

Appendix 9.8

Bats



Hallam Land Management Ltd

Great Wilsey Park

Haverhill, Suffolk

BAT SURVEY REPORT

Appendix 9.8

August 2015

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

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1.0 INTRODUCTION

- 1.1 FPCR Environment and Design Ltd were commissioned by Hallam Land Management Ltd to complete detailed bat surveys within the site boundaries of a proposed development on land north east of Haverhill, Suffolk.
- 1.2 Initial tree assessments for bats were completed on the 13th, 14th August 2014 with a more detailed ground survey on the 25th September 2014 and 16th / 17th February 2015. Aerial tree inspections were completed on the 16th & 17th February and 23rd & 24th March 2015. This report provides the results of the bat tree surveys, activity and automated static survey work completed from April 2014 to August 2015.
- 1.3 The red line boundary first covered an area approximately 54ha. A new red line boundary was produced in May 2014 which increased the site size to cover approximately 168.34ha extending the site towards the south east. Survey effort was increased proportionally to consider the effects of the increased scheme.

Site Location and Context

- 1.4 The site was situated on the north eastern fringes of the urban area of Haverhill, Suffolk. It was largely located within a rural setting with a number of arable fields, woodland compartments, dry ditches and hedgerows. A tributary of the River Stour runs through the centre of the site, which during the site surveys in 2014 was generally dry, however during the spring of 2015 section held water for limited periods

Development Proposals

- 1.5 The current site proposals include the construction of residential housing with community hubs comprising of mixed used local centre and schools. Associated vehicular and pedestrian access and associated car parking arrangements, and on-site open space will also be constructed. Green infrastructure is included within the development proposals and includes the following:
- The retention of the watercourse which is a tributary of the River Stour and associated corridors;
 - The retention of large areas of woodland;
 - The creation of habitat corridors which are expected to mature into structurally diverse resource for use by bats;
 - Increased number of waterbodies, which will take the form of attenuation;
 - Proposed Country Park to the south east, to include structural planting and a mosaic of habitats.
- 1.6 The creation of new habitats includes species-rich grassland, hedgerows and street trees and attenuations ponds with shallow vegetated banks, suitable for a range of amphibian and invertebrate species.

Background

- 1.7 From the completed desk study (FPCR *Chapter 9. Ecology*, August 2015) five records of bats were received: one confirmed Pipistrelle roost located near Hamlet Croft in 2009, approximately 950m south of the Application Site; an unknown Pipistrelle and a Soprano Pipistrelle *Pipistrellus*

pygmaeus were recorded in flight in 2010 approximately 1.37km north of the site; two unidentified bats were recorded between 970/980m north of the Application Site near Little Wrating, from 2000 & 2003; an injured brown long-eared *Plecotus auritus* was recorded within a garden in 2012, 278m south west of the boundary.

- 1.8 No statutory sites designated for bats were identified within 5km of the boundary.
- 1.9 The majority of habitats within the site comprise arable land. Other habitats comprise improved grassland, scrub, semi-improved grassland, tall ruderal vegetation, hedgerows, ponds, stream, ditches and plantation mixed / broad leaved woodland.

2.0 METHODOLOGY

Foraging / Commuting Habitat

- 2.1 The potential for the site and immediate surroundings to support feeding and commuting bats was also assessed, particular regard being given to the presence of continuous treelines, tributaries and hedges providing good connectivity in the landscape, and the presence of varied habitats such as scrub, woodland, grassland and open water in the vicinity.

Activity Transect

- 2.2 Eleven activity transects were completed, during the following months; April, June, July, August and September 2014 and April, May, June, July and August 2015. The primary objectives of transects completed was to identify foraging areas, commuting routes and species utilisation of the development area.
- 2.3 The first activity transect completed during April 2014 comprised of one transect route within the redline boundary. A new red line boundary was provided during May 2014, this increased the size of the site. Consequently, three transect routes were devised to cover all areas of the site as this increased from 54ha to 168.34ha. These transect routes were completed during June, July, August and September 2014 and during April, May, June, July and August 2015.
- 2.4 This methodology takes into account the statutory guidance from English Nature (now Natural England)¹ and further guidelines introduced by the Bat Conservation Trust² and JNCC³. The survey effort was determined from recommendations provided in BCT² guidance and is based on a large site offering medium habitat quality.
- 2.5 The transect routes were predetermined prior to survey in order to comprehensively cover all areas of the site and included point count stops to identify activity levels around the features of potential value to bats that are to be most affected by proposals (i.e. Hedgerows, tree lines, dense scrub etc). Each point count was between 3 and 5 minutes long, during which time all bat activity was recorded.
- 2.6 The dusk transects commenced approximately 15 minutes prior to sunset and were a minimum of 2 hours in duration. The dawn transect commenced approximately 120 minutes prior to sunrise until sunrise. Each transect was walked at a steady pace and when a bat passed by, the species, time and behaviour was recorded on a site plan to help to form a general view of the bat activity present on site and highlight any habitats types associated with bat activity.
- 2.7 Surveyors used ultrasonic (frequency division) bat detectors (Bat Box Duets and Mp3 or a Wildlife Acoustics Echo Meter EM3+) during the transect surveys to detect bats and aid species identification.
- 2.8 Post-survey, bat calls were analysed using AnaLookW[®] software (Titley[™] Scientific) and/or BatSound (version 4), by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. From this, the level of bat activity across the site in relation to the abundance of individual species foraging and commuting along habitats was assessed.

¹ English Nature (2004) Bat Mitigation Guidelines

² Bat Conservation Trust (2012) Bat Surveys- Good Practice Guidelines

³ JNCC (1999) Bat Workers Manual

- 2.9 All transects were undertaken when conditions were suitable (i.e. when the ambient air temperature exceeded 10°C and there was little wind and no rain) see Table 1.

Table 1: Activity Transect Survey Conditions

Date	Sunset/ Sunrise	Temperature °C	Rain	Wind	Cloud %
29/04/14	20:20	14°C	0	0	30%
02/06/14	21:09	15°C	0	0	100%
23/06/14	21:23	16°C	0	0	90%
17/07/14	21:05	18°C	0	0	0%
07/08/14	20:39	18°C	0-1	1	50%
22.09.14*	19:57	15°C	0	0	5%
23.09.14*	06:45	10°C	0	0	70%
13.04.15	19:52	12°C	0	0-1	10%
07.05.15	20:32	11°C	0	0	40-100%
03.06.15	21:10	16°C	0	0	0%
02.07.15	21:21	19°C	0	1	5%
03.08.15	20:45	23°C	0	2	70%

*Survey completed within one 24 hour period counts as one survey occasion.

Automated Surveys

- 2.10 Static passive recording broadband detectors were deployed on site to supplement the manual transects surveys. In addition, passive recording is stipulated in the guidance document Bat Conservation Trust (2012) Bat Surveys- Good Practice Guidelines 2nd edition^[1].
- 2.11 Passive monitoring was undertaken using an automated logging system (SM2BAT, Wildlife Acoustics) with its output saved to an internal storage device. SM2BAT devices were placed along linear features considered to be of value to bats, such as hedgerows, woodlands, tributaries and tree lines.
- 2.12 Devices were placed in each location for an extended period of time (3 - 8 nights) of suitable weather conditions (little no rain/wind and temperatures above 10°C). Detectors were programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise.
- 2.13 In accordance with the size of the site, the number of manual activity transect routes undertaken and the assessment of habitat suitability to support foraging and commuting bats, two static units were deployed on site for 4 to 7 consecutive nights on the following dates;
- 25th – 29th April 2014
 - 20th - 27th May 2014
- 2.14 Following the change in the red line boundary the survey effort was increased accordingly. Six static units were left deployed for 5 to 8 consecutive nights on the following dates;
- 23rd June – 1st July 2014

- 17th – 23rd July 2014
 - 7th – 15th August 2014 and / or 22nd- 25th August 2014 and/ or 28th August- 5th September 2014
 - 20th – 25th September 2014
- 2.15 Following completion of the bat tree survey assessment and analysis of the 2014 static data, nine static units were deployed surrounding woodland W5/W7 during April, May, June and July 2015 for 5-6 consecutive nights on the following dates:
- 14th – 19th April 2015
 - 7th – 12th May 2015
 - 3rd – 8th June 2015
 - 2nd – 8th July 2015
- 2.16 The recorded data was analysed using AnaLookW[®] software (Titley[™] Scientific) and Bat Sound (Version 4) to assess the amount of bat activity on site by recording the number of bat passes. The automated static detector survey timings and weather conditions can be found in Appendix 1.

Tree Assessment

- 2.17 Tree assessments were undertaken from ground level, with the aid of a torch and binoculars, where required, to visually assess the potential to support bat roosts. All trees on site were initially assessed on the 13th, 14th August 2014 with a more detailed ground survey on the 25th September 2014, 16th and 17th February 2015. Additional ground assessments were completed by a licenced bat worker (Natural England bat licence number: CLS01531) on 6th March 2015 to include the woodland areas.
- 2.18 During the survey, features considered to provide suitable roost sites for bats such as the following were sought:
- Trunk cavity – Large hole in trunk caused by rot or injury
 - Branch cavity - Large hole in branch caused by rot or injury
 - Trunk split – Large split / fissure in trunk caused by rot or injury
 - Branch spilt – Large split / fissure in branch caused by rot or injury
 - Branch socket cavity – Where a branch has fallen from the tree and resulted in formation of an access point in to a cavity
 - Woodpecker hole – Hole created by nesting birds suitable for use by roosting bats
 - Lifted bark – Areas of bark which has rotted / lifted to form suitable access point/roost site for bats
 - Hollow trunk – Decay in heartwood leading to internal cavity in trunk
 - Hazard beam failure- Where a section of the tree stem/branch has failed causing collapse and leading to longitudinal fractures / splits / cracks along its length

- Ivy cover – Dense / mature ivy cover where the woody stems could create small cavities / crevices

2.19 The trees were classified into general bat roost potential groups based on the presence of features listed above. Table 2 below classifies the potential categories as accurately as possible. This table is based upon Table 8.4 in Bat Surveys- Good Practice Guidelines (Bat Conservation Trust, 2012). The table within the guidelines has been designed to inform assessments completed prior to the completion of arboricultural works. Consequently, the suggested survey methods have been refined to suit development works and considers the definition of a breeding site or resting place as described in the Habitat Regulations.

