



APPENDIX 4.3 -
BAT SURVEYS

HAMBLE AIRFIELD
HAMBLE LE RICE
HAMPSHIRE

NOVEMBER 2021

ON BEHALF OF CEMEX



The Old Squash Court,
Rempstone Hall,
Rempstone,
Corfe Castle,
Wareham,
Dorset,
BH20 5JQ
www.ecological-services.co.uk

Telephone: 01929 477115
E-mail: enquiries@ecological-services.co.uk

Authorisation

	Name	Date
Report prepared by:	ARH	30.11.2021
Report checked and authorised by:	JS	30.11.2021

The contents of this report were correct at the time of the last survey visit. The report is provided for the sole use of the named client and is confidential.

All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of the addressee in dealing with this. It may not be sold, lent, hired out or divulged to any third party not directly involved in this situation without our written consent. It is company policy to share species records collected during our surveys with local biological records centres unless instructed otherwise by the client.

CONTENTS

SUMMARY	1
1.0 INTRODUCTION.....	2
2.0 LEGISLATION AND POLICY.....	2
2.1 Legislation.....	2
2.2 Policy.....	3
3.0 METHODOLOGY.....	5
3.1 Desk study	5
3.1.1 Protected species assessment	5
4.0 RESULTS.....	9
4.1 Desk study	9
4.2 Field survey	10
5.0 CONCLUSIONS AND RECOMMENDATIONS.....	21
5.1 Bats (roosting).....	21
5.1.1 Summary of findings.....	21
5.1.2 Further recommendations.....	21
5.2 Bats (foraging and commuting).....	21
5.2.1 Summary of findings.....	21
5.2.2 Further recommendations.....	22
6.0 REFERENCES.....	23
APPENDIX I: Bat tree roost assessment results.....	24
APPENDIX II: Bat transect route and static detector locations	26
APPENDIX III: Key areas of bat activity.....	27
APPENDIX IV: Bat transect survey forms	28
APPENDIX V: Static monitoring results (2017/2018).....	44

SUMMARY

1. LC Ecological Services Limited (LCES) were commissioned by CEMEX UK to conduct bat surveys on the land at the former Hamble Airfield, Hamble Lane, Hamble-le-Rice, Eastleigh, Hampshire. This was required to support a planning application for a quarrying project.
2. The scattered trees (both within the site and just off-site), hedgerow trees and trees within the broadleaved woodland stands could all potentially support roosting bats.
3. No trees with potential to support roosting bats were identified within the site during any of the tree roost assessments undertaken by LCES in 2015, 2017 and 2021. A total of four trees located off-site adjacent to the north-west boundary along the east side of Hamble Lane were assessed as holding low potential to support roosting bats in 2021. Further recommendations are provided in section 5.1.
4. The grassland and scrub mosaic, native hedgerows and broadleaved woodland on site have been assessed as 'Moderate' in terms of their suitability to support foraging and commuting bats (Collins, 2016). The site is also well connected to further suitable habitat for foraging and commuting bats within the surrounding locality, including grasslands, scrub, native hedgerows, stands of broadleaved woodland and residential gardens. A suite of bat activity surveys were conducted by LCES in 2017/2018 with update surveys undertaken in 2020.
5. A total of five species, and three genera of bat were recorded during the bat activity transect and monitoring surveys. It is considered that *Myotis* bat species, *Nyctalus* species, *Nathusius' pipistrelle*, and *serotine* are rare (Wray, 2010). Other species recorded on site are considered to be common and widespread. In the context of the bat populations in the wider area the site is considered to be of county importance. It is considered that the site contains an important commuting route or foraging area potentially associated with nearby bat roosts. Further recommendations are provided in section 5.2.

1.0 INTRODUCTION

LCES were commissioned by CEMEX UK to conduct bat surveys on the land at the former Hamble Airfield, Hamble-le-Rice, Hampshire, SO31 4NL (approximate central Grid Ref: SU 47765 07807) to support a planning application for phased aggregate extraction on the site, including the erection of a processing plant with silt lagoons and associated infrastructure, and post-quarrying restoration of the land.

Section 2 of the report provides some background information on legislative requirements and relevant policy. Section 3 details the methodologies adopted for the surveys conducted and section 4 provides an account of the survey results. Section 5 provides information on the relevance of the survey results to a potential development and makes recommendations if required.

2.0 LEGISLATION AND POLICY

2.1 *Legislation*

The following legislation may be of relevance to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DCLG Circular 06/2005.

- **The Conservation of Habitats and Species (Amendments) Regulations 2017:** This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The Regulations provide protection for a number of species including **all species of bat**.

This legislation makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect: (i) the ability of any significant group of the species to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of the species¹.

¹ The *Conservation of Habitats and Species (Amendments) Regulations 2017* consolidated the numerous amendments that were made to the Conservation (Natural Habitats, &c.) Regulations 1994. Of particular relevance are amendments made in August 2007 and January 2009 which increased the threshold of illegal levels of disturbance to European Protected Species (EPS). An offence is only committed if the deliberate disturbance would result in significant impacts to the EPS population. However, it should be noted that activities that cause low levels of disturbance to these species continue to constitute an offence under Section 9 of the Wildlife and Countryside Act (see below).

This legal protection means that where development has the potential to impact on bats, or other species of national interest², the results of a protected species survey must be submitted with a planning application.

- **The Wildlife and Countryside Act 1981 (and amendments):** Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species include **all species of bat**. It is an offence to intentionally, or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost.
- **Natural Environment and Rural Communities Act (NERC) 2006:** This Act enforces a duty on the planning authority and local council to conserve biodiversity (section 40). Additionally, section 41 encourages the local councils to be aware of the species and habitats of ‘principal importance’ and to act accordingly to protect and manage these habitats and species.
- **The Countryside and Rights of Way Act 2000:** This Act strengthens nature conservation and wildlife protection. It places a duty on Government Ministers and Departments to conserve biological diversity, provides police with stronger powers relating to wildlife crimes, and improves protection and management of SSSIs.
- **Wild Mammals (Protection) Act 1996:** This Act provides protection for all wild animals from intentional acts of cruelty.

2.2 Policy

The following policy is of relevance to the proposed works:

- **National Planning Policy Framework (NPPF):** This sets out the Government’s vision for biodiversity in England with the broad aim that planning, construction, development and regeneration should maintain and enhance, restore, or add to biodiversity and geological conservation interests. NPPF (2021) includes sections on legally protected species and sites in section 15 (2) (see section 2.1).
- **Local Sites (including Sites of Nature Conservation Interest (SNCIs), Local Nature Reserves (LNR), and Biological Notification Sites (BNSs)/Local Wildlife Sites (LWSs):** These are a network of sites designated for their nature conservation importance in a local context. Where such development is permitted, the local planning authority will use conditions and/or planning obligations to minimise the damage and to provide compensatory and site management measures where appropriate.
- **Natural England Protected Species Standing Advice:** The standing advice is used by local authorities as a fallback position when in pre-application consultation or

² Species of wild fauna and flora as listed in Annex II, IV or V of the Habitats Directive.

during the determination period to define habitat and species survey efforts and mitigation proposals.

- **Biodiversity Action Plans (BAPs):** BAPs set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets is derived from the NERC Act 2006 and was strengthened through the Countryside and Rights of Way Act 2000. Relevant Species Action Plans include: noctule (*Nyctalus noctula*) (UK BAP), soprano pipistrelle (*Pipistrellus pygmaeus*) (UK BAP), and brown long-eared bat (*Plecotus auritus*).

3.0 METHODOLOGY

3.1 Desk study

Hampshire Biodiversity Information Centre (HBIC) provided protected species records within two kilometres of the site boundary. The Multi-Agency Geographical Information for the Countryside (MAGIC) website was used to provide any information relating to granted European Protected Species Mitigation (EPSM) licences for bat species within two kilometres of the site boundary.

3.1.1 Protected species assessment

Bats

The site was assessed for its suitability to support roosting, foraging and commuting bats in accordance with the Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists Good Practice Guidelines* (Collins *et al.*, 2016).

Trees

Bats often roost in trees. Features such as old woodpecker holes, splits, cavities, and rot holes, loose or flaking bark, and ivy creepers will be exploited by bats to roost. Any individual or low number of trees present on site were therefore assessed for their potential to support roosting bats by searching for such features. The survey looked to identify suitable roosting features in trees and to assess their roosting potential in relation to current guidance (BTHK, 2018). The potential of trees to support roosts is based on the criteria in table 1 below.

Table 1: Criteria for assessing bat roosting potential of trees

High Roosting Potential	Trees with multiple, highly suitable features capable of supporting larger roosts including maternity and hibernation roosts.
Moderate Roosting Potential	Trees with definite bat potential, supporting fewer suitable features than high roosting potential trees or with potential for use by small numbers of bats.
Low Roosting Potential	Trees with potential to support an individual bat, or no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features which may have limited potential to support bats.
Negligible Roosting Potential	Trees with no potential to support bats.

