above a window at the rear on the north east elevation of the roof (at the edges of a small, flat-roof section).

3.20 On the whole the roof tiles were tightly fitting and did not provide opportunities for bats to access. However, few areas were present where gaps under tiles may allow bats to access the cavity between the tiles and the wooden roof lining. These included the following locations:

- Occasional gaps under ridge tiles where cement had become dislodged, particularly on the south face of the roof at the front of the property.
- A missing tile and occasional raised tiles on the north west face of the roof at the rear of the property.
- Gaps under the tiles at the apex of the north east gable end of this section of roof.

Conclusion

3.21 The western section of the building was assessed as having **high bat roost potential** given the presence of a number of features which could support roosting bats in their own right or provide access to the void between the tiles and the internal roof lining, although no signs of bats were recorded in the void itself or on external surfaces of the building.

Bat Emergence Surveys

3.22 No bats were seen to emerge or return to any potential roost access features within the roof of the residential property during either of the emergence surveys. Pipistrelle bats *Pipistrellus sp.* were recorded foraging and commuting through the Site during the emergence survey but with relatively low activity. The majority of records comprised soprano pipistrelle *Pipistrellus pygmaeus*. Full details of survey findings are provided in **Appendix 3**.

3.23 The evening bat emergence survey on 1st May 2013 commenced at 20:05. Sunset was at 20:23. The first bat recorded on Site was a pipistrelle at 21:05 (42 minutes after sunset) which was heard and seen foraging around the west end of the Site around a mature sycamore, at the Site entrance. Pipistrelle species typically emerge between 0 and 20 minutes after sunset and this record was therefore after the emergence period for this species, suggesting the bats did not emerge from a roost in the immediate vicinity. In total, five passes from Pipistrelle bats were recorded but it is likely that some of these were the same bat as it flew around the building, following vegetation, and passed the different surveyors. Therefore potentially only two individual bats were recorded for the duration of the survey (potentially Surveyor 1 Observation 1 and Surveyor 2 Observation 1 were the same bat; and the remaining three observations were from the same individual bat).

3.24 The evening bat emergence survey on the 7th May 2013 commenced at 20:15, with sunset at 20:33. The first bats were observed at 20.54 – 20.58 (21-25 minutes after sunset), with individual soprano pipistrelle and *Pipistrellus sp.* recorded at a similar time at the front and rear of the property (possibly the same individual flying around the building). The bat is likely to have emerged from the vicinity of the Site given the timing in relation to sunset, but was not observed emerging from the building itself. Higher levels of activity were recorded than during the first

survey with relatively regular foraging activity observed over the garden in the south west of the Site with activity again focused around a mature sycamore at the Site entrance.

4 Recommendations

- 4.1 No bats or signs of bats were recorded during the survey in either the roof void or on the external elevations of the property. No bats were observed emerging from the building, with bat activity levels relatively low and comprising species of pipistrelle - species which are relatively widely recorded in urban situations.
- 4.2 However, there remains a risk that bats (particularly pipistrelle bats which often roost in crevices features in buildings) may use features within the roof for shelter or roosting from time to time – surveys can only provide a sample of bat activity. Bats were recorded using the garden of the residential property for foraging, increasing the risk of occasional roosting. Therefore to ensure an illegal activity does not occur, it is recommended that demolition is undertaken in a precautionary manner through careful removal by hand of features which could support bats, including roof tiles, lead flashing and fascia boards. If bats or signs of bats are recorded during these works, works must halt and an ecologist should be contacted to determine how best to proceed.
- 4.3 A detailed planting plan is not yet not firmly defined given the status of the property as a private residence. The Design and Access Statement² states principals for landscape planting, with tree/scrub planting likely to include 'a mix of native woodland understorey trees, such as Hazel (*Corylus avellana*)'. The landscape strategy is for a thoroughly green and ecologically diverse experience – the design layout increases the area of green space within the Site and the design principals should ensure opportunities are provided for wildlife. It is therefore considered likely that the gardens of the property will continue to provide foraging opportunities for pipistrelle bats following construction.
- 4.4 The landscape proposals include a green roof comprising a native wildflower blanket. This would provide a diverse array of nectar sources throughout the year, attracting invertebrates and providing prey for bats.
- 4.5 Although the proposals will not result in the loss of any confirmed roosts, roosting opportunities will be lost. It is therefore recommended that replacement opportunities are provided. The Council have required the imposition of the following condition which will provide replacement bat roosting opportunities: "*Prior to first occupation of the development a plan showing details of bird and bat box locations and types and indication of species to be accommodated shall be submitted to and approved in writing by the local planning authority. The boxes shall be installed in accordance with the approved plans prior to the occupation of the development and thereafter retained.*"