Table 2: Bat Survey Protocol for Trees

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and / or further surveys.
<p>Category 1 Confirmed bat roost with field evidence of the presence of bats, e.g. live / dead bats, droppings, scratch marks, grease marks and / or urine staining.</p>	<p>Identified on a plan and in the field. Further assessment such as climb and inspect and/or dusk/dawn surveys should be undertaken, if the trees are affected by the development, to provide an assessment on the likely use of the roost, numbers and species of bat present.</p>	<p>Avoid disturbance where possible. Felling or other works that would affect the roost would require an EPS licence with like for like roost replacement as a minimum. Works may also be subject to timing constraints.</p>

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and / or further surveys.
<p>Category 2a Trees that have a high / moderate potential to support bat roosts.</p>	<p>Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree(s) will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (up to 2/3 nocturnal surveys) should be undertaken (as appropriate), to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are of low suitability and / or no evidence of a breeding site or resting place * is found within features that can be assessed fully.</p>	<p>Trees where no bat roost confirmed after further surveys: Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats.</p> <p>The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use “soft felling” techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.</p>

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and / or further surveys.
<p>Category 2b Trees with a low potential to support bat roosts.</p>	<p>Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree(s) will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (one nocturnal survey) should be undertaken (as appropriate), to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are not suitable for bats and / or no evidence of a breeding site or resting place* is found within features that can be assessed fully.</p>	<p>Trees where no bat roost confirmed after further surveys: Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats.</p> <p>The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use “soft felling” techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.</p>
<p>Category 3 Trees with no / negligible potential to support bat roosts.</p>	<p>Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats.</p>	<p>None.</p>

* The Conservation of Habitats & Species Regulations 2010 (as amended) affords protection to breeding sites or resting places at all times. For an area to be classified as a breeding site or resting place, the Regulations require there to be a reasonably high probability that the species will return to the sites and / or place.

Confirmation of a breeding site or resting place in trees can be established through the completion of aerial inspection and / or nocturnal surveys (as appropriate). In situations where nocturnal surveys are completed and a breeding site or resting site is not confirmed, the survey effort is considered to be sufficient to reasonably discount the presence of roosting bats (for a period of time as defined in Natural England’s current Standing Advice). However, further precautionary works may be recommended if the trees is affected by works.

Where features of a tree are identified as providing potential to be used as a breeding site or resting place, evidence of current or previous use of the feature should be identified during an aerial inspection to necessitate the completion of further detailed nocturnal survey work prior to the granting of planning permission, if the tree is affected by the development. In situations where no evidence of use is identified it is reasonable to conclude that a feature is not being used as a breeding site or resting place as defined by the Regulations but further precautionary measures may be recommended if a tree is affected by development to ensure occupation has not occurred following completion of the survey. In situations where the level of use can be established from completion of aerial inspections no additional nocturnal survey work would be necessary to support the planning application. If the presence of a breeding site or resting place cannot be discounted from ground level or aerial inspections, nocturnal survey work to confirm the presence of a breeding site or resting place may be required if the tree is affected by the works.

- 2.20 Where features suitable to be used as a roost site were identified, evidence that bats had used the site as a roost was sought, comprising live or dead bats, droppings, urine staining, and grease /scratch marks on wood.

Aerial Tree Inspections

- 2.21 Aerial inspections were completed (where required and access was possible) on trees identified as containing bat roosting potential which were identified during the ground level survey. Features that may warrant aerial survey include; cracks, fissures, cavities, woodpecker/rot holes or missing limbs. Evidence of use sought comprised live or dead bats, droppings, urine staining, internal smoothing and grease/scratch marks on wood. Presence of dense ivy cover was also noted as this can obscure the aforementioned features.
- 2.22 Each feature suitable for roosting bats was visually inspected using torches and/or endoscopes as appropriate. The characteristic of each feature was considered to assess its suitability to support roosting bats in order to determine a suitable course of action to accommodate tree removal, if required, in line with Table 2. The size and exposure to the elements of each was additionally taken into account, as were features such as dense cobwebs or the habitation of a feature by other species (e.g. woodpeckers, squirrels, wasps etc.).
- 2.23 The aerial tree inspections were undertaken by Steven Roe (Natural England bat licence number: WMLCL18:CLS02341), Adam Dayman, Thomas Bennett, Tim Ranger and Samuel Arthur on the 16th & 17th February 2015 and 23rd and 24th March 2015.
- 2.24 All FPCR tree climbers are NPTC Certified to Climb Trees (J/101/2449) and Perform Aerial Rescue (A/101/2450) – Level 2. The climbing methodology used follows that detailed within the Arboriculture and Forestry Advisory Group (AFAG) Tree Climbing Operations Leaflet (AFAG401). Climbing equipment was inspected following guidelines outlined in the Lifting Operations and Lifting Equipment Regulations 1998.

Nocturnal Tree Surveys

- 2.25 In 2015 nocturnal dusk emergence and dawn re-entry surveys were completed on a number of trees identified with bat roosting potential within the development site. Surveyors were positioned at various aspects of the trees from approximately 15 minutes prior to sunset and 90-120 minutes after or 90 minutes prior until sunrise. The number and species of bats observed emerging or entering the tree was recorded.

- 2.26 Ultrasonic bat detectors (Bat Box Duets) were used by surveyors to aid in identification. All of the nocturnal surveys were conducted in appropriate conditions, i.e. ambient temperature exceeding 10°C and little wind and no rain (Table 3).

Table 3 – Nocturnal Tree Survey Weather Data

Date	Trees Covered	Sunset/Sunrise	Wind (0-5)	Temperature	Cloud Cover	Rain (mm)
04.06.13	T4	04:40	0	15°C-10°C	0%	0
23.06.15	T69, TG11.7, TG11.8	21:22	0	15-13°C	0%	0
24.06.15	T28, T44, T49	04:38	0	13-10°C	5-10%	0
02.07.15	T60, T999, W3.6	21:21	0-1	24-12°C	5%	0
03.07.14	T25, T26, T48, W7.17, W7.21	04:40	0	13°C-12°C	0%	0
20.07.15	T27, T30, W6.3	21:06	0	18-16°C	75%	0
21.07.15	T28, T44, T49	05:03	1	15-13°C	0%	0
23.07.15*	T69, TG11.7, TG11.8, T999	21:05	0	14-12°C	80%	0
24.07.15*	T69, TG11.7, TG11.8, T999	05:06	0	15-14°C	95%	0
28.07.15*	T48, T60, W6.3	20:55	0	14-10°C	50%	0
29.07.15*	T48, T60, W6.3	05:14	0	12-10°C	0%	0
30.07.15*	T25, T26, T27, W7.21, W7.17	20:52	0	14-11°C	40%	0
31.07.15*	T25, T26, T27, W7.21, W7.17	05:17	0	10-9°C	25%	0
03.08.15	T30, W3.6, T999	20:46	2	18-15°C	60%	0
04.08.15	T30, W3.6, T999, TG11.7, TG11.8	05:25	2	14-12°C	80%	0

Limitations

- 2.27 During 2014 static detectors were deployed for extended periods over a minimum of 5 consecutive nights; additional nights (over 5) were obtained on some occasions due to poor weather or detector failure within the initial 5 night survey period (detector failures in July and August 2014).
- 2.28 During the static detector surveys April, May and June 2015 the overnight temperatures were below 10°C for four of the nights in April 2015, one night during May 2015 and two nights during June 2015. In addition rain was experienced on three nights during May 2015 and one night during June 2015. However, these weather conditions are typical for these periods and the resultant dataset were considered to be representative of bat activity at these times.
- 2.29 During the nocturnal tree surveys due to the dense growth and continual changes to the foliage, visibility of potential roost features alters throughout the survey season. Surveyor positions were

adapted throughout the season in order to ensure that all identified suitable bat roosting features could be surveyed.

3.0 RESULTS

Activity Transect Surveys (Figure 3 - 9)

- 3.1 The following section provides a summary of the results recorded during the nocturnal surveys over the on-site habitats. Full detailed breakdown of the data, including full detailed tables and locations are available in the associated plans (as indicated).
- 3.2 Three transect routes were used to cover the current full development area and, for reference, are described in this report as the eastern, western and southern transect routes / areas.

Transect 1, 29th April 2014 (Figure 3 and Appendix 2)

- 3.3 One transect route was completed which covered the western and southern areas of the current proposed development site.

Western/Southern Combined Route

- 3.4 During this transect seven bat contacts were recorded within the survey area (excluding point counts). Six foraging common pipistrelle registrations were recorded adjacent to young plantation woodland, along the western boundary, close to northern edge of the site and along the northern edge of woodland W5. Three of these registrations occurred off site in surrounding habitat to the north of the site boundary alongside a track road and within the corner of an arable field. A single pass of a pipistrelle species was identified within an arable field in the north close to hedgerow H12.

Point Counts

- 3.5 No bat activity was recorded at point counts 1, 2, 4 and 6. At point count 3 adjacent to young plantation woodland, in the south west of the site, a faint pass of a Pipistrelle species was noted. At point count 5 close to hedgerow H12 in the north of the site common pipistrelle were recorded foraging.

Transect 2, 2nd June 2014 (Figure 4a, 4b, 4c, Appendix 2)

- 3.6 Three transect routes were completed, western, eastern and southern.
- 3.7 Overall twenty one bat contacts (excluding point counts) were recorded. Seven of which occurred in the eastern transect and fourteen in the southern transect. No bat activity was identified during the western transect.

Eastern Route

- 3.8 The areas of peak activity along the eastern transect were located alongside the tributary that runs through the centre of the site and comprised of common pipistrelle foraging. Common pipistrelle were also identified foraging along H19, between two arable fields in the north of the eastern transect. Three noctule registrations were also recorded close to the north eastern boundary, two associated with hedgerow H23.

Southern Route

- 3.9 Within the southern transect bat activity was spread across the surveyed route. Four bat contacts were recorded within open arable fields throughout the site; two of these contacts were Pipistrelle species, one a common pipistrelle foraging and one Barbastelle foraging. Two bat contacts of a common pipistrelle and *Myotis* species were recorded foraging close to pond 4.
- 3.10 Five bat contacts, four common pipistrelle and one *Myotis* species, were recorded foraging alongside woodland found within the site (W1). Three additional contacts were recorded alongside the tributary towards the southern end of the site comprising single passes of a *Myotis* species and common pipistrelle, although there was no visual confirmation.