Potential for the site to support roosting bats was originally assessed by licensed bat ecologist Russell Hoyle (2015-9482-CLS-CLS) and assisted by Amy Parsons on the 23rd

April 2015 with a full assessment of the trees on site and their potential to support roosting bats undertaken. Trees on the site and a number of mature off-site trees along the east side of Hamble Lane were subsequently checked by senior ecologist Andrew Heideman on the 26th May 2017, and again on 11th June 2021 to see whether conditions had changed since the previous assessment in accordance with the BCT guidelines (Collins *et al.*, 2016).

Foraging and commuting habitat

The habitat on the site was assessed for the quality of potential foraging and commuting habitat for the local bat populations. Bats navigate using linear features in the landscape, such as hedgerows and these can be important features for local roosts. The site itself may also provide important foraging habitat and support local bat roosts. Annex II species of bat may use the site for foraging and commuting.

Activity transect surveys

A suite of bat activity transect surveys were undertaken in 2017/2018 and in 2020, all in accordance with the BCT guidelines (Collins *et al.*, 2016). In general, bats are most active in the months March to September with the optimal months for undertaking transects being June to August. The 2017/2018 round of transect surveys were undertaken on site on the following dates: 30th May 2017, a combined dusk and pre-dawn survey on the 21st and 22nd June 2017, 24th July 2017, 17th August 2017, 7th September 2017, 18th October 2017 and 30th April 2018. The update 2020 transect surveys were undertaken on site on the following dates: 14th April 2020, 11th May 2020, a combined dusk and pre-dawn survey on the 15th and 16th June 2020, 9th July 2020, 17th August 2020, 8th September 2020, and 13th October 2020. The dusk surveys began at or just before sunset and continued for approximately two hours afterwards. The pre-dawn surveys took approximately two hours finishing at sunrise. This is to detect bats commuting between roost sites and foraging sites.

Bat transect surveys involve walking pre-defined routes which incorporate key areas that are likely to be important for foraging and/or commuting bats. Such areas include scrub and grassland and linear features such as hedgerows and woodland / scrub edge. In this case the transect routes were walked by a pair of surveyors. The routes were walked twice during any one survey at a steady speed and incorporated a number of listening stopping stations interspersed along the route. The surveyors paused at each listening stop for durations of five minutes. The transect routes used for all surveys is provided on the map in appendix II.

Bat activity was recorded by each pair of surveyors using a combination of Echometer touch (EMT), Anabat Scout, Anabat Express, and heterodyne Magenta MKII bat detectors (the heterodyne Magenta bat detectors were used alongside recording devices to aid detection of bats). Visual observations were also used to record flight patterns and feeding behaviour. Notes on times, species and behaviour were also recorded to aid identification to species level. The recordings, which were analysed using Kaleidoscope, and Anabat Insight were used to confirm where possible the species of bat observed during the survey.

Static detector monitoring

Static bat recording devices were also deployed on site during each month of the activity surveys work in 2017/2018 and in 2020 for a minimum period of five nights on each occasion for the purposes of recording further data on the usage of the site by foraging and commuting bats (Collins *et al.*, 2016). The recording devices used included Song Meter 2, Song Meter 4 and Anabat Express. The recording devices were deployed at the same strategically selected locations on site on each occasion, as detailed here below:

- Static monitor 1 (SU 47849 07604): Positioned within the southern half of the site within scrub and young trees.
- Static monitor 2 (SU 47520 08241): Positioned along the northern boundary of the site on the edge of woodland.

All analysis of the static detector recordings were undertaken using Analook and Anabat Insight. In order to accurately interpret the survey findings for the static monitoring the results of the survey were analysed using the Ecobat application (2021). This application is a tool run by The Mammal Society which is designed to ensure that common errors associated with the interpretation of bat data are avoided. The application requires the data gathered within the survey to be analysed and the calls determined to species level. Data analysis of bat calls was conducted using Analook Insight and this data was then imported into the software via the web portal. The Ecobat software does not currently have functionality to input noise files or other unidentified sounds and as such the records of these files were removed prior to being run through the application.

The Ecobat software uses records of bat species within the area to determine the activity level of the bat species recorded on site. This allows for a percentile output of the bat activity by bat species which allows for the accurate determination of the bat activity in the area, assessing the activity as low, moderate or high based on the relationship between the activity recorded on site and the activity recorded within the surrounding area.

As Ecobat requires data on the bat populations for each species within the area to determine the percentile results, its accuracy will increase with the number of bat recording added to its database. For this reason, its output will become more accurate over time. For the purposes of the software interpretation of the static bat data recorded in site, the following reference range was used to interpret the data set:

- Only records from within 30 days of the survey date.
- Only records from within 100km radius of the survey location.
- Records using any make of bat detector.

It should be noted that *Myotis* species will have the propensity for being under recorded as this genus will occasionally be broken down to species level where accurate identification of bats can occur. For the purposes of this survey *Myotis* bats were not specified as it is

considered not possible to accurately do this without capturing the bat and is no longer considered to be best practice. As the number of *Myotis* species referred to by Ecobat will depend on the recording method, the number of species in the surrounding area may appear artificially low depending on the data set and as such activity on site may appear higher than it is.

Assessment of foraging and commuting habitat importance

A methodology for the ecological impact assessment of bats has been developed by Wray *et al.* (2010). This uses several factors such as the species and number of bats involved, presence of roosts nearby and characteristics for foraging and commuting habitat to produce a score indicating level of importance. This scoring system has been applied to the foraging area and commuting routes for the site to assess their level of importance.

The value of the habitat can be assessed for each of the bat species recorded during the survey, but the highest score (normally obtained for the rarest species) is used when defining the value of the habitat. The scores relate to the following levels of importance:

- 0 – 10 = not valuable
- 11 - 20 = locally important
- 21 - 30 = important at county level
- 31 - 40 = important at regional level
- 41 - 50 = nationally important
- >50 = internationally important.

Limitations

Night-time temperatures for the April 2020 and May 2020 dusk transect surveys were low, dropping to 7°C on both occasions. No bats were recorded on the April transect, and just a single common pipistrelle was recorded on the May transect. However, static monitoring during these months (which record over a period of 5 to 10 days) did record bats for these months. The lack of bat data from these months transects is not deemed a significant issue.

4.0 RESULTS

4.1 Desk study

Table 2 below presents a summary of the bat records within two kilometres of the site boundary provided by HBIC in the updated data request. Table 3 below summarises the granted EPSM licences for bat species identified within two kilometres of the site boundary.

Table 2: Bat species records within a two kilometre radius of the site.

Common name	Scientific name	Status	Records (dates post 2010 only)
Bats			
Western Barbastelle	<i>Barbastella barbastellus</i>	Annex II ³ , Schedule 2 Habs Regs, Schedule 5 WCA, NERC ⁴ , UK BAP ⁵	1 record dated 2017.
Unknown bat species	<i>Chiroptera</i> sp.	Schedule 2 Habs Regs ⁶ , Schedule 5 WC ⁷	3 records dated between 2012 and 2020.
Serotine	<i>Eptesicus serotinus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	10 records dated between 2011 and 2018.
Myotis species	<i>Myotis</i> sp.	Schedule 2 Habs Regs, Schedule 5 WCA, NERC UK BAP	7 records dated between 2012 and 2018.
Daubenton's	<i>Myotis daubentonii</i>	Schedule 2 Habs Regs, Schedule 5 WCA	1 record dated 2016.
Whiskered	<i>Myotis mystacinus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	3 records dated 2016 and 2020.
Whiskered/Brandt's	<i>Myotis mystacinus/brandtii</i>	Schedule 2 Habs Regs, Schedule 5 WCA	4 records dated 2016 and 2017.
Natterer's	<i>Myotis nattereri</i>	Schedule 2 Habs Regs, Schedule 5 WCA	3 records dated 2016 and 2017.
Leisler's	<i>Nyctalus leisleri</i>	Schedule 2 Habs Regs, Schedule 5 WCA	1 record dated 2017.
Noctule	<i>Nyctalus noctula</i>	Schedule 2 Habs Regs, Schedule 5 WCA, NERC, UK BAP	17 records dated between 2011 and 2019.
Pipistrelle species	<i>Pipistrelle</i> sp.	Schedule 2 Habs Regs, Schedule 5 WCA, NERC, UK BAP	7 records dated between 2012 and 2018.
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	Schedule 2 Habs Regs, Schedule 5 WCA	2 records dated 2016 and 2018.