² Make Architects (2013) 92 Fitzjohn's Avenue, NW3: Design and Access Statement

Appendix 1

Legal protection afforded to bats

All British species of bat are listed on the Wildlife and Countryside Act 1981 (as amended) Schedule 5. It is an offence to deliberately kill, damage, take (Section 9(1)) a bat; to intentionally or recklessly disturb a bat whilst it occupies a place of shelter or protection (Section 9(4)(b)); or to deliberately or recklessly damage, destroy or obstruct access to a bat roost (Section 9(4)(c)). Given the strict nature of these offences, there is an obligation on the developer and owner of a site to consider the presence of bats.

All British bats are listed on the Conservation of Habitats and Species Regulations 2010, Schedule 2. Regulation 41 strengthens the protection of bats under the 1981 Act against deliberate capture or killing (Regulation 41(1) (a)), deliberate disturbance (Regulation 41(1) (b))³ and damage or destruction of a resting place (Regulation 41(1) (d)).

A bat roost is defined as any structure or place which is used for shelter or protection, irrespective of whether or not bats are resident. Buildings and trees may be used by bats for a number of different purposes throughout the year including resting, sleeping, breeding, raising young and hibernating. Use depends on bat age, sex, condition and species as well as the external factors of season and weather conditions. A roost used during one season is therefore protected throughout the year and any proposed works that may result in disturbance to bats, and loss, obstruction of or damage to a roost are licensable.

Development works that may cause killing or injury of bats or that would result in the damage, loss or disturbance of a bat roost would require a Natural England (NE) European Protected Species (EPS) Licence. Three tests must be met before such a licence could be granted:

- (i) That the proposed activities are for the purpose of "Preserving public health or public safety or other imperative reason of over-riding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- (ii) There must be no satisfactory alternative.
- (iii) The action must not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range".

The last test usually requires the development of appropriate mitigation, which may include seasonal constraints and provision of alternative habitat and/or roosting structures. A EPS Licence application will only be considered on completion of surveys, and except in exceptional circumstances, on receipt of planning consent and the discharge of any conditions which are capable of being discharged prior to the commencement of works and which are of relevance to ecology. The application typically takes six weeks to process, after which licenced works can commence legally.

All UK species of bat are also listed on the UK BAP. Under the NERC Act, 2006 the Government has a duty to ensure that parties take reasonable practicable steps to further the conservation of these species.

³ Relates specifically to deliberate disturbance in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young or ii) the local distribution of that species.

Appendix 2

Photographs



Roof void, western section



Tightly fitting tiles visible through damaged roof lining



Roof void, eastern section



Wooden roof lining within eastern section



Examples of potential bat access points on the south west elevation of the building, at joins between sections of roofs and also below a fascia board.



Examples of potential bat access points on the north east elevation of the building, at the joint between the roofs of the eastern and western section.



Occasional missing/raised tiles on north west elevation of roof at the rear of the property