Point Counts

- 3.11 Bat activity was fairly low with activity limited to only four point counts: point counts 3 and 5 of the eastern transect and point counts 4 and 7 of the southern transect route. Alongside the tributary two passes of a common pipistrelle (eastern transect point count 5) and a *Myotis* species foraging (southern transect point count 4) were recorded. Common pipistrelle were also recorded foraging in the corner of an arable field in the south east and alongside the woodland edge of W1 in the south of the site.

Transect 3, 23rd June 2014 (Figure 5a, 5b, 5c, Appendix 2)

- 3.12 Three transect routes were completed, western, eastern and southern.
- 3.13 A total of fourteen bat contacts (excluding point counts) were recorded during this survey. Seven registrations occurred both on the eastern and southern transect. No bat activity was again identified during the western transect.

Eastern Route

- 3.14 Within the eastern transect one contact adjacent to the tributary in the south comprised of a common pipistrelle and noctule pass. A noctule was again heard, foraging along hedgerow H23. Two contacts of a common pipistrelle foraging were noted along the north eastern site boundary, with one of these occurring alongside hedgerow H18. Three additional contacts were recorded along hedgerow H19 comprising one soprano pipistrelle and two common pipistrelle.

Southern Route

- 3.15 Along the woodland W1 in the southern transect three bat contacts comprising two common pipistrelle and one soprano pipistrelle were noted foraging. Three other contacts of common pipistrelle foraging were identified during the southern transect, one close to pond 4 adjacent to the young plantation woodland and two along hedgerow H4. A common pipistrelle contact was also recorded adjacent to the tributary in the south of the site.

Point Counts

- 3.16 Bat activity occurred at approximately half the point counts of the eastern and southern transects. At point counts 3 and 6 alongside the tributary in the eastern transect and point count 4 in the southern transect common pipistrelle were identified as foraging. At point count 7 along the north

east boundary common pipistrelle were again recorded foraging. Along hedgerow H19 (point count 8, eastern transect) two common pipistrelle bats and a noctule were heard foraging.

- 3.17 Additional activity recorded in the southern transect comprised a pipistrelle species foraging close to hedgerow H4 (point count 6) and a single registration of a noctule at point count 5 on the boundary of the arable field.

Transect 4, 17th July 2014 (Figure 6a, 6b, 6c, Appendix 2)

- 3.18 Three transect routes were completed, western, eastern and southern. Overall thirty three bat contacts (excluding point counts) were recorded during this survey.

Eastern Route

- 3.19 Eight contacts occurred within the eastern transect. Along hedgerow H19 two single contacts each of foraging common and soprano pipistrelle were observed; along hedgerow H23 one contact of a common pipistrelle foraging was also recorded. At an arable field boundary in the south east of the transect route three contacts of foraging bat species common pipistrelle, soprano pipistrelle and *Myotis* species occurred.
- 3.20 Within the tributary corridor through the centre of the site two contacts of a common pipistrelle foraging occurred during the eastern transect.

Western Route

- 3.21 Sixteen contacts occurred within the western transect route. Fourteen of the contacts were of common pipistrelle foraging, one alongside the lane leading to Great Wilsey Farm, one alongside hedgerow H12, five along the edge of woodland W5/7, one within an open arable field, two alongside arable field edges in the west, three alongside hedgerow H4 and one alongside the young plantation woodland edge. The additional two contacts were soprano pipistrelle foraging alongside the lane leading to Great Wilsey Farm and along the edge of woodland W5.

Southern Route

- 3.22 A commuting common pipistrelle was noted along hedgerow H4 within the southern transect. Five bat contacts occurred alongside woodland W1 within the southern transect, these comprised of foraging common pipistrelle (four contacts) and pipistrelle species (one contact). Three common pipistrelle contacts were also recorded during the southern transect, along an arable field boundary in the north-west, alongside a young plantation woodland and close to pond 4.

Point Counts

- 3.23 Bat activity at point counts was limited to common pipistrelle foraging in the southern and eastern transect routes. However, these were only at point counts 7 and 8, along the woodland edge W1 in the southern transect; point counts 4 and 5 (along hedgerow H19) and point counts 6 and 7 (alongside the tributary) within the eastern transect.
- 3.24 Bat activity within the western transect included soprano pipistrelle foraging and single passes of common pipistrelle and Barbastelle at point count 3 along the southern edge of woodland W5/7 comprising. Barbastelle were again recorded with a single pass at point count 8 along with common pipistrelle foraging along the lane that runs adjacent the site boundary to Great Wilsey

Farm. Soprano pipistrelle and common pipistrelle were also recorded foraging at point count 6 adjacent to hedgerow H12.

Transect 5, 7th August 2014 (Figure 7a, 7b, 7c, Appendix 2)

- 3.25 Three transect routes were completed, western, eastern and southern. Overall thirty three contacts (excluding point counts) were recorded during this survey. The majority of contacts occurred within the southern transect (seventeen bat contacts).

Southern Route

- 3.26 The majority of bat contacts during the southern transect comprised of common pipistrelle foraging with social calls heard on one occasion. The bat contacts of this species occurred alongside woodland W1 (four bat contacts), in areas of open arable field or along arable field boundaries (four bat contacts), along hedgerow H25 (two bat contacts) and alongside the tributary corridor (four bat contacts). One additional bat contact was identified alongside the tributary corridor comprising a faint soprano pipistrelle pass and a brown long-eared bat echolocating simultaneously.
- 3.27 Additionally during the southern transect two bat contacts were identified along hedgerow H4 comprising a pipistrelle species foraging and an unidentified bat species and common pipistrelle heard echolocating simultaneously.

Eastern Route

- 3.28 Seven contacts occurred within the eastern transect all of which were common pipistrelle foraging. Four of these contacts occurred along hedgerow H1/H2, H19, H23, one alongside the tributary and two along arable field boundaries.

Western Route

- 3.29 Nine contacts occurred within the western transect. One contact comprised of two common pipistrelle bats observed foraging alongside the western woodland edge (W5), another contact of a common pipistrelle was identified along the southern edge of woodland W5/7. Alongside hedgerow H4 and within the adjacent field, seven bat contacts were identified comprising two *Myotis* species, four common pipistrelle and one pipistrelle species.

Point Counts

- 3.30 No bat activity was recorded during the eastern transect during the point counts.
- 3.31 Bat activity was only recorded at point count 5 and 6 alongside the edge of woodland W7 within the western transect comprising of single passes of common pipistrelle.
- 3.32 Within the southern transect bat activity was recorded at point count 6 alongside the woodland edge W1, point count 7 alongside hedgerow H25 and point count 8 alongside the tributary, activity comprised of common pipistrelle foraging.

Transect 6, 22nd September 2014 (Figure 8a, 8b, 8c, Appendix 2) – Dusk

- 3.33 Three transect routes were completed, western, eastern and southern. Overall the largest number of contacts recorded occurred within the southern transect with a total of twenty bat

contacts. Only ten contacts occurred within the western transect route and six in the eastern transect.

- 3.34 Overall a number of bat contacts were identified in association with hedgerows, H2, H17, H4, H18, H21, H23, H25. Woodland edges (W1, W5, W7 and young plantation woodland) were also identified as containing a number of bat contacts over the transect routes. Bat contacts identified within arable fields or along arable field boundaries and open arable fields occurred within the western and southern transect.

Eastern Route

- 3.35 Within the eastern transect one contact comprised a single pass of a *Myotis* species alongside hedgerow H23. Two contacts comprised common pipistrelle foraging alongside H18 and H21. Along hedgerow H2 two contacts were recorded during the eastern transect comprising of a bat species and a soprano pipistrelle.
- 3.36 A single pass of a Barbastelle contact was observed along the tributary corridor.

Western Route

- 3.37 During the western transect the first two contacts identified occurred close to hedgerow H4 a soprano pipistrelle was seen commuting south and one common pipistrelle was seen flying south east. Within the western transect one contact of an unknown bat species was identified with a faint pass along hedgerow H17.
- 3.38 Along the edge of woodland W5 during the western transect two contacts were identified one of *Myotis* species and one faint recording of an unidentified bat species.
- 3.39 Two contacts comprising a single pass of a common pipistrelle and a further soprano pipistrelle foraging occurred alongside the lane leading to Great Wilsey Farm. Three bat contacts occurred along the boundaries of arable fields, two common pipistrelle and one pipistrelle species.
- 3.40 Three contacts comprising two common pipistrelle and one pipistrelle species were identified in association with arable fields and arable field margins.

Southern Route

- 3.41 Three bat contacts comprising of a soprano pipistrelle and two common pipistrelle were identified along hedgerow H4. One common pipistrelle contact was also identified foraging alongside hedgerow H25.
- 3.42 A number of bat contacts were recorded along woodland edges, six alongside W1 comprising of a common pipistrelle foraging; a soprano pipistrelle three common pipistrelle and one *Myotis* species foraging. In addition alongside the young plantation woodland three bat contacts comprising of a common pipistrelle, pipistrelle species and *Myotis* species were identified.
- 3.43 Five contacts comprising three common pipistrelle and two soprano pipistrelle foraging were noted within arable / arable margin habitats.
- 3.44 Alongside the tributary one soprano pipistrelle was recorded foraging.

Point Counts

- 3.45 Within the eastern transect bat activity was recorded at point counts 4 & 5 (along hedgerow H19), point count 6 (along the edge of woodland W4) and point count 7 along the tributary, all activity comprised of common pipistrelle foraging.
- 3.46 Bat activity was only recorded at a single point count within the western transect, point count 6 comprising of a common pipistrelle foraging along an arable field boundary.
- 3.47 During the southern transect a common pipistrelle was identified alongside hedgerow H4 at point count 5. Common and soprano pipistrelle were heard foraging at point count 6 alongside an arable field boundary adjacent to a road. Adjacent to the woodland W1 at point count 7 a soprano pipistrelle was again heard foraging.