³ Annex II: Species listed under Annex II of The Habitats Directive (Directive 92/43/EEC)

⁴ NERC: Species of Principle Importance in England, NERC Act (2006), Section 41 list

⁵ UK BAP: UK Biodiversity Action Plan species

⁶ Habs Regs: The Conservation of Habitats and Species (Amendments) Regulations 2017

⁷ WCA: Wildlife and Countryside Act (1981) (as amended)

Common name	Scientific name	Status	Records (dates post 2010 only)
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Schedule 2 Habs Regs, Schedule 5 WCA	29 records dated between 2011 and 2020.
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Schedule 2 Habs Regs, Schedule 5 WCA, NERC, UK BAP	5 records dated between 2011 and 2019.
Long-eared species	<i>Plecotus</i> sp.	Schedule 2 Habs Regs, Schedule 5 WCA, NERC, UK BAP	8 records dated between 2013 and 2018.
Brown long-eared bat	<i>Plecotus auritus</i>	Schedule 2 Habs Regs, Schedule 5 WCA, NERC, UK BAP	7 records dated 2016 and 2017.

Table 3: Granted EPSM licences for bat species within two kilometres of the site

Bat Species	EPSM licence	Distance from site boundary
Common pipistrelle	2017-31720-EPS-MIT	0.67 km north-east
Common pipistrelle	2014-2574-EPS-MIT	0.90km north
Brown long-eared, common pipistrelle, soprano pipistrelle	2016-26416-EPS-MIT	1.17km east
Common pipistrelle	2017-28698-EPS-MIT	1.25km north

4.2 Field survey

Bats (roosting)

Tree roost assessment

The scattered trees, hedgerow trees and trees within the broadleaved woodland stands on site could all potentially support roosting bats.

The previous tree roost assessments conducted on the site by LCES in 2015 and 2017 did not identify any trees with bat roosting potential.

The update tree roost assessment in 2021 also did not identify any trees with bat roosting potential within the site, however this assessment was expanded to include a row of mature trees located off-site adjacent to the north-west boundary along the east side of Hamble Lane. Four of these off-site trees were assessed as holding low potential to support roosting bats due to the presence of suitable features including dense ivy (*Hedera helix*) cladding, small holes, cavities, and dead limbs with splits. The locations of these trees is not considered to be particularly favourable for roosting bats due to the adjacent busy road (Hamble Lane) and presence of street lighting.

The results of the tree roost assessments are depicted on the plans included as appendix I.

Further recommendations are provided in section 5.1.

Bats (Foraging and commuting)

The grassland and scrub mosaic, native hedgerows and broadleaved woodland on site have been assessed as ‘Moderate’ in terms of their suitability to support foraging and commuting bats (Collins, 2016). The variety and quality of the habitats on site indicates that there will likely be a good abundance and range of invertebrate prey available to support local bat populations. The site is also well connected to further suitable habitat for foraging and commuting bats within the surrounding locality, including grasslands, scrub, native hedgerows, stands of broadleaved woodland and residential gardens.

Activity transect surveys

A summary of the results of the activity transect surveys is provided below and a map indicating where the key activity was recorded across the site is provided in appendix III. The detailed results of each activity transect survey are provided in appendix IV.

During the 2017/2018 and 2020 activity surveys, low levels of bat activity were recorded on the site. The most abundant species recorded during the activity surveys were common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle bats. Other bat genus and species recorded included pipistrelle species (*Pipistrellus spp.*), Nathusius’ pipistrelle (*Pipistrellus nathusii*), noctule, Leisler’s bat (*Nyctalus leisleri*), Myotis species (*Myotis spp.*) and serotine (*Eptesicus serotinus*). Much of the recorded foraging and commuting activity was focused over the native hedgerows and stands of woodland alongside the northern boundaries of the site, with less frequent activity being recorded elsewhere on site.

2017/2018 transects

Dusk 30th May 2017

- Low numbers of common pipistrelle bat were recorded between 21:42 and 23:06 foraging in various areas across the site, including the hedgerow at the north-eastern boundary and the stands of woodland and scrub adjacent to the northern, western and southern boundaries.
- A low number of soprano pipistrelle bat passes were recorded between 21:55 and 21:57 over the hedgerow at the north-eastern boundary of the site.
- A total of three Leisler’s bat passes were recorded between 21:55 and 22:33. One pass was recorded adjacent to the hedgerow at the north-eastern boundary of the site and two passes were recorded near the woodland scrub and hedgerow adjacent to the north-western boundary.
- A single suspected natterer’s (*Myotis nattereri*) bat pass was recorded at 23:04 in the area adjacent to the southern boundary of the site.

Dusk 21st June 2017

- Low numbers of common pipistrelle bat were recorded between 21:48 and 22:59 foraging in various areas across the site, including the hedgerow at the north-eastern boundary and the stands of woodland and scrub adjacent to the northern, western and southern boundaries.
- A single soprano pipistrelle bat pass was recorded at 22:26 over an area of scrub and grassland adjacent to the western boundary of the site.

Dawn 22nd June 2017

- Low numbers of common pipistrelle bat were recorded between 03:07 and 04:07 foraging in various areas across the site, including the scrub and grassland adjacent to the south and west of the site, the woodland, scrub and grassland adjacent to the northern boundary of the site, and over the hedgerow on the north-eastern boundary of the site.
- One soprano pipistrelle bat pass was recorded at 03:59 over the hedgerow on the north-eastern boundary of the site.
- A total of two noctule (*Nyctalus noctula*) bat passes were recorded at 03:34 and 03:47 over the woodland, scrub and grassland habitat adjacent to the northern boundary of the site.
- One serotine bat pass was recorded at 03:00 over the woodland, scrub and grassland habitat adjacent to the south-western boundary of the site.

Dusk 24th July 2017

- Low numbers of common pipistrelle bat were recorded between 21:50 and 22:58 foraging over the woodland, scrub, hedgerow and grassland habitats adjacent to the northern, eastern and southern boundaries of the site.
- A low number of soprano pipistrelle bat passes were recorded between 21:50 and 22:11 over the scrub, grassland and woodland habitats adjacent to the northern boundary of the site, and over the hedgerow on the north-eastern boundary of the site.
- A single suspected natterer's bat pass was recorded at 22:19 over the hedgerow on the north-eastern boundary of the site.

Dusk 17th August 2017

- Low numbers of common pipistrelle bat were recorded between 21:06 and 22:15 foraging over the hedgerow at the north-eastern boundary of the site and over the scrub, grassland and stand of woodland adjacent to the south-western boundary.

Dusk 17th September 2017

No bats recorded.

Dusk 18th October 2017

No bats recorded.

Dusk 30th April 2018

- A single common pipistrelle was recorded at 21:19 foraging over scrub adjacent to the northern boundary of the site.

2020 transects

Dusk 14th April 2020

- No bats recorded.

Dusk 11th May 2020

- One common pipistrelle was heard not seen recorded at stopping point E.

Dusk 15th June 2020

- Common pipistrelles were recorded foraging up and down treeline at stopping point D between 21:51 and 21:56 and foraging around stopping point H at 22:37. They were heard not seen from points F through to D between 22:19 and 23:17.
- A noctule was recorded commuting east to west over the site between points D and E at 22:01. Three other records of noctule were heard not seen between points G and H at 22:34, at H at 22:37, and at point C at 23:14.
- A soprano pipistrelle was observed commuting north-west over point F at 22:14.

Dawn 16th June 2020

- Common pipistrelle bats were recorded commuting north at stopping points B and C at 03:32 and 03:48 and foraging at point D between 03:55 and 03:58.

- Soprano pipistrelles were recorded foraging at stopping point A at 03:23 and commuting north at point C at 03:48.
- Unidentified pipistrelle species were heard not seen between points B and C at 03:42, at point C between 03:45 and 03:50, at point E at 04:06 and between E and F at 04:14.
- A noctule was recorded commuting west of the site from point E between 04:10 to 04:11.

Dusk 9th July 2020

- Common pipistrelles were heard not seen between stopping points C and D between 21:43 and 21:46, at point D at 21:55, between D and E at 22:14, between E and F 22:28 and point H at 22:58.
- Nathusius' pipistrelles were heard not seen at stopping point D at 21:56 and between D and E at 22:15 and 20:20.
- Soprano pipistrelles were heard not seen between stopping points C and D at 21:50, and at point F at 22:34.
- A single Myotis species was heard not seen at stopping point D at 21:53.
- A noctule was heard not seen between points E and F at 22:28.

Dusk 17th August 2020

- Common pipistrelles were recorded foraging between stopping points B and C at 20:47, and at point D at 21:14. They were heard not seen at point D at 21:09 and 21:12.

Dusk 8th September 2020

- Common pipistrelles were heard not seen at stopping point A at 20:18, between points B and C at 20:26 and 20:29, between D and E at 20:57, and at point E at 21:01.
- A soprano pipistrelle was heard not seen at stopping point A at 20:15.
- A Myotis species was heard not seen between stopping points C and D at 20:40.