Appendix 3

Bat emergence survey results

Site name / reference		92 Fitzjohn's Ave.									
Survey 1										Date	01/05/2013
Survey Start (24 hr		20:05	Survey End (24 hr		21:55	Sunset	20:23	Sunrise			
Air Temp (°C)		12C - 7C	Wind¹		1	Cloud cover²	1	Rain³	0		
Weather conditions (description)		Fine and clear									
Surveyor 1. Name and location on site			Peter Lawrence, south of building								
Detector/recording device type			Batbox duet/iriver					File/track number		Audio005	
Obs. No.	Recording time	Species	No of bats	Seen (S)/ Not Seen (NS)	Activity type (E = Emergent, R = Returning to roost, F = Foraging; C = Commuting)			Direction of flight		Notes	
1	01:00:25 (21:05)	Pip	1	S	F			Along fence line, around sycamore tree			
2	01:08:14 (21:13)	Unknown	1	NS	F					Very brief pass, presume at distance	
Surveyor 2. Name and location on site			Corey Cannon, north of building, eastern section								
Detector/recording device type			Petterson Ultrasound detector/Tascam					File/track number		130501_0028.wav	
Obs. No.	Recording time	Species	No of bats	Seen (S)/ Not Seen (NS)	Activity type (E = Emergent, R = Returning to roost, F = Foraging; C = Commuting)			Direction of flight		Notes	
1	01:01:45 (21:06)	Unknown		NS	F					Very faint, presume at distance	
2	01:09:05 (21:14)	Pip	1	S	F			W to E, at the back of the house			
Surveyor 3. Name and location on site			Eric Heath, north of building, western section								
Detector/recording device type			Petterson Ultrasound detector/Tascam					File/track number		130501_0004.wav	
Obs. No.	Recording time	Species	No of bats	Seen (S)/ Not Seen (NS)	Activity type (E = Emergent, R = Returning to roost, F = Foraging; C = Commuting)			Direction of flight		Notes	
1	01:08	Pip		NS	F,C						

Survey 2						Date	07/05/2013
Survey Start (24 hr	03:36	Survey End (24 hr	00:00	Sunset	07:55	Sunrise	
Air Temp (°C)	20	Wind¹	1	Cloud cover²	1	Rain³	0
Weather conditions							

Surveyor 1. Name and location on site			Steve Jackson-Matthews, north of building, western section						
Detector/recording device type			Batbox duet				File/track number		n/a
Obs. No.	Recording time	Species	No of bats	Seen (S)/ Not Seen (NS)	Activity type (E = Emergent, R = Returning to roost, F = Foraging; C = Commuting)			Direction of flight	Notes
1	20.56	Pip?	1	NS	C				fairly distant call, apparently off-site (North)
2	21.02	pip 55	1	S	C			South-West	Entered the site from North and left to West
3	21.05	pip 55	1	S	F			North	Brief appearance over garage. Possibly same bat as above.
4	21.13	pip 55	1	S	F			North	Likely to be same bat as above taking wide foraging circles.
5	21.31	pip 55	1	NS	C				Distant call

Surveyor 2. Name and location on site			Eric Heath, north of building, eastern section							
Detector/recording device type			Petterson Ultrasound detector/Tascam					File/track number		42-44
Obs. No.	Recording time	Species	No of bats	Seen (S)/ Not Seen (NS)	Activity type (E = Emergent, R = Returning to roost, F = Foraging; C = Commuting)			Direction of flight		Notes
1	35.30 (20.54)	Pip 55?	1	NS	C					
2	04.20 (21.02)	?	1	NS	F					
3	07.00 07.20 (21.05)	Pip 55?		NS	F					
4	15.20 (21.13)	Pip 55?	1	NS	F					
5	0.30 (21:15)	Pip 55?	1	NS	F					New recording started 09.15_44
6	2.00 (21:17)	Pip 55?	1	S	F					In courtyard then flew over building to south
7	17.00 (21.31)	Pip 55?	1	NS	C					Very faint

Surveyor 3. Name and location on site			Pete Lawrence, south of building								
Detector/recording device type			Petterson Ultrasound detector/Tascam					File/track number		21 - 28	
Obs. No.	Recording time	Species	No of bats	Seen (S)/ Not Seen (NS)	Activity type (E = Emergent, R = Returning to roost, F = Foraging; C = Commuting)			Direction of flight		Notes	
1	17:00:00 (20:58)	Pip 55	1	S	F					Constant foraging around sycamore in garden	
2	Throughout recording particularly 03.21 (21:04)	Pip 55	?1	S	F					Flying around garden and perimeter	
3	Throughout recording particularly 5.42 (21:10)	Pip 55	?	S	F					Flying around garden and perimeter	
4	Overhead 0.47 (21:11)	Pip 55	1	S	F			South- West over garden		Feeding over garden	
5	2.05 (21:15)	Pip 55	1	NS	F					Very faint call	
6	2.55 (21.16)	Pip 55	1	S	F			South-West over garden			
7	13.22 (21.29)	Pip 55	1	NS	C						
8	0.2 (21.31)	Pip?	1	NS	C	F				Very faint call	