Transect 6, 23rd September 2014 (Figure 9a, 9b, 9c, Appendix 2) – DawnEastern, Western and Southern Areas

- 3.48 The three transect routes were again completed at dawn western, eastern and southern. No bat activity was identified during the western or eastern transect. Only two bat contacts were identified during the southern transect comprising of a common pipistrelle foraging along an arable field boundary and a single pass of a soprano pipistrelle along hedgerow H4, neither were visually identified.

Point Counts

- 3.49 Bat activity occurred only at point count 5 adjacent to hedgerow H4 within the southern transect route, a pipistrelle species and a *Myotis* species were heard passing.

Transect 7, 13th April 2015 (Figure 10a, 10b, 10c, Appendix 2) – Dusk

- 3.50 Three transect routes were completed, western, eastern and southern. Overall bat activity levels were low recording a total of eight bat contacts across all three transect routes, none of which occurred at point counts. Five of these contacts occurred in the southern transect, one in the western and two in the eastern transect route.

Southern Transect

- 3.51 During the southern transect the first two contacts identified occurred along hedgerow H4 and along a public footpath that runs through the arable fields, both were unidentified bat species the second of which was only visually identified foraging. The third contact was a *Myotis* species foraging alongside the woodland edge (W1). The two remaining contacts comprised a common pipistrelle foraging along the tributary / treeline in the south of the site and a pipistrelle species foraging along the southern boundary of an arable field.

Eastern Transect

- 3.52 During the eastern transect two common pipistrelle were recorded foraging, one occurring along an arable field boundary and one also alongside the tributary/ tree lines in the south of the site.

Western Route

- 3.53 The only contact during the western transect identified a common pipistrelle foraging along the woodland edge of Great Plantation Fields (W5).

Transect 8, 7th May 2015 (Figure 11a, 11b, 11c, Appendix 2) – Dusk

- 3.54 Three transect routes were completed: western, eastern and southern. Overall bat activity levels were similar across each route with a total of 36 bat contacts (excluding point counts).

Southern Route

- 3.55 During the southern transect bat activity 10 contacts were identified. Single contacts each from individual soprano pipistrelle and an unidentified bat species were seen commuting and foraging along the northern edge of the young plantation woodland. Six contacts comprised of common pipistrelle foraging along hedgerow H4, H5, the young plantation woodland, along a public footpath between arable fields and alongside the tributary. Along hedgerow H4 a Barbastelle was also identified flying south east at 21:12. One additional unidentified bat species was heard along the edge of the woodland W1.

Eastern Route

- 3.56 Fourteen bat contacts were identified during the eastern transect route. The first contact comprised a brown long-eared (BLE) bat foraging along hedgerow H18 on the northern boundary, a further BLE was seen commuting/ foraging along hedgerow H2. A Barbastelle was also identified foraging along hedgerow H24. The remaining contacts comprised of eight common pipistrelle, two soprano pipistrelle and one pipistrelle species occurring along the public footpath adjacent to Great Wilsey Farm, along the tributary, H20, H27 and the northern edge of woodland W4.

Western Route

- 3.57 Within the western transect 12 bat contacts were identified. The majority were identified along the edges of the central woodland W5/7. Along the southern edge two contacts of a common pipistrelle and a *Myotis* species were heard foraging. Along the northern edge a Barbastelle was also heard but not seen at 21:11. A further four contacts of a soprano, common pipistrelle, pipistrelle species and *Myotis* species were heard on the eastern edge of the woodland. Other contacts comprised of a common pipistrelle and pipistrelle species along hedgerow H12, a pipistrelle species along hedgerow H8 and two unidentified bat contacts heard along hedgerow H7 and adjacent to the tributary.

Point Counts

- 3.58 No bat activity was identified at point counts 1,2 or 3 during the southern transect. At point count 4 along the northern edge of the young plantation woodland at 21:04 a Barbastelle bat was seen commuting from the south-west towards the north-west. At point count 5 (adjacent to hedgerow H4), point count 7 (adjacent to woodland W1) and point count 8 (adjacent to the tributary) common pipistrelle were identified foraging. One pipistrelle species was identified at point count 6 along the southern boundary of the site.

- 3.59 During both the eastern and western transect bat activity was only recorded at a single point count. In the eastern transect point count 7 comprised of two common pipistrelle bats foraging within the ride of woodland W4. In the western transect two common pipistrelle bats were heard foraging.

Transect 9, 3rd June 2015 (Figure 12a, 12b, 12c, Appendix 2) – Dusk

- 3.60 Three transect routes were completed, western, eastern and southern. Overall bat activity levels were slightly higher on the southern transect with 11 bat contacts (excluding point counts) and six (excluding point counts) bat contacts on both the eastern and western routes.

Southern Route

- 3.61 Nine of the eleven bat contacts registered during the southern activity transect comprised of common pipistrelle foraging close to the young plantation woodland, the woodland edge of W1, H4, H6 and along the dirt track running north from woodland W1 marking the arable field boundaries. The remaining two registrations were single passes of a noctule bat along hedgerow H4 and the edge of woodland W1.

Eastern Route

- 3.62 During the eastern transect a bat was seen flying south west just off site along hedgerow H1 but no echolocation was identified. The remaining five bat contacts comprised, common pipistrelle foraging off site close to Great Wilsey Farm buildings, along the northern boundary hedge H18 and H19.

Western Route

- 3.63 The majority of bat activity during the western transect comprised of common and soprano pipistrelle bats foraging along the central woodland W5 northern, western and southern edges. In addition one common pipistrelle was seen passing across woodland W7 towards the south.

Point Counts

- 3.64 No bat activity was recorded at point counts during the eastern transect and only one common pipistrelle was heard at point count 4 of the western transect alongside hedgerow H15 that runs along the farm track. During the southern transect common pipistrelle were heard foraging at point count 3 (where H4, H6 and H7 join), point count 5 (alongside the stream), point count 6 (woodland edge W1) and point count 7 (along hedgerow H25).

Transect 10, 2nd July 2015 (Figure 13a, 13b, 13c, Appendix 2) – Dusk

- 3.65 Three transect routes were completed, western, eastern and southern. Overall bat activity levels were similar on the southern transect with 10 bat contacts (excluding point counts) and western transect (nine bat contacts). Only four bat contacts were identified during the eastern transect (excluding point counts).

Southern Route

- 3.66 Nine of the ten bat contacts registered during the southern activity transect comprised of common pipistrelle foraging close to the young plantation woodland, along the public footpath within

woodland W1, hedgerow H4, H6 and alongside the stream. The remaining registration was of a soprano pipistrelle along the southern boundary of the site.

Western Route

- 3.67 All nine bat contacts registered during western activity transect comprised of common pipistrelle identified foraging along the woodland edge of W5 and W7 or with single passes along hedgerows H7, H16 and H17.

Eastern Route

- 3.68 During the eastern transect all four bat contacts registered also comprised of common pipistrelle identified along the northern edge of W4, H3, H22 and along the stream.

Point Counts

- 3.69 The only bat activity recorded during the point counts of the western transect occurred at point counts 3 (between two arable fields) and point count 6 (along the southern edge of W7) with single passes of a common pipistrelle identified. During the eastern transect bat activity was identified at point count 5 (hedgerow H20), 6 and 7 adjacent to woodland W4 and at point count 8 alongside the stream all comprising of common pipistrelle foraging. At point count 5 one registration of a noctule was also identified.
- 3.70 During the southern transect a pipistrelle species was heard at point count 5 (adjacent to hedgerow H4); common pipistrelle at point count 6 (along the southern boundary) and a common pipistrelle and *Myotis* species at point count 7 (along the northern edge of W1).

Transect 11, 3rd August 2015 (Figure 14a, 14b, 14c, Appendix 2) – Dusk

- 3.71 Three transect routes were completed, western, eastern and southern. Overall bat activity levels were lower during the eastern transect with only three bat contacts (excluding point counts) identified whilst during the western and southern transect eleven bat contacts were identified (excluding point counts).

Western Route

- 3.72 In the western transect the majority of contacts comprised of common pipistrelle bats foraging alongside the edge of woodland W7, W6 and hedgerows H4, H7, H9 with just one pipistrelle species contact observed foraging along the northern edge of W7.

Southern Route

- 3.73 In the southern transect contacts comprised of common and soprano pipistrelle foraging along hedgerow H4, H6, H7, H25, edge of woodland W1 and alongside the southern side of the stream. In addition one foraging noctule was identified alongside the northern edge of woodland W1.

Eastern Route

- 3.74 Activity comprised single passes of a common pipistrelle and two soprano pipistrelle alongside H18, H19 and H22

Point Counts

- 3.75 Only bat activity was identified at one point count in the eastern transect comprising of a single pass of a common pipistrelle at PC5 adjacent to H19. In the western transect only common pipistrelle were identified at point counts 5, 6 and 7 alongside the edges of woodland W6 and W7. In the south common and soprano pipistrelle were identified foraging at point counts 3 (hedgerow H4) and point counts 5 and 8 alongside the stream. The only other bat activity identified comprised of common pipistrelle foraging at point count 6 (northern edge of W1) and 7 (hedgerow H25).

Static Detector Survey (Appendix 3 & 4)

25th – 29th April 2014

- 3.76 Two static detectors were deployed, one was situated along the northern boundary within hedgerow H11 (L1, Figure 14a) and one was situated along the woodland edge (W7) in the south east of Great Field Plantation (L2, Figure 14a).
- 3.77 A very small number of registrations occurred at static L1 resulting in an average recording rate 0.16 bat registrations per hour, the static at L2 having an average recording rate of 4.44 bat registrations per hour. The majority of bat activity comprised of soprano pipistrelle at the static L2 (with an average recording rate of 4.05 registrations per hour). At L1 this was much lower with an average soprano pipistrelle recording rate of 0.02 registrations per hour. Common pipistrelle and pipistrelle species were the only other recorded species with low average recording rates at both static locations. *Nyctalus* species was the only other recorded bat species at L1 with an average recording rate of 0.09 per hour.