Dusk 13th October 2020

- Noctules were recorded heard not seen at stopping points A at 18:22, point B at 18:37, and between points D and E at 19:00 and 19:04.
- A Myotis sp. was heard not seen between stopping points D and E at 19:08.

Static monitoring

2017/2018

The results of the static bat detector monitoring undertaken during the 2017/2018 round of survey work are summarised below. The full results of this static monitoring are included as appendix V.

May 2017

Low numbers of common pipistrelle and single passes by noctule and serotine were recorded at static monitor 1. A relatively high level of *Myotis* bat species activity was recorded at static monitor 2, as well as low numbers of common pipistrelle, soprano pipistrelle, noctule, serotine and a single pass by Leisler's bat.

June 2017

A low level of common pipistrelle bat activity was recorded at static monitor 1, no other bat species were recorded at static monitor 1 during this period. A considerable level of bat activity was recorded at static monitor 2, which included a moderate number of common pipistrelle and soprano pipistrelle passes, with max counts of 27 and 22 respectively, a relatively high number of *Myotis* species passes with a peak count of 43, and low numbers of noctule, serotine, Leisler's and a long-eared bat species (*Plecotus sp.*).

July 2017

Only 3 common pipistrelle passes were recorded at static monitor 1. A low number of common pipistrelle and soprano pipistrelle passes, with max counts of 9 and 2 respectively, were recorded at static monitor 2. No other bat species were recorded at static monitor 2 during this session.

August 2017

Low numbers of common pipistrelle and soprano pipistrelle were recorded at static monitor 1. Moderate numbers of common pipistrelle and soprano pipistrelle were recorded at static monitor 2, with max counts of 50 and 25 respectively.

September 2017

Only 2 common pipistrelle passes and 1 soprano pipistrelle pass were recorded at static monitor 1. A low level of common pipistrelle and soprano pipistrelle activity was recorded at static monitor 2, with peak counts of 4 and 24 respectively. There were also 2 passes by serotine, 1 pass by a long-eared bat species, and 6 passes by *Myotis* bat species recorded at static monitor 2 during this session.

October 2017

Low numbers of common pipistrelle, with a max count of 33 passes in one night, and a single pass by a *Myotis* bat species was recorded at static monitor 1. A moderate number of common pipistrelle passes, with a max count of 48 passes in one night, and low numbers

of soprano pipistrelle, and *Myotis* bat species, with max counts of 8 and 6 passes respectively, were recorded at static monitor 2.

April 2018

A total of two common pipistrelle passes and three serotine passes were recorded by static monitor 1. No bat activity was recorded by static monitor 2.

2020

A moderate level of bat activity was recorded during the static monitoring surveys in 2020. A total of four species, and three genera of bat were recorded, including common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Nyctalus species, serotine, long-eared species, *Myotis* species. The results of the static monitoring are presented in the tables 4 and 5, and figure 1 provided below:

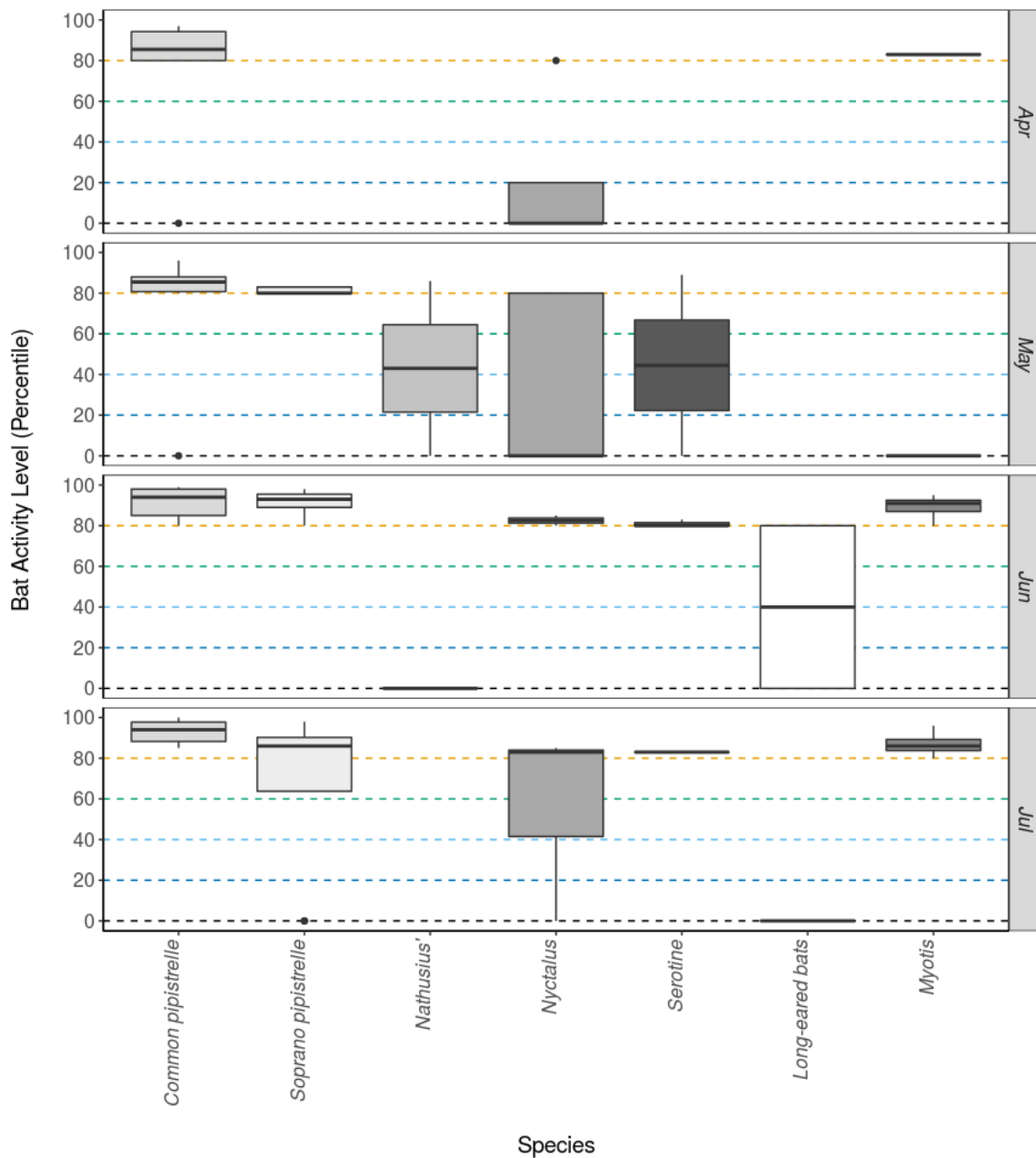
Table 4: Number of nights recorded bat activity fell into each activity band for each species.