19th – 28th May 2014

- 3.78 Two static detectors were deployed, one was situated within hedgerow H12 (L3, Figure 4a) and one was situated adjacent to a young plantation woodland (L4, Figure 14a). Overall the average recording rates were low with an average recording rate of 1.09 per hour at L3 and 0.96 at L4.
- 3.79 Common pipistrelle was the only species recorded at L3 with a total of 77 registrations.
- 3.80 The most frequently recorded species at L4 was also common pipistrelle with an average recording rate of 0.73 registrations per hour (57 registrations in total, of which 49 were on one evening). Other species identified at L4 included soprano pipistrelle, pipistrelle species and *Nyctalus* species with an average recording rate between 0.01 – 0.06 registrations per hour. *Barbastelle* was also recorded at L4 with an average recording rate of 0.14 registrations per hour and comprised 11 registrations occurring between 2:29am to 4:07am (between 126 minutes to 58 minutes prior to sunrise at 5:05am) on 21st May 2014.

23rd June – 1st July 2014

- 3.81 The red line boundary of the site was increased prior to this survey occasion; consequently six static detectors were deployed within the site. Three statics were located along the woodland edges (W1, W4 and W5) these were L5 (W5), L8 (W1) and L9 (W4), see Figure 14a. Two statics were placed within hedgerows H4 (L7) and hedgerow H25 (L10). The remaining static was placed between arable fields in the north of the site (L6). Static L10, placed within H10, failed during this month's survey.

- 3.82 Total bat activity average recording rates varied between 0.02 to 4.30 bat registrations per hour. Common pipistrelle were the most common species recorded at all static locations with this being the only species recorded at the static at L6. At L5 the only other species identified included soprano pipistrelle with this species also being identified at L8, L9 and L10 but not at L6 (average recording rates 0.05 to 0.51 registrations per hour).
- 3.83 Pipistrelle species and *Nyctalus* species were only recorded at L8, L9 and L10 with low average recording rates of 0.03 to 0.08 registrations per hour for *Nyctalus* species and 0.02 to 0.38 registrations per hour for pipistrelle species. *Myotis* species were identified at L9 and L10 with low average recording rates of 0.03 to 0.05 registrations per hour.
- 3.84 Barbastelle were recorded at L8 and L9 with single passes occurring at L8; 1:10am on the 30th June 2014 and L9; 2:19am on the 24th June 2014 both of these locations were situated along woodland edges.

17th – 28th July 2014

- 3.85 Six static detectors were deployed within the site at L11 to L16 over the period 17th to 21st July 2014. These were located as follows; L11 along hedgerow H12; L12 at the north edge of woodland W1, L13 and L16 along the tributary corridor (south of woodland W4), L14 along the southern edge of the young plantation woodland close to pond P4 and L15 along hedgerow H19. Two statics failed at L11 and L14 over the above period and were redeployed from 22nd to 28th July 2014, however, the static at L14 only recorded from the 22nd to 25th July 2014 due to battery failure.
- 3.86 The lowest bat activity recorded occurred at L14 (with average recording rate of 1.56 registrations per hour) and the highest bat activity recorded occurring at L15 (with average recording rate of 27.75 registrations per hour).
- 3.87 Common pipistrelle were the most common species recorded (with an average of between 1.24 to 25.23 registrations per hour) at all static locations with soprano pipistrelle (the second most recorded species) and pipistrelle species also recorded at all static locations but at much lower average recording rates (0.02 to 5.19 registrations per hour).
- 3.88 Other species identified included *Myotis* species, recorded at four locations L11, L14, L15 and L16 (with an average of between 0.03 to 0.42 registrations per hour). *Nyctalus* species recorded at L13, L15 and L16 (with an average of between 0.04 to 0.27 registrations per hour) and noctule only at L13 with an average recording rate of 0.06 registrations per hour.
- 3.89 Brown long-eared bats were also recorded at four of the six static locations, L11, L13, L14 and L15 with average recording rate of between 0.01 to 0.09 registrations per hour.
- 3.90 One unidentified bat species occurred at L13.
- 3.91 Barbastelle were recorded at only static location L11 (along hedgerow H12) with three registrations occurring on the 22nd July 2014 at 22:57 and 23:34 with one other registration occurring at 00:39 on the 28th July 2014.

28th July – 25th August 2014

- 3.92 Six static detectors were deployed within the site over the August period. One static detector was deployed within the site at location L21 along the northern edge of woodland W7 on 28th July

2014 to 5th August 2014. Three statics; L17 along the south east boundary; L19 at the south eastern edge of woodland W1 and L22 along the western boundary (end of H4) were deployed over the period 7th – 12th August 2014. The two remaining statics were deployed at L18 along the south east boundary and L20 along the western boundary from 12th – 18th August 2014. The static at L20 only recorded one night, 12th – 13th August 2014 thus this was redeployed at this location from the 22nd – 25th August 2014.

- 3.93 The lowest bat activity was recorded at L20 (with average recording rate of 0.10 registrations per hour) and the highest bat activity recorded occurring at L22 (with average recording rate of 22.12 registrations per hour). Common pipistrelle were the most frequent species at all static locations (with an average of between 0.06 to 20.63 registrations per hour). Soprano pipistrelle were the second most recorded species at the majority of static locations except for L22 (average recording rate between 0.02 to 0.72 registrations per hour). At static L22 Barbastelle were the second most commonly recorded species with an average recording rate similar to that of soprano pipistrelle (0.74 registrations per hour).
- 3.94 Barbastelle comprised of thirty three registrations at L22 fourteen of which occurred on the 9th August 2014, the first registration occurred at 21:16 (35 minutes after sunset) with the remaining registrations occurring at 21:18 (two registrations), 21:22, 21:23, 21:24, 21:26, 21:28, 21:55, 21:57, 22:22 and 23:42. One further registration occurred at 1:51am on 10th August 2014. During dawn of the 11th August 2014 six registrations were recorded from 00:21 to 1:54 and then nine registrations between 21:30 to 23:39, the remaining three occurred during the early hours of the 12th August 2014 00:23 to 3:01am.
- 3.95 Barbastelle were also recorded at three other static locations; L17, L19 and L21 with average recording rates of 0.11, 0.33 and 0.04 registrations per hour respectively. At L17 nine registrations occurred with five occurring on the 8th August 2014, four occurring between 00:07 to 00:15 and one at 4:24am. Four further registrations occurred at 23:11 and 23:22 on the 9th August 2014, 4:27am on the 10th August 2014 and at 2:23am on the 12th August 2014. At L21 three registrations occurred on three out of the eight nights recorded. These occurred at 2:36am on the 31st July 2014, 22:03 on 1st August 2014 and 3:09am on 5th August 2014.
- 3.96 Barbastelle activity at L19 comprised one registration at 21:33 (50 minutes after sunset) on 8th August 2014, nine registrations on the 10th August 2014 between 21:28 and 23:53 and four during the morning (1st August 2014) at 00:16am, 1:22am, 2:16am and 3:30am. At dusk on the 11th August 2014 seven registrations were recorded between 21:19 to 22:28, with a further six recorded during the morning between 00:26 to 1:50 on the 12th August 2014.
- 3.97 Other species identified with low average recording rates ranging from 0.01 to 0.09 registrations per hour include; *Myotis* species at L17, L18, L19, L20 and L21, pipistrelle species at L17, L19 and L21, *Nyctalus* species at all static locations, noctule at L19. L20, L21, brown long-eared at only L18 and one unidentified bat species at L17.

20th - 25th September 2014

- 3.98 Six static detectors were deployed within the site at L23 to L28 over the period 20th to 25th September 2014. These were located as follows: L23 north west corner of woodland W5/7, L24 along the northern boundary L25 along the woodland edge W1, L26 along the tributary corridor close to H4 and H2, L27 north east boundary close to offsite woodland known as Mary Coles Grove and L28 along hedgerow H19.

- 3.99 The overall bat activity within the site was low with average recording rates across all six static locations ranging from 0.24 to 3.66 registrations per hour. Common pipistrelle were the most common species at all static locations (with an average of between 0.10 to 2.48 registrations per hour). Soprano pipistrelle and *Myotis* species were recorded at all static locations with low average recording rates between 0.01 to 0.10 registrations per hour.
- 3.100 Other species identified with low average recording rates ranging from 0.01 to 0.54 registrations per hour included: Barbastelle and pipistrelle species at L24 to L28, *Nyctalus* species at location L25 to L28, noctule at L23, L25, L27 and L28 and brown long-eared bats at only L27.
- 3.101 Barbastelle were recorded at five of the static locations (L24 to L28). At location 28 only one registration of a Barbastelle was identified occurring at 20:12 on the 24th September 2014 (sunset 19:01). Fourteen registrations of Barbastelle were recorded at L24. These comprised three at 19:48 (38 minutes after sunset), 20:03 and 21:36 on the 20th September 2014; two at 00:41 and 5:33am on the 21st September 2014; four at 19:41 (33 minutes after sunset), 20:04, 20:30 and 20:32 on the 21st September 2014; two on the 22nd September at 1:56 and 20:49 and two on 24th September 2014 at 19:42 and 2:41 (forty minutes after sunset).
- 3.102 At location L25 four registrations of Barbastelle occurred at 22:29 on the 20th September 2014, 21:06 (58 minutes after sunset) and 23:35 on the 21st September 2014 and 19:47 (42 minutes after sunset) on 22nd September 2014.
- 3.103 At location L26 the majority of Barbastelle registrations (seven) occurred on the 20th September 2014 with the first occurring at 19:49 (39 minutes after sunset) the remaining registrations occurred at 20:04, 21:28, 22:27 (two registrations), 22:28 and 23:52. Single registrations occurred at 19:37 (29 minutes after sunset) on the 21st September and 19:33 on the 24th September 2014 (32 minutes after sunset).
- 3.104 Barbastelle also recorded at location L27 and comprised of twenty three Barbastelle registrations. Twelve occurred on the 22nd September 2014 the first occurring at 20:23 (78 minutes after sunset) with registration recorded up until 23:28. During the morning on the 23rd September a further seven registrations were identified from 00:50 to 3:35am. Two additional registrations occurred on the 23rd September 2014 at 19:41 and 20:28 (38 minutes after sunset). A single registration occurred on the 24th September 2014 at 5:24am (sunrise 6:57am) and again on the 25th September 2014 at 2:55am.

14th – 19th April 2015

- 3.105 Nine static detectors were deployed within the site at L29 to L37 over the period 14th to 18th April 2015 (see Figure 14b). These were located as follows: L29 along hedgerow H4, L30 along hedgerow H9, L31 along hedgerow H21, L32 along the tributary corridor (south), L33 on the north eastern corner of woodland W1, L34 north of the tributary, L35 along the north west edge of woodland W5/7, L36 south eastern corner of woodland W7, L37 north eastern corner of woodland W7.
- 3.106 The lowest bat activity was recorded at L31 (with average recording rate of 0.14 bat registrations per hour) and the highest bat activity was recorded at L34 (with an average recording rate of 7.62 bat registrations per hour).
- 3.107 Common pipistrelle were the most common species at the majority of the static locations (with an average of between 0.14- 5.35 registrations per hour), at L29 soprano pipistrelle were the most

common species (with an average of 1.58 registrations per hour) and at L33 and L37b Barbastelle were the most commonly recorded species with 0.76 registrations per hour at L37 and 1.46 registrations per hour at L33.

- 3.108 Barbastelles were recorded at seven of the nine static locations, including L29, L30, L32 to L35 and L37. At L29 3 registrations of Barbastelle were identified on the same night comprising of one on the 14th April 2015 at 21:50 (sunset 20:01) and two occurring at 00:10 (15th April 2015) and 00:15. At L30 one registration was also identified at 21:50 on the 15th April 2015. At L32 10 registrations at 20:30, 21:05, 21:15, 21:20, 21:35, 22:00, 22:15, 22:55 14th April 2015, whilst the remaining two registrations occurred on the 16th April 2015 at 1:55am and 2:00am.
- 3.109 At L33 a total of 66 registrations of Barbastelle were identified on the night of the 14th - 15th April 2015 (sunset at 20:01 and sunrise at 06:10am). The first two registrations occurred at 20:35 and 20:34, the next 3 registrations occurred at 20:55 and 21:00 with another 13 registrations occurring between 21:25 to 22:00. From 22:05 onwards until 03:55am on the 15th April 2015 the remaining 48 registrations occurred. At the same location on the night 15th – 16th April 2015 (sunset at 20:03 and sunrise at 06:07am) 35 registrations of Barbastelle were identified. These occurred across then night. Registrations commenced at 21:10 and occurred every five minutes up until 23:20, the last two registrations occurred at 01:01 and 01:20am. One additional registration occurred on the 19th April 2015 at 20:55.
- 3.110 Four registrations of Barbastelle were identified at L34, these comprised of two at 22:05, one at 23:20 on the 14th April 2015 and one at 20:25 on the 15th April 2015.
- 3.111 Seventy eight registrations of Barbastelle were recorded at L35 during the static detector survey. Forty two of these registrations occurred on the night of the 14th - 15th April 2015 (sunset 20:01). The registrations were recorded at 20:55, 21:50, 22:10, 22:20, 22:25, 22:35, 22:55, 23:00, 23:05, 23:10, 23:20, 23:25, 23:20, 23:40, 23:50 the remaining registrations occurred throughout the night between 00:25 to 02:45 with the last registration at 04:04 (sunrise 06:10). At the same location on the night 15th – 16th April 2015 thirty five registrations of Barbastelle were identified. These occurred across then night at 21:30, 21:35, 21:40, 21:45, 21:50, 21:55, 22:00, 22:05, 22:10, 22:15, 22:20, 22:25, 22:30, 22:40, 22:50 23:05, 00:10 and 01:05. One additional registration occurred on the 16th April 2015 at 21:25.
- 3.112 A total of 45 registrations were identified on the static detector at L37. Forty of these registrations occurred on the night of the 14th - 15th April, three were registered at 20:25, one at 20:30, three at 20:35 and one at 20:45 and 21:00. The remaining 31 registrations occurred throughout the night between 21:15 until 02:35am. On the evening of 15th April 2015 one registration occurred at 20:25, one at 22:05 and three at 22:15.
- 3.113 Other species identified with low average recording rates ranging from 0.02 to 0.34 registrations per hour included: *Myotis* species at L29, L32 to L35 and L37. *Nyctalus* species at L32, L33 and L36, pipistrelle species at L37, brown long-eared at L30 and L36, unknown bat species at L34, L35, L37. Two additional species serotine and *Nathusius'* pipistrelle were recorded for the first time on site from the surveys completed. The single serotine registration was recorded at L33 and the single *Nathusius'* pipistrelle registration at L29.

7th – 12th May 2015

- 3.114 Nine static detectors were deployed within the site at L38 to L46 over the period 7th to 12th May 2015. These were located as follows; L38 along hedgerow H24, L39 along the tributary corridor, L40 a ride within the young plantation woodland, L41 along the northern edge of woodland W1, L42 along hedgerow H12, L43 along hedgerow H10 adjacent to offsite woodland, L44 along the eastern edge of woodland W7, L45 along the southern edge of woodland W5 and L46 on the north western corner of woodland W7.
- 3.115 The lowest bat activity was recorded at L43 (with an average recording rate of 0.20 registrations per hour) and the highest bat activity was recorded at L42 (with an average recording rate of 39.79 registrations per hour).
- 3.116 Common pipistrelle were the most common species at the majority of the static locations (with an average of between 0.14 - 29.54 registrations per hour) except for L44 (eastern edge of W7) where Barbastelle were the most commonly recorded species with an average recording rate of 2.93 registrations per hour.
- 3.117 Barbastelles were recorded at all the static locations. At L38 a total of 71 registrations were identified. Thirty two registrations occurred on the 7th May 2015 with the first registration occurring at 33 minutes past sunset (20:39) and the last occurring at 22:49. On the evening of 8th May 2015 nine registrations occurred between 22:41 to 23:47 with one further registration at 03:59. A single registration occurred on the evening of 9th May 2015 at 21:46. On the night 10th – 11th May 2015 sixteen registrations of Barbastelle were identified. These occurred across the night between 21:21 to 02:23am. Across the following night 11th – 12th May 2015 thirteen registrations of Barbastelle were identified between 21:31 and 03:15am.
- 3.118 At L39 a total of 54 registrations were identified. Seven occurred on the night 7th – 8th May 2015, three between 21:35 to 22:09 and 00:31 to 00:49 with the last one occurring at 03:32am. Two registrations were identified on the 8th May 2015 at 21:35 and 22:28. Eleven registrations occurred on the night 10th – 11th May 2015, nine at 21:27, 21:30, 21:49, 22:01, 22:02, 22:04, 22:24, 23:39, 01:13am and 03:21am. The majority of registrations occurred on the night 11th – 12th May 2015 with 34 registrations occurring throughout the night between 21:45 and 03:17am.
- 3.119 Two registrations of a Barbastelle occurred at L40 on the 7th May 2015 at 21:17 and 21:29. At L43 three registrations of Barbastelle were identified occurring on 7th May 2015 at 21:10, 21:14 and 21:18. No other Barbastelle were recorded at these locations across the survey period.
- 3.120 L41 recorded the most Barbastelle registrations. Thirty three registrations occurred on the night 7th - 8th May 2015 (sunset 20:39). Nineteen registrations occurred between 21:00 to 21:28, one at 21:51, eight occurring between 22:00 and 23:15 and the remaining registrations occurring at 00:28, 02:57 and 03:07. The second night 8th – 9th May 2015 thirty one registrations occurred, sixteen between 21:19 to 21:57 with the remainder between 22:03 and 01:14. On the 9th – 10th May 2015 twenty nine registrations occurred, twenty four registrations between 21:04 to 21:52, another four at 22:00 to 22:25 and the last registration at 02:15am. On the following two nights 10th -11th and 11-12th fifty two Barbastelle registrations occurred on each night. On the night 10th - 11th May 2015 twenty three registrations occurred between 21:06 and 21:59, the remaining twenty nine registrations occurred between 22:04 to 03:21 (sunrise 05:21). Similarly the next night 11-12th May 2015 eleven registrations occurred between 21:13 to 21:59 with the majority of registrations occurring between 22:00 and 04:08 which indicate a Barbastelle foraging within its natural range.

- 3.121 Ten registrations of Barbastelle were recorded later at night at L42 with eight occurring on the 10th -11th May 2015 from 21:55 to 23:17, 02:17 and 04:04 and the remaining two registrations occurring at 00:48 and 02:18am on 12th May 2015.
- 3.122 L44 had the second most Barbastelle registrations during May 2015. Thirty nine registrations occurred on the night 7th- 8th May 2015, twenty registrations occurred between 20:58 to 21:57 with the remaining registrations occurring between 22:01 to 23:46 and single registrations at 01:38 and 03:09. Four registrations occurred on the 8th May 2015 (21:34, 23:10, 23:14 and 23:22) and 9th May 2015 (21:13, 22:14, 22:17 and 23:43). Thirty two registrations occurred on the night 10th – 11th May 2015 comprising twenty registrations between 21:00 and 21:56 with the remainder between 22:04 and 00:37. On the night 11-12th May 2015 there were sixty nine registrations comprising seventeen between 21:10 to 21:52 with the remaining registrations between 22:03 to 04:02.
- 3.123 Barbastelle registration numbers were similar at L45 (sixty registrations) and L46 (sixty seven registrations). At L45 & L46 on the night 7th – 8th May 2015 (sunset 20:39) nine registrations occurred between 21:07 to 21:31 with the remaining occurring between 22:06 to 01:22 (at L45). Four registrations occurred between 21:11 to 21:32 and the remaining between 22:06 to 03:12 at L46. The following night six registrations occurred between 21:38 to 23:51 at L45 and ten registrations between 21:33 to 23:58 at L46. Thirty two occurred at L45 from 21:18 to 04:14 on the night 10th – 11th May 2015 while twenty two registrations occurred between 21:08 and 03:18 at L46. On the final night (11-12th May 2015) six registrations occurred at L45 between 21:25 to 22:24 and eighteen at L46 between 21:23 to 04:05am (five of which occurred between 21:23 to 21:54).
- 3.124 Noctule and *Nyctalus* species were recorded at L38, L39, L40, L41, L44, L45 and L46 with the highest average recording rate of 2.33 registrations per hour at L41. Other species identified with low average recording rates ranging from 0.02 to 0.46 registrations per hour included: *Myotis* species at all locations except for L43; brown long-eared at L38, L39, L41, L42, L44, L45 & L46; pipistrelle species at L38, L39, L41, L45 and L46; unknown bat species at L46 and Nathusius' pipistrelle were recorded with single registrations at L41, L45 and L46.