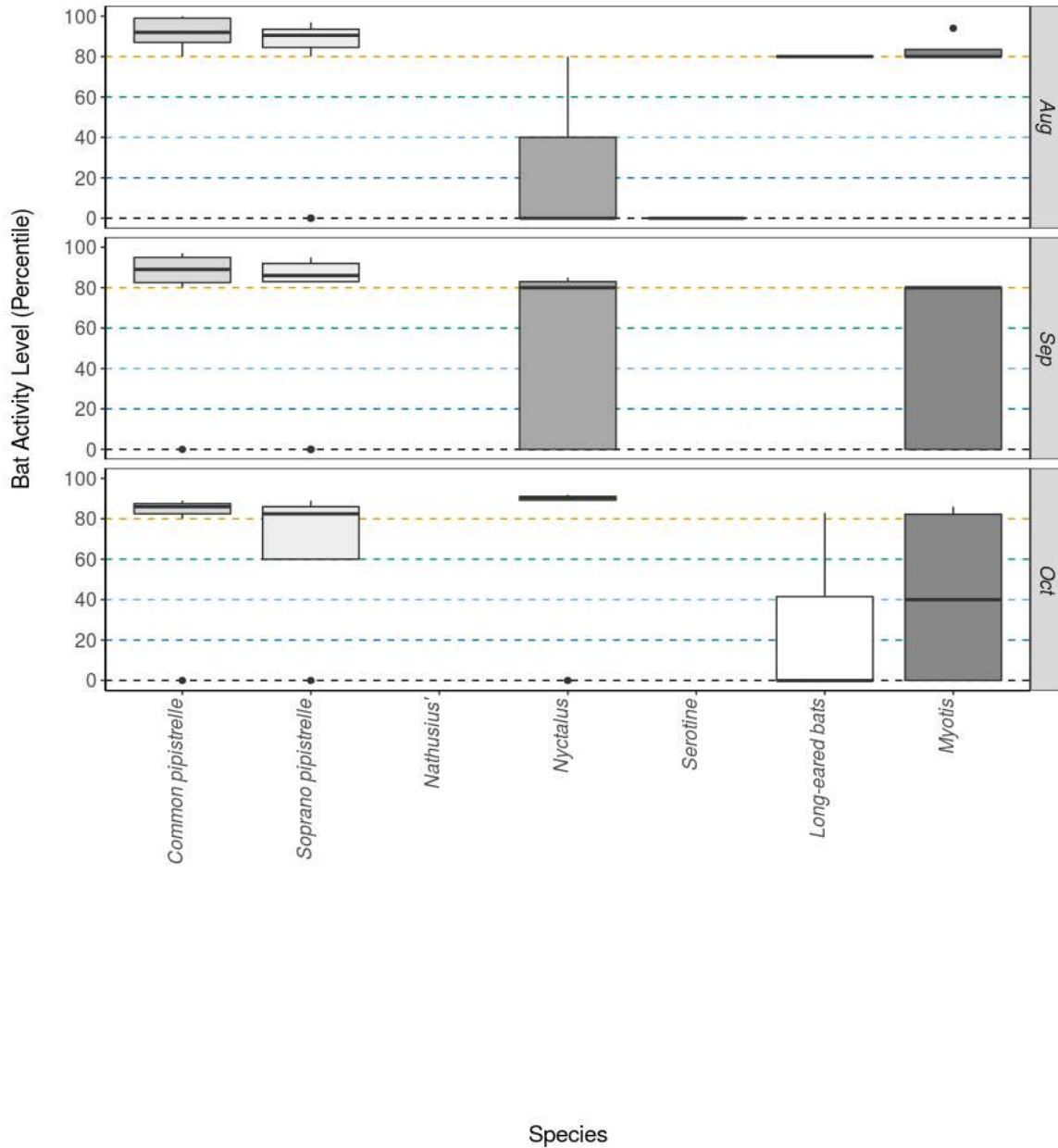
Species/group	Nights of High Activity	Nights of Moderate/ High Activity	Nights of Moderate Activity	Nights of Low/ Moderate Activity	Nights of Low Activity	Total
Static 1						
<i>Eptesicus serotinus</i>	1	1	0	0	2	4
<i>Myotis</i>	9	4	0	0	3	16
<i>Nyctalus</i>	3	2	0	0	3	8
<i>Pipistrellus nathusii</i>	0	0	0	0	2	2
<i>Pipistrellus pipistrellus</i>	27	3	0	0	2	32
<i>Pipistrellus pygmaeus</i>	21	0	0	0	4	25
<i>Plecotus</i>	0	3	0	0	3	6
Total	61	13	0	0	19	93
Static 2						
<i>Eptesicus serotinus</i>	2	1	0	0	2	5
<i>Myotis</i>	8	5	0	0	5	18
<i>Nyctalus</i>	7	4	0	0	9	20
<i>Pipistrellus nathusii</i>	1	0	0	0	1	2
<i>Pipistrellus pipistrellus</i>	25	7	0	0	2	34
<i>Pipistrellus pygmaeus</i>	15	6	0	0	3	24
<i>Plecotus</i>	1	0	0	0	2	3
Total	59	23	0	0	24	106

Some key information obtained from the table includes:

- Common pipistrelle and soprano pipistrelle bat activity was highest at static location 1 with 27 and 21 nights respectively of high activity recorded.
- The highest levels of activity for most species were recorded at static location 1, however, static 2 had a higher number of nights of bat activity.

Figure 1. The activity level (percentile) of bats recorded across each night of the bat survey for the entire site, split between months.





Some key information obtained from figure 1 is:

- Common pipistrelle and soprano pipistrelle were recorded in the greatest numbers across all months of the survey.
- Myotis sp. were recorded across all months, but most active in June.
- Nyctalus sp. were recorded across all months, but most active in October.
- Nathusius' pipistrelle were recorded on site in May and June.

Table 5. The total number of passes recorded for each species across all of the detectors. The ‘Total’ percentage may not be exactly 100% due to rounding of the percentages per species.

Species	Passes (No.)	Percentage of total (%)
Common pipistrelle	2909	71.0
Soprano pipistrelle	780	19.0
Nathusius’ pipistrelle	8	0.2
Nyctalus sp.	101	2.5
Serotine	23	0.6
Long-eared bat sp.	14	0.3
Myotis sp.	261	6.4
Total	4096	100.0

Some key information obtained from table 5 is:

- Almost three quarters of all calls recorded on site were common pipistrelle bats.
- 90% of all calls recorded were either common pipistrelle or soprano pipistrelle.
- 6.4 % of the calls were Myotis sp.

The value of the habitat on site for foraging and commuting bats was assessed from static monitoring data, using the methodology outlined in Wray *et al.* (2010) are shown in Tables 6 and 7.

Table 6. Scores for Hamble Airfield foraging habitat (bold indicates the relevant criteria).

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
-	-	Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
5	10	3	3
Total score			21

Table 7. Scores for Hamble Airfield commuting habitat (bold indicates the relevant criteria).

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
-	-	Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well-grown hedgerows, and moderate field sizes (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	Well-grown and well-connected hedgerows, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)
5	10	3	3
Total score			21

Using the scoring system above, the foraging habitat and commuting routes across the site are considered to be of **county importance** for bats.

Further recommendations are provided in section 5.2.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 *Bats (roosting)*

5.1.1 Summary of findings

The scattered trees, hedgerow trees and trees within the broadleaved woodland stands on site could all potentially support roosting bats.

No trees with potential to support roosting bats were identified within the site during any of the tree roost assessments undertaken by LCES in 2015, 2017 and 2021.

A total of four trees located off-site adjacent to the north-west boundary along the east side of Hamble Lane were assessed as holding low potential to support roosting bats in 2021. These trees could potentially require management or need to be felled in order to create a main access for the proposed project.

5.1.2 Further recommendations

Further tree climbing surveys will be required prior to any management or felling of trees that have been identified as holding potential to support roosting bats. This work will involve trees being climbed by ecologists qualified in tree climbing who will inspect the identified potential roosting features for presence or evidence of bats. If any bats or evidence thereof is encountered, further dusk and pre-dawn activity surveys will be required to establish the type and size of the roost and bat species present. A Natural England EPSM licence with full mitigation strategy will also be needed to facilitate any of the proposed tree works where presence of roosting bats is identified.

5.2 *Bats (foraging and commuting)*

5.2.1 Summary of findings

The site has been assessed as having 'Moderate' suitability to support foraging and commuting bats due to the range of habitats on site, which are of value for foraging and commuting bats. A total of five species, and three genera of bat were recorded during the static monitoring and activity surveys.

It is considered that *Myotis* bat species, *Nyctalus* species, Nathusius' pipistrelle, and serotine are rare (Wray, 2010). Other species recorded on site are considered to be common and widespread. In the context of the bat populations in the wider area the site is considered to be of **county importance**. It is considered that the site contains an important commuting route or foraging area potentially associated with nearby bat roosts.

5.2.2 Further recommendations

It is recommended that the potential effects on foraging and commuting bats as a result of the proposed project are thoroughly examined as part of an ecological impact assessment for the proposed project. Impacts should be assessed on the basis that the site is of county (or Regional) level importance for foraging and commuting bats.

The proposed project should incorporate a substantial level of mitigation and site enhancement measures to ensure that the local populations of foraging and commuting bats which utilise the site are not adversely affected. This should include a provision of an appropriate level of suitable habitat and maintenance of habitat connectivity during the operational phases of the project and implementation a suitable restoration scheme that will improve the site for foraging and commuting bats in the long-term. Measures to limit the impacts of lighting should also be incorporated where necessary.

6.0 REFERENCES

Bat Tree Habitat Key (2018). *Bat Roost in Trees- A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.*

Collins, J., Charleston, P., Davidson-Watts, I., Markham, S. and Kerslake, L. (2016). *Bat Surveys for Professional Ecologists Good Practice Guidelines.* Bat Conservation Trust, London.

Ecobat (2021). Bat data analysis tool. The Mammal Society. Available at <http://www.ecobat.org.uk/>

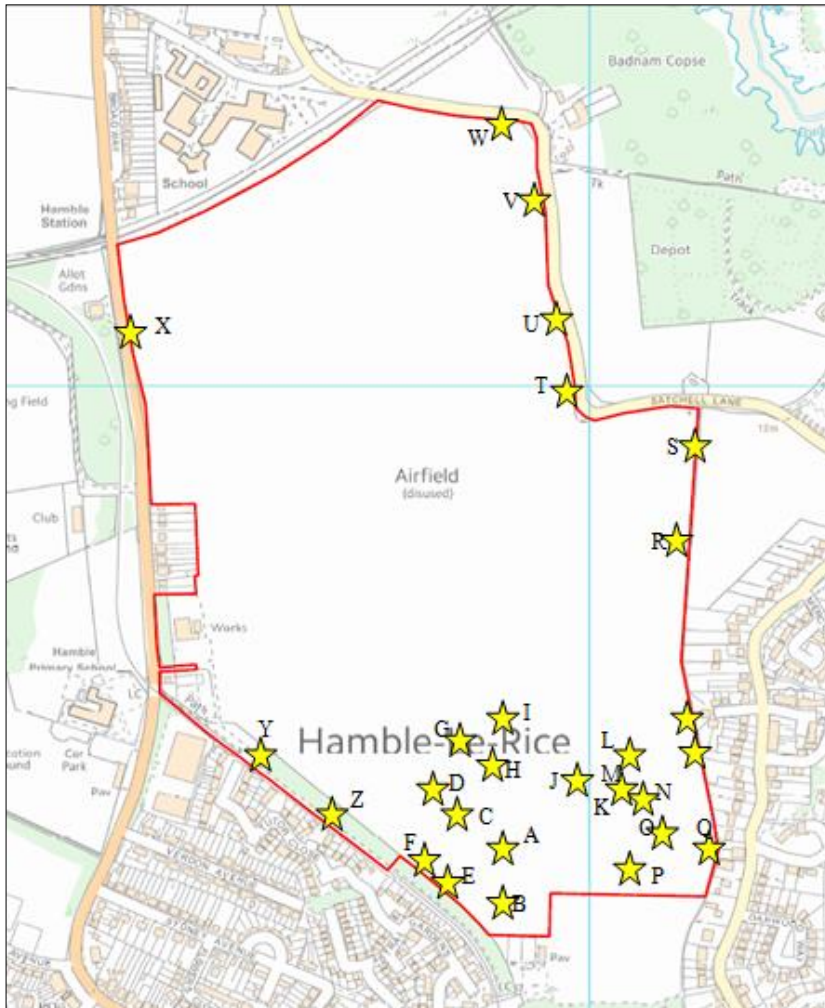
Hampshire Biodiversity Information Centre (2021). *Data search reference – HBIC Ref 101093, The former Hamble Airfield site.*

Multi-Agency Geographical Information for the Countryside (MAGIC) Website at www.magic.gov.uk.

Wray, S.; Wells, D., Long, E. and Mitchell-Jones, T. (2010). *Valuing Bats in Ecological Impact Assessment.* In Practice December 2010, 23-25.

APPENDIX I: Bat tree roost assessment results

2015



Bat tree roost assessment form 2015

Tree ID / species	Category	Evidence	Bat roosting potential
A- Oak	3	None	Negligible potential
B- Goat Willow	3	None	Negligible potential
C- Oak	3	None	Negligible potential
D- Oak	3	None	Negligible potential
E- Ash	3	None	Negligible potential
F-Goat Willow	3	None	Negligible potential
G- Wild Cherry	3	None	Negligible potential
H- Oak	3	None	Negligible potential
I-Silver Birch	3	None	Negligible potential
J-Blackthorn	3	None	Negligible potential
K-Oak	3	None	Negligible potential
L-Oak	3	None	Negligible potential
M-Oak	3	None	Negligible potential
N-Silver birch	3	None	Negligible potential
O-Oak	3	None	Negligible potential
P-Silver birch	3	None	Negligible potential
Q-Carolina Poplar	3	None	Negligible potential
R-Poplar	3	None	Negligible potential
S-Oak	3	None	Negligible potential
T-Oak	3	None	Negligible potential
U-Oak	3	None	Negligible potential
V-Oak	3	None	Negligible potential
W-Goat Willow	3	None	Negligible potential
X-Oak	3	None	Negligible potential
Y-Scots Pine	3	None	Negligible potential
Z-Silver Birch	3	None	Negligible potential

2021



APPENDIX II: Bat transect route and static detector locations



APPENDIX III: Key areas of bat activity



Legend Site boundary Bats Bat transect route Bat static detector Key areas of bat activity <u>Google Satellite</u> Map data ©2021 Google	<p>0 50 100 150 m</p>	<p>Notes Bat activity Project Hamble Airfield</p> <p>Date 03.11.2021 Draft v.1 Drawn by Stuart Woodley</p> <p>QGIS </p>
---	-----------------------	---

APPENDIX IV: Bat transect survey forms*Dusk 30th May 2017*

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble	SURVEYORS:	SW and ARH	DATE:	30/05/17
TEMP AT START:	16C	SUNSET:	21:07	START TIME:	21:07
TEMP AT END:	15C	CLOUD COVER (oktas):	7/8	END TIME:	23:11
WIND (bft):	2	RAINFALL:	None	WEATHER:	Mild. Overcast
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ direction/ commuting/ feeding/ feeding buzzes/ roost/ etc.)	
21:07	A	-	-		
21:21	B	-	-		
21:35	C	-	-		
21:42	C – D	Common Pipistrelle	1	Heard not seen	
21:43	C – D	Common Pipistrelle	1	Heard not seen	
21:46	C – D	Common Pipistrelle	2	Heard not seen	
21:49	C – D	Common Pipistrelle	1	Heard not seen	
21:52	C – D	Common Pipistrelle	2	Heard not seen. Foraging	
21:54	C – D	Common Pipistrelle	1	Heard not seen	
21:55	C – D	Soprano pipistrelle	1	Heard not seen	
21:55	C – D	Leisler's	1	Heard not seen. Brief pass	
21:55	C – D	Common Pipistrelle	1	Heard not seen	
21:56	C – D	Soprano pipistrelle	1	Heard not seen	
21:57	C – D	Soprano pipistrelle	1	Heard not seen	
21:57	D	Common Pipistrelle	1	Heard not seen	

CEMEX

Bat surveys - Hamble Airfield

21:58	D	Common Pipistrelle	1	Foraging
21:59	D	Common Pipistrelle	1	Heard not seen
22:03	D – E	Common Pipistrelle	1	Heard not seen
22:15	E	-	-	-
22:27	F	-	-	-
22:31	F	Leisler's	1	Heard not seen
22:33	F	Leisler's	1	Heard not seen
22:37	F – G	Common Pipistrelle	1	Heard not seen
22:42	G	-	-	
22:49	G - H	Common Pipistrelle	1	Heard not seen
22:55	G - H	Common Pipistrelle	1	Heard not seen
22:58	H	-	-	
23:04	H – A	Natterers	1	Heard not seen
23:06	H – A	Common Pipistrelle	1	Heard not seen

Dusk 21st June 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble airfield	SURVEYORS:	CS and AH	DATE:	21/6./17
TEMP AT START:	22°C	SUNSET:	21.22	START TIME:	21.17
TEMP AT END:	19°C	CLOUD COVER (oktas):	2/8	END TIME:	23.05
WIND (bft):	0-1/12	RAINFALL:	nil	WEATHER:	Warm/ still
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21.17	A	-	-	-	
21.27	B	-	-	-	
21.40	C	-	-	-	
21.48	C - D	Common pipistrelle	1	Heard not seen	

CEMEX

Bat surveys - Hamble Airfield

21.51	D	-	-	-
22.06/08	E	Common pipistrelle	1	Heard not seen flying along north tree line
22.11	E	Common pipistrelle	1	Heard not seen
22.15	F	Common pipistrelle	2	Flying east to west foraging on western side
22.18/19	F	Common pipistrelle	1	Heard not seen
22.21	F	Common pipistrelle	1	Foraging alone west boundary heard not seen
22.26	F - G	Soprano pipistrelle	1	Foraging alone west boundary heard not seen
22.29	G	-	-	-
22.36	G	Common pipistrelle	1	Heard not seen
22.44	H	-	-	-
22.45	H	Common pipistrelle	1	Heard not seen
22.48	H	Common pipistrelle	1	Heard not seen
22.57	H	Common pipistrelle	1	Heard not seen
22.59	H - A	Common pipistrelle	1	Heard not seen

Dawn 22nd June 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble airfield	SURVEYORS:	CS and AH	DATE:	22/6/17
TEMP AT START:	17°C	SUNRISE:	4.51	START TIME:	2.53
TEMP AT END:	17°C	CLOUD COVER (oktas):	8/8	END TIME:	4.51
WIND (bft):	1/12	RAINFALL:	nil	WEATHER:	Cool dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ direction/ commuting/ feeding/ feeding buzzes/ roost/ etc.)	
02.59	H	-	-	-	
03.00	H	Serotine	1	Heard not seen	

CEMEX

Bat surveys - Hamble Airfield

03.07	H - G	Common pipistrelle	1	Heard not seen
03.14	G	-	-	-
03.22	G - F	Common pipistrelle	1	Foraging around tree north west corner
03.26	F	-	-	-
03.34	F - E	Noctule	1	Heard not seen
03.37	F - E	Common pipistrelle	1	Heard not seen
03.39	E	Common pipistrelle	1	Heard not seen
03.41	E	Common pipistrelle	1	Flew west to east on north boundary
03.47	E - D	Noctule	1	Heard not seen
03.53	D	-	-	-
03.59	D	Common pipistrelle	1	Heard not seen
03.59	D	Soprano pipistrelle	1	Heard not seen
04.07	C	Common pipistrelle	1	Heard not seen
04.20	B	-	-	-
04.31	A	-	-	-