3rd – 8th June 2015

- 3.125 Nine static detectors were deployed within the site at L47 to L55 over the period 3rd to 8th June 2015. These were located as follows; L47 & L48 along the southern edge of woodland W1, L49 along the southern side of the stream close to H3 and H4, L50 within hedgerow H19, L51 within a group of trees close to T60, L52 a ride within the young plantation woodland, L53 on the western edge of woodland W7, L54 on the north western corner of woodland W5 and L55 along the eastern edge of woodland W7.
- 3.126 The highest level of bat activity was identified at L54 (with an average recording rate of 30.68 registrations per hour) and the lowest at L55 (with an average recording rate of 3.22 registrations per hour). Common pipistrelle was the most common species at the majority of the static locations with an average of between 1.52 to 26.29 registrations per hour.
- 3.127 Other species identified at all static detector locations included soprano pipistrelle, *Nyctalus* species and *Myotis* species with recording rates between 0.02 and 3.67. Brown long-eared were recorded at L47, L48, L49, L51, L54 and L55 (with an average recording rate 0.02 – to 0.11 registrations per hour). Other species identified with low average recording rates ranging from

0.02 to 0.38 registrations per hour included: Pipistrelle species at all locations except for L52 & L55 and noctule at all locations except for L49.

- 3.128 Barbastelles were recorded at all the static locations except for L50 with an average recording rate of 0.05 – to 1.25 registrations per hour.
- 3.129 At L47 a total of eleven Barbastelle registrations were identified comprising two registrations at 22:44 on 3rd June 2015, 22:48 and 00:31 on 4th June 2015, 02:49 on 5th June 2015, 01:15, 22:25 and 23:31 on 6th June 2015. The three remaining registrations occurred the night 7th – 8th June 2015 at 22:34, 22:38 and 01:18.
- 3.130 Forty six Barbastelle registrations occurred at L48; two on the 3th June 2015 at 23:27; four on the 5th June 2015 at 01:37, 01:40, 02:27 and 02:51; nineteen on the night 5th – 6th June 2015 from 22:38 to 02:27; fourteen on the night 6th-7th June 2015 between 22:09 and 02:44 and seven over the night 7th-8th June 2015 commencing at 22:11 to 02:24.
- 3.131 At L49 fourteen Barbastelle registrations occurred across the survey period. Three on the night 3rd - 4th June 2015 at 22:05, 22:32 and 01:22; seven on the night 4th – 5th June 2015 from 22:12 to 03:38; one at 23:39 on the 5th June 2015; two at 22:17 and 22:34 on the 6th June 2015 and one at 02:30 on the 8th June 2015.
- 3.132 At L51 eleven Barbastelle registrations were identified comprising two at 22:44 and 00:31 on the night 3rd – 4th June 2015; four at 22:48, 02:49 and 01:15 on the night 4th – 5th June 2015; two at 22:25 and 23:21 on the 6th June 2015 and three at 22:34, 22:28 and 01:18 over the night 7th-8th June 2015.
- 3.133 Location L52 recorded the most Barbastelle registrations during June 2015. These comprised thirteen on the night 3rd – 4th June between 22:11 to 02:13; thirty on the night 5th 0-6th June 2015 from 22:17 to 03:21; ten on the night 6th-7th June 2015 from 22:23 to 02:49 and two on the last night 7th-8th June 2015 at 22:27 and 01:22.
- 3.134 Only two Barbastelle registrations were recorded at L53 occurring at 03:03 on the 5th June 2015 and 22:37 on the 7th June 2015. Ten Barbastelle registrations were recorded at L54 at 01:01 and 02:23 on the 4th June 2015, 03:15 and 03:41 on the 5th June 2015; 23:05 and 02:30 on the night 5th – 6th June 2015 and 22:29, 00:37, 02:08 and 02:50 on the 6th – 7th June 2015.
- 3.135 Sixteen registrations of a Barbastelle occurred at L55; two at 22:20 and 22:41 on the 3rd June 2015; eleven between 21:58 and 02:27 on the night 5th – 6th June 2015; one at 00:16 on 7th June 2015 and one at 02:13 on the 8th June 2015.

2nd - 8th July 2015

- 3.136 Nine static detectors were deployed within the site at L56 to L64 over the period 3rd to 8th July 2015. These were located as follows: L56 along the northern edge of woodland W4, L57 along hedgerow H20, L58 along the tributary corridor (south), L59 along the northern boundary H11, L60 on the southern corner of W6, L61 along the southern edge of W1, L2 on the eastern edge of W7, L63 along the southern edge of W5 and L64 along the eastern edge of W7.
- 3.137 The highest level of bat activity was identified at L56 (with an average recording rate of 47.05 registrations per hour) and the lowest at L59 (with an average recording rate of 1.01 registrations per hour). Common pipistrelle were the most common species at all the static locations (with an average of between 0.86 - 31.49 registrations per hour).

- 3.138 Other species identified at all static detector locations include soprano pipistrelle and *Myotis* species with average recording rates between 0.03 and 7.23 registrations per hour. *Nyctalus* species were recorded L56, L57, L59, L60, L62 to L64 with an average recording 0.05 to 0.25 registrations per hour. Noctule have an average recording rate of 0.02 to 0.12 registrations per hour and were identified at all static locations except L63. Brown long-eared were recorded at L57, L58, L60, L63 and L64 (with an average recording 0.02 – to 0.20 registrations per hour). Pipistrelle species were only identified at L57 with one registration.
- 3.139 Serotine were identified with an average recording 0.02 – to 0.05 registrations per hour at L60, L62 and L63 all of which are associated with woodland edges.
- 3.140 Barbastelle were the only other bat species identified on the static detectors at all locations except for L59 with low recording rates (average recordings 0.03 – to 0.61 registrations per hour). At L56 Barbastelle were recorded on two nights, with a total of four registrations identified at 22:25, 22:36 and 23:44 (sunset 21:27) on the 2nd July 2015 and two registrations at 00:00 and 01:51 on the 5th July 2015. At L58 only seven registrations were identified on four of the nights between 22:32 and 02:28. While at L61 only one registration was identified on 2nd July 2015 at 23:43. Low numbers of registrations also occurred at L63 (two registrations) on the night 3rd – 4th July 2015 at 21:57 and 03:32.
- 3.141 A total of 36 Barbastelle registrations were identified at L57 over the July survey period. Registrations were spread over seven nights. Five registrations on the survey night 2nd – 3rd July 2015 with contacts at 22:48, 00:31, 03:03, 03:14 and 03:15. Fifteen registrations were recorded the following night 3rd- 4th July 2015, the first registration at 21:49, 22 minutes after sunset (sunset 21:27). The remaining registrations occurred between 22:00 and 22:27 (nine registrations), and between 01:09 – 03:39 (five registrations, sunrise 04:56). Over the 5th and 6th July 2015 three registrations occurred at 00:16, 00:53 and 02:59. On the night of the 6th and 7th there were two registration of Barbastelle each at between 22:15 – 22:29 and at dawn on the 8th July 01:51 and 03:22. The remaining six registrations occurred at dusk on the 8th July 2015 (sunset 21:25); 21:54, 21:56, 21:59, 22:01, 22:03 and 22:04.
- 3.142 Fifteen Barbastelle registrations occurred at L60 over 5 nights. On 2nd – 3rd July 2015 three registrations at 22:20, 22:21 and 03:29. On 3rd – 4th July 2015 (six registrations) 22:08, 23:11, 23:36, 01:17, 02:37 and 03:55. At dawn only on the 5th July 2015 (two registrations) 00:02 and 03:36. The night 6th – 7th July 2015 (two registrations) 21:59 and 03:37 and again two registrations the following night 7th – 8th July 2015 22:59 and 00:50.
- 3.143 At L62 there were fourteen Barbastelle registrations over four nights two registrations at 22:21 on 3rd July 2015, two on 5th July 2015 at 03:44 and 22:21 The remaining 10 registrations occurred on the night 6th – 7th July 2015 22:07, 22:18, 2:37 then at 02:06, 02:52, 03:17, 03:27, 03:28 and 03:30.
- 3.144 At L64 sixteen Barbastelle registrations occurred over six nights. Two occurred on the 2nd – 3rd July 2015 at 22:23 and 03:54. One on 5th July 2015 at 02:56, two on the 7th July 2015 02:21 and 03:16. Three on the 7th -8th July 2015 22:19, 02:56 and 03:16. The remaining seven registrations occurred in the morning of the 9th July 2015 between 02:12 to 03:07.

Note

- 3.145 Where calls could not be identified to species level, for example due to the lower quality of those recordings or where there are similarities between species echolocation calls (particularly for *Myotis* and *Nyctalus* species bats) making a definite identification difficult, a likely species identification is provided. This is based on the features displayed by the calls when analysed using the Anlook data analysis software package and taking in to account the geographical location of the site and the habitats present. It was therefore considered that:
- Pipistrelle species bats were either common or soprano pipistrelle;
 - *Nyctalus* species bats were likely to be noctule bats;
 - *Myotis* species bats were likely Daubenton's bats, Natterer's bats, Whiskered or Brandt's.