Dusk 24th July 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble Airfield	SURVEYORS:	CS and SW	DATE:	24/7/17
TEMP AT START:	19°C	SUNSET:	21.04	START TIME:	21.00
TEMP AT END:	16°C	CLOUD COVER (oktas):	3/8	END TIME:	23.00
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Cool dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.)	
21.06	H	-	-	-	
21.18	G	-	-	-	
21.28	F	-	-	-	
21.37	E	-	-	-	

CEMEX

Bat surveys - Hamble Airfield

21.50	E - D	Common pipistrelle	1	Heard not seen
21.50	E - D	Soprano pipistrelle	1	Heard not seen
21.53	E - D	Soprano pipistrelle	1	Along north edge of site heard not seen
21.54	E - D	Soprano pipistrelle	1	Heard not seen
21.55/56	D	-	-	-
22.06	D - C	Soprano pipistrelle	1	Heard not seen
22.09	D - C	Common pipistrelle	1	Heard not seen
22.09/10	D - C	Soprano pipistrelle	1	Heard not seen
22.10/11	D - C	Common pipistrelle	1	Heard not seen
22.11	D - C	Soprano pipistrelle	1	Heard not seen
22.14	C	-	-	-
22.16	C	Common pipistrelle	1	Heard not seen
22.19	C	Natterer's	1	Heard not seen
22.23	C	Common pipistrelle	1	Heard not seen
22.28	C - B	Common pipistrelle	1	Heard not seen
22.34/35	B	Common pipistrelle	1	Heard not seen
22.39	B	Common pipistrelle	1	Heard not seen
22.50	A	-	-	-
22.53	A	Common pipistrelle	1	Heard not seen
22.55	A	Common pipistrelle	1	Heard not seen
22.57/58	A	Common pipistrelle	1	Heard not seen

Dusk 17th August 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble airfield	SURVEYORS:	GV and EL	DATE:	17.08.17
TEMP AT START:	17°C	SUNRISE:	20.23	START TIME:	20.23

CEMEX

Bat surveys - Hamble Airfield

TEMP AT END:	16°C	CLOUD COVER (oktas):	1/8	END TIME:	22.23
WIND (bft):	4/12	RAINFALL:	Nil	WEATHER:	Windy and cool
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.)	
20.26 – 20.31	A	-	-	-	
20.54 – 20.59	B	-	-	-	
21.04 – 21.09	C	-	-	-	
21.06	C	Common pipistrelle	1	Heard not seen	
21.11	C - D	Common pipistrelle	1	Heard not seen	
21.14 – 21.19	D	-	-	-	
21.24 – 21.29	E	-	-	-	
21.36 – 21.41	F	-	-	-	
21.48 – 21.55	G	-	-	-	
21.55	G	Common pipistrelle	1	Heard not seen	
22.06	G - H	Common pipistrelle	1	Heard not seen	
22.09 – 22.15	H	Common pipistrelle	1	Heard not seen, continuous foraging with feeding buzzes	

Dusk 17th September 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble Airfield	SURVEYORS:	CS and GV	DATE:	17/9/17
TEMP AT START:	17°C	SUNSET:	19.38	START TIME:	19.38
TEMP AT END:	17°C	CLOUD COVER (oktas):	8/8	END TIME:	21.38
WIND (bft):	2/12	RAINFALL:	Nil at start	WEATHER:	Cool dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.)	

CEMEX

Bat surveys - Hamble Airfield

19.38	A	-	-	-
19.56	G	-	-	-
20.10	F	-	-	-
20.26	E	-	-	-
20.45	D	-	-	Light rain stopped at 21.10
21.01	C	-	-	-
21.30	A	-	-	-

Dusk 18th October 2017

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble Airfield	SURVEYORS:	AC and GV	DATE:	18/10/2017
TEMP AT START:	15°C	SUNSET:	18:07	START TIME:	18:07
TEMP AT END:	14°C	CLOUD COVER (oktas):	8/8	END TIME:	20:07
WIND (bft):	2/12	RAINFALL:	Short heavy shower at 18:50 for ten minutes	WEATHER:	Fine apart from small rain shower
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ direction/ commuting/ feeding/ feeding buzzes/ roost/ etc.)	
No bats recorded during survey.					

Dusk 30th April 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble	SURVEYORS:	JS & CS	DATE:	30/04/18
TEMP AT START:	10°C	SUNSET:	20:24	START TIME:	20:24
TEMP AT END:	8°C	CLOUD COVER (oktas):	3/8	END TIME:	22:24
WIND (bft):	2-3	RAINFALL:	Nil	WEATHER:	Dry, breezy, cool

Data Analysed Y/N:	Yes	Additional information:		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
20:30	SP A			
20:38	SP H			
20:47	SP G			
21:00	SP F			
21:10	SP E			
21:19	T1	Common pipistrelle	1	Foraging between stopping points E and D along the northern boundary.
21:25	SP D			
21:40	SP C			
21:50	SP B			
22:05	SP A			

Dusk transect 14th April 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	HAMBLA Transect	SURVEYORS:	PD & JW	DATE:	14.04.2020
TEMP AT START:	9.0°C	SUNSET:	20:00	START TIME:	20:00
TEMP AT END:	7.0°C	CLOUD COVER (oktas):	1/8	END TIME:	22:00
WIND (bft):	2/12	RAINFALL:	0	WEATHER:	Cool/dry/sunny
Data Analysed Y/N:	Y	Additional information:	Anabat Scout		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:00-20:05	E	0	0		
20:19-20:24	F	0	0		
20:29-20:34	G	0	0		
20:44-20:49	H	0	0		

CEMEX

Bat surveys - Hamble Airfield

20:57-21:03	A	0	0	
21:10-21:15	B	0	0	
21:25-21:30	C	0	0	
21:36-21:41	D	0	0	
21:49-21:54	E	0	0	
21:54-22:00	E-F	0	0	

Dusk transect 11th May 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Hamble Airfield Transect	SURVEYORS:	AH & JW	DATE:	11.05.2020
TEMP AT START:	10°C	SUNSET:	20:43	START TIME:	20:43
TEMP AT END:	7°C	CLOUD COVER (oktas):	3/8	END TIME:	22:43
WIND (bft):	3/12	RAINFALL:	None	WEATHER:	Cool with light - moderate breeze
Data Analysed Y/N:	Y	Additional information:	EMT		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.)	
20:43–20:48	C	-	-	-	
20:54–20:59	D	-	-	-	
21:05–21:16	E	Common pipistrelle	1	Foraging/commuting, heard but not seen.	
21:26–21:31	F	-	-	-	
21:39–21:44	G	-	-	-	
21:59–22:04	H	-	-	-	
22:09–22:14	A	-	-	-	
22:20–22:25	B	-	-	-	
22:35–22:40	C	-	-	-	

Dusk transect 15th June 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION :	HAMBLEA	SURVEYORS:	HS & EH	DATE:	15.06.2020
TEMP AT START:	15°C	SUNSET:	21:21	START TIME:	21:21
TEMP AT END:	14°C	CLOUD COVER (oktas):	4/8	END TIME:	23:21
WIND (bft):	1/12	RAINFALL:	-	WEATHER :	Dry/Mild
Data Analysed Y/N:	Y	Additional information:	Equipment - Anabat Scout		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ direction/ commuting/ feeding/ feeding buzzes/ roost/ etc.)	
21:21-21:26	A				
21:32-21:37	B				
21:40-21:46	C				
21:51-21:56	D				
21:51	D	Common pipistrelle	1	Foraging north east around tree canopy	
21:52-21:56	D	Common pipistrelle	2	Continuously foraging up and down tree line, from north to south above stopping station	
22:01	D-E	Noctule	1	Commuting east to west	
22:06-22:11	E				
22:13-22:18	F				
22:14	F	Soprano pipistrelle	1	Commuting towards north west	
22:19	F-G	Common pipistrelle	1	Heard not seen	
22:24-22:29	G				
22:34	G-H	Noctule	1	Heard not seen, very faint call	
22:36	G-H	Common pipistrelle	1	Heard not seen	
22:37-22:42	H				
22:37	H	Noctule	1	Faint call, heard not seen	

CEMEX

Bat surveys - Hamble Airfield

22:37	H	Common pipistrelle	1	Continuously foraging south east to north west
22:42	H	Common pipistrelle	1	Heard not seen
22:43-22:44	H-A	Noctule	1	Heard not seen
22:46	H-A	Common pipistrelle	1	Heard not seen foraging
22:48-22:53	A			
22:53	A-B	Common pipistrelle	1	Foraging heard not seen
23:00-00:05	B			
23:02	B	Common pipistrelle	1	Heard not seen
23:04	B	Common pipistrelle	1	Heard not seen
23:09-00:14	C			
23:14	C	Noctule	1	Heard not seen foraging
23:16	C-D	Common pipistrelle	1	Heard not seen foraging
23:17	C-D	Common pipistrelle	1	Heard not seen foraging

Dawn transect 16th June 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	HAMBLEA	SURVEYORS:	PD & JW	DATE:	15.06.2020
TEMP AT START:	13.0°	SUNRISE:	04:51	START TIME:	03:21
TEMP AT END:	13.0°	CLOUD COVER (oktas):	2/8	END TIME:	04:52
WIND (bft):	0/12	RAINFALL:	None	WEATHER :	Cool/Dry /Misty
Data Analysed Y/N:	Y	Additional information:	Anabat Express		
(PLEASE ADD TRAGET NOTES TO MAP AND APPEND TO RECORDING FORM)					
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ direction/ commuting/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
03:20-03:25	A				

CEMEX

Bat surveys - Hamble Airfield

03:23	A	Soprano pipistrelle	2	Foraging above stopping station
03:30-03:35	B			
03:32	B	Common pipistrelle	1	Commuting from the South to the North over stop station
03:42	B- C	Pipistrelle sp.	1	Heard not seen, Quiet Call commuting
03:44-03:49	C			
03:45	C	Pipistrelle sp.	1	Heard not seen Quiet brief call
03:46	C	Pipistrelle sp.	1	Heard not seen Quiet/distant foraging
03:48	C	Common and Soprano pipistrelle	2	Commuting from South to North along tree line next to stop station
03:50	C	Pipistrelle sp.	1	Heard not seen, Quiet Call commuting
03:55-04:06	D			
03:55/6	D	Common pipistrelle	1	Foraging the tree line from North to South at stop station
03:58	D	Common pipistrelle	1	Heard not seen commuting
04:05-04:10	E			
04:06	E	Pipistrelle sp.	1	Heard not seen, Quiet Call commuting
04:10	E	Noctule	1	Heard not seen commuting
04:11	E	Noctule	1	Commuting from East to west High above stop station
04:14	E-F	Pipistrelle sp.	1	Heard not seen. Quiet, brief call
04:21-04:26	F			
04:30-04:35	G			
04:42-04:47	G			
04:47-04:52	G-A			

Dusk transect 9th July 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	HAMBLEA	SURVEYORS:	AS & JW	DATE:	09.07.2020
TEMP AT START:	15°C	SUNSET:	21:18	START TIME:	21:18
TEMP AT END:	14°C	CLOUD COVER (oktas):	8/8	END TIME:	23:18

CEMEX

Bat surveys - Hamble Airfield

WIND (bft):	2/12	RAINFALL:	-	WEATHER:	Mild. Overcast
Data Analysed Y/N:	Y	Additional information:	Equipment - Anabat Scout		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:18	A	-	-	-	
21:29	B	-	-	-	
21:37	C	-	-	-	
21:43	C – D	Common pipistrelle	1	Heard not seen.	
21:45-46	C – D	Common pipistrelle	1	Heard not seen	
21:50	C -D	Soprano pipistrelle	1	Heard not seen	
21:53	D	Myotis sp.	1	Heard not seen	
21:55	D	Common pipistrelle	1	Heard not seen	
21:56	D	Nathusius' pipistrelle	1	Heard not seen	
22:14	D - E	Common pipistrelle	1	Heard not seen	
22:15	D - E	Nathusius' pipistrelle	1	Heard not seen	
22:20	D – E	Nathusius' pipistrelle	1	Heard not seen	
22:22	E	-	-	-	
22:28	E – F	Noctule	1	Heard not seen	
22:28	E – F	Common pipistrelle	1	Heard not seen	
22: 30	F	-	-	-	
22:34	F	Soprano pipistrelle	1	Heard not seen	
22:45	G	-	-	-	
22:58	H	Common pipistrelle	1	Heard not seen	
23:12	A	-	-	-	

Dusk transect 17th August 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	HAMBLEA	SURVEYORS:	SW & SB	DATE:	17.08.2020
TEMP AT START:	18°C	SUNSET:	20:17	START TIME:	20:17
TEMP AT END:	16°C	CLOUD COVER (oktas):	6/8	END TIME:	22:25
WIND (bft):	3/12	RAINFALL:	Light drizzle between 20:55 – 21:00	WEATHER:	Mild, cloudy
Data Analysed Y/N:	Y	Additional information:	Equipment - Anabat Scout		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:17	A	-	-	-	
20:42	B	-	-	-	
20:47	B - C	Common pipistrelle	1	Foraging. Flew north to south	
20:56	C	-	-	-	
21:08	D	-	-	-	
21:09	D	Common pipistrelle	1	Heard not seen. Brief call	
21:12	D	Common pipistrelle.	1	Heard not seen. Foraging	
21:14	D	Common pipistrelle	1	Foraging and feeding around stopping point	
21:28	E	-	-	-	
21:50	F	-	-	-	
22:05	G	-	-	-	
22:14	H	-	-	-	

Dusk transect 8th September 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	HAMBLEA	SURVEYORS:	AS & SB	DATE:	08.09.2020
TEMP AT START:	19°C	SUNSET:	19:36	START TIME:	19:36
TEMP AT END:	17°C	CLOUD COVER (oktas):	7/8	END TIME:	21:40
WIND (bft):	3/12	RAINFALL:	None	WEATHER:	Warm, cloudy
Data Analysed Y/N:	Y	Additional information:	Equipment - EMT		
(PLEASE ADD TARGET NOTES TO MAP AND APPEND TO RECORDING FORM)					
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:15	A	Soprano pipistrelle	1	Heard not seen	
20:18	A	Common pipistrelle	1	Heard not seen	
20:20	B	-	-	-	
20:26	B – C	Common pipistrelle	1	Heard not seen	
20:29	B – C	Common pipistrelle	1	Heard not seen	
20:32	C	-	-	-	
20:40	C – D	Myotis sp.	1	Heard not seen	
20:47	D	-	-	-	
20:57	D – E	Common pipistrelle	1	Heard not seen	
21:01-06	E	Common pipistrelle	1	Heard not seen	
21:21	F	-	-	-	
21:37	G	-	-	-	

Dusk transect 13th October 2020

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	HAMBLEA	SURVEYORS:	AS & SB	DATE:	13.10.2020
TEMP AT START:	12C	SUNSET:	18:10	START TIME:	18:10
TEMP AT END:	11C	CLOUD COVER (oktas):	8/8	END TIME:	20:10
WIND (bft):	1/12	RAINFALL:	Light showers throughout survey	WEATHER:	Wet
Data Analysed Y/N:	Y	Additional information:	EMT		
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.)	
18:22	A	Noctule	1	Heard not seen	
18:37	B	Noctule	1	Heard not seen	
18:38	C	-	-	-	
18:49	D	-	-	-	
19:00	D-E	Noctule	1	Heard not seen	
19:04	D-E	Noctule	1	Heard not seen	
19:08	D-E	Myotis	1	Heard not seen	
19:09	E	-	-	-	
19:25	F	-	-	-	
19:32	G	-	-	-	
19:44	H	-	-	-	
19:55	A	-	-	-	

APPENDIX V: Static monitoring results (2017/2018)

Month	Common pipistrelle	Soprano pipistrelle	Noctule	Leisler's	Plecotus sp	Serotine	Myotis spp
May 2017	7 (1.75)	0	1 (0.25)	0	0	1 (0.25)	0
June 2017	5 (1.8)	0	0	0	0	0	0
July 2017	3 (0.6)	0	0	0	0	0	0
August 2017	23 (9.75)	4 (1.25)	0	0	0	0	0
September 2017	2 (0.4)	1 (0.2)	0	0	0	0	0
October 2017	33 (6)	0	0	0	0	0	2 (0.3)
April 2018	2 (0.4)	0	0	0	0	3 (0.6)	0
May 2017	10 (5)	5 (1.5)	6 (1.75)	1 (0.25)	0	10 (2.5)	60 (15)
June 2017	27 (20)	22 (8.6)	5 (2.8)	1 (0.2)	1 (0.2)	2 (0.8)	49 (26.4)
July 2017	9 (1.8)	2 (0.4)	0	0	0	0	0
August 2017	50 (14.25)	25 (8)	0	0	0	0	0
September 2017	4 (1.2)	24 (4.8)	0	0	2 (0.4)	2 (0.4)	6 (1.4)
October 2017	48 (9.7)	8 (1.9)	0	0	0	0	6 (2.7)
April 2018	0	0	0	0	0	0	0