The Overall data-set

- 3.146 During the static detector surveys the most frequently recorded species during 2014 and 2015 was common pipistrelle with soprano pipistrelle the second most frequently recorded species. In 2014 the third most commonly recorded species was Barbastelle but in 2015 it was *Myotis* species. The overall highest level of bat activity identified within the site occurred during the summer July 2014 and June/ July 2015 which is what would be expected as this is the maternity period for bats and foraging activity is likely to increase.
- 3.147 *Nyctalus* species were recorded in low numbers during the static detector surveys each month but not encountered during any of the activity transects.
- 3.148 Noctule were also recorded at much lower rates only in June, July, August and September 2014 and May, June, July 2015 static detector surveys (and only during the June 2014, May and July 2015 activity transects).
- 3.149 *Myotis* species were recorded during June, July, August and September static detector and activity transect surveys in 2014 and April, May, June, July 2015 static detector surveys and only during the April and July 2015 activity transects.
- 3.150 Brown long-eared bats were recorded with the lowest level of activity across the site during July, August and September static detector surveys 2014 (and only during the August 2014 and May 2015 activity transects). Smaller numbers were also recorded during the April, May, June and July 2015 static detector surveys.
- 3.151 During 2015 two additional bat species were identified during the static detector surveys; Nathusius' pipistrelle and Serotine, neither of these species were identified during the activity transects. Single registrations of Nathusius' pipistrelle were only identified during the April, May and June 2015 static detector surveys whilst serotine were only identified during April and July 2015.
- 3.152 Barbastelle were recorded in low numbers during the 2014 June, July and September activity transects and during May, June, July, August and September static detector surveys. Higher numbers of Barbastelle registrations occurred during the April, May 2015 static detector (spring) surveys with lower numbers again during June and July 2015 (summer). In addition low numbers were identified during the May 2015 activity transects. Overall the majority of Barbastelle registrations are recorded throughout the night typically identified from 21:00 and 02:00, smaller number of registrations are identified earlier on and begin to increase from about 22:00 indicating

that Barbastelle are likely to be foraging within the site. The locations of the Barbastelle within the site were in association with woodland W1, W4, W5, W7 and young plantation woodland, hedgerows H4, H9, H10, H12, H13, H14, H16, H20, H23 and H26. Other areas Barbastelle were identified included; the north east boundary adjacent to offsite woodland Mary Cole's Grove (W3), southern boundary, tributary corridor and the north western boundary (adjacent to W6). The highest level of Barbastelle activity occurred during spring, May 2015 static detector surveys.

Trees & Woodland

- 3.153 A large number of trees were present throughout the site. In addition within the red line boundary three woodlands were identified during the phase 1 habitat survey, the main central woodland comprising of three compartments (W5 and W7), the southern boundary woodland (W1) and woodland along the watercourse (W4). An additional two woodlands are present immediately offsite, W6 in the northwest and woodland W3 in the north east (also known as Mary Cole's Grove).
- 3.154 Woodlands W5 & W7 total approximately 7ha also known as Great Field Plantation. This was a mixed plantation woodland comprising of Austrian pine *Pinus nigra ssp. Nigra*, common larch *Larix decidua*, Grand fir *Abies grandis*, Norway spruce *Picea abies*, Scots pine *Pinus sylvestris*, beech *Fagus sylvatica*, sycamore *Acer pseudoplatanus*, Holly *Illex aquifolium*, ash *Fraxinus excelsior*, oak *Quercus robur* and hornbeam *Carpinus betulus* with an understorey of hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, hazel *Corylus avellana*, blackthorn *Prunus spinosa* and English elm *Ulmus procera*. Ground flora included ivy *Hedera helix*, common nettle *Urtica dioica*, herb Robert *Geranium robertum*, false brome *Brachypodium sylvaticum*, hemlock *Conium maculatum*, wood dock *Rumex crispus* and dog's-mercury *Mercurialis perennis*. The woodland was well trodden with footpaths and showed signs of regular human disturbance from the presence of fires, dens and litter. This woodland is also listed as National Inventory and a Priority Habitat.
- 3.155 Woodland W1 was approximately 4.5ha comprising of a similar species mix as W5/W7 with a line of white poplars *Populus alba* along its western edge. Additional species included common lime *Tilia x europea*, wych elm *Ulmus glabra* and dogwood *Cornus sanguinea*. The woodland was split into two compartments by a public track that also surrounds the plantation. It also showed signs of regular human disturbance from the presence of litter.
- 3.156 Woodland W4 was approximately 1.5ha, comprising a strip of mixed plantation woodland in the central area of the site, on the eastern edge of the stream. Tree species included Austrian pine, Scots pine, ash, sycamore with an understorey of English elm, dogwood, hawthorn, blackthorn and elder *Sambucus nigra*.
- 3.157 Off-site woodland W6 in the northwest was approximately 1.4ha comprising of ash, blackthorn, field maple, goat willow *Salix caprea*, English elm, hazel and dogwood.
- 3.158 Offsite woodland W3 in the north east was approximately 1.2ha comprising of Austrian pine, Scots pine, ash, blackthorn, English oak, hawthorn, English elm and dogwood.

Tree Assessment – Appendix 5, Figure 15

- 3.159 Ground assessments identified a total of 102 trees within the site boundary and / or close adjacent habitat as containing bat roosting potential.

- 3.160 Following the aerial assessments 43 of these trees were downgraded to negligible bat roosting potential, as the features identified from the ground were not considered to provide suitable bat roosting habitat.
- 3.161 A total of 42 of trees were considered to offer low potential for roosting bats, 13 offered moderate/high potential for roosting bats and 4 trees were confirmed as supporting bat roosts, see Appendix 5.

Confirmed Roosts: On-Site

- 3.162 A pipistrelle bat species hibernation roost was identified within tree T28 during the aerial inspection. The bat was identified utilising a crevice within a branch on the southern aspect which had formed due to the tree healing around wounds.
- 3.163 Within T44 bat droppings were identified on the opening of a woodpecker hole on the northern aspect. A sample of the droppings were collected and sent for DNA analysis though no conclusive results were achieved from the sampling. Consequently the bat species currently utilising this tree is unknown.
- 3.164 Within T49, a crack willow, bat droppings were identified along a hazard beam on the northern aspect and at the entrance to a hole on the eastern aspect where two branches had crossed and created a cavity. Frayed bark and a stained entrance hole on the eastern aspect indicated use by bats. Droppings were present on the surrounding ground and on the tree likely to be from a pipistrelle species. A sample of the droppings were collected on two occasions and sent for DNA analysis. No conclusive results were achieved from the first sample. The second sample identified Pygmy shrew *Sorex minutus* as being present.

Confirmed Roosts: Off-Site

- 3.165 Within W3.6 in the off-site woodland of Mary Cole's Grove at approximately 11m (height) there is a tear out on the central leader. A cavity is present extending 30 cm downwards and 20cm upwards; a brown long-eared bat was found roosting within the cavity.

Nocturnal Tree Surveys (Figures 17 – 28 & Appendix 6)

- 3.166 Nocturnal tree surveys were completed on trees confirmed with bat roosts, high / moderate roosting potential and low potential trees to be removed during development. Table 4 below shows the summary of the completed nocturnal tree surveys.

Table 4: Summary of Nocturnal Tree Surveys

Tree	1 st Survey	2 nd Survey	3 rd Survey
Confirmed Roosts			
T44	24.06.15 Dawn	21.07.15 Dawn	To be completed August / September 2015
T49	24.06.15 Dawn	21.07.15 Dawn	To be completed August / September 2015
T28	24.06.15 Dawn	21.07.15 Dawn	To be completed August / September 2015
W3.6	02.07.15 Dusk	03-04.08.15 Dusk/Dawn	To be completed August / September 2015

Tree	1 st Survey	2 nd Survey	3 rd Survey
High / Moderate Potential			
T48	03.07.14 Dawn	28-29.07.15 Dusk/Dawn	To be completed August / September 2015
T30	20.07.15 Dusk	03-04.08.15 Dusk/Dawn	To be completed August / September 2015
T27	20.07.15 Dusk	30-31.07.15 Dusk/Dawn	To be completed August / September 2015
T26	03.07.14 Dawn	30-31.07.15 Dusk/Dawn	To be completed August / September 2015
T25	03.07.14 Dawn	30-31.07.15 Dusk/Dawn	To be completed August / September 2015
T69	23.06.15 Dusk	23-24.07.15 Dusk/Dawn	To be completed August / September 2015
TG11.7	23.06.15 Dusk	23-24.07.15 Dusk/Dawn	04.08.15 Dawn
TG11.8	23.06.15 Dusk	23-24.07.15 Dusk/Dawn	04.08.15 Dawn
T999	02.07.15 Dusk	23-24.07.15 Dusk/Dawn	03-04.08.15 Dusk/Dawn
T60	02.07.15 Dusk	28-29.07.15 Dusk/Dawn	To be completed August / September 2015
W7.17	03.07.14 Dawn	30-31.07.15 Dusk/Dawn	To be completed August / September 2015
W7.21	03.07.14 Dawn	30-31.07.15 Dusk/Dawn	To be completed August / September 2015
W6.3	20.07.15 Dusk	28-29.07.15 Dusk/Dawn	To be completed August / September 2015
Low Potential Trees To be Removed			
T4	04.06.13 Dawn	N/A	N/A

Confirmed Roosts

- 3.167 Four trees were identified as containing a bat roost T28, T44, T49 and W3.6 (off-site). These trees are all retained within the development design and buffered. In order to establish the roost type, species and number of bats utilising the roost further nocturnal surveys were completed.
- 3.168 No bats were seen emerging or returning to roost within the trees T28, T44 or W3.6 during the completed nocturnal surveys.
- 3.169 One bat which was not echolocating (likely to be a pipistrelle species) was seen returning to roost within T49 on the 21st July 2015. The bat returned at 04:28 (35 minutes prior to sunrise) into a west facing branch cavity near a fork in the tree. Immediately prior to this both common and soprano pipistrelle bats were heard in the vicinity.

High/ Moderate Potential

- 3.170 Thirteen trees were identified as containing moderate/ high bat roosting potential (Category 2a): T25, T26, T27, T30, T48, T60, T69, T999, TG11.7, TG11.8, W7.17, W7.21 and W6.3. From the completed survey work no bats have been identified emerging or returning to roost within these trees.

Low Potential

- 3.171 Tree T4 was identified as containing low bat roosting potential following the aerial inspection. This tree is unsuitable for retention and consequently will be removed; consequently nocturnal survey work was completed on this tree.
- 3.172 No bats were seen emerging or returning to roost within the tree T4 during the nocturnal survey on 4th June 2015.

Incidental Results

- 3.173 As an incidental result of the nocturnal tree surveys nine bat species were identified utilising the site. This included; common pipistrelle, soprano pipistrelle, pipistrelle species, *Myotis* species, *Nyctalus* species, noctule, Barbastelle, brown long-eared and unidentified bat species (calls of which were too faint to analyse).

4.0 DISCUSSION & RECOMMENDATIONS

Bats

- 4.1 All UK species of bat are listed on the Conservation of Habitats and Species Regulations 2010 (as amended) making it illegal to deliberately disturb any such animal or damage / destroy a breeding site or roosting place of any such animal. Bats are also afforded full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to recklessly or intentionally kill, injure or take a species of bat or recklessly or intentionally damage or obstruct access to or destroy any place of shelter or protection or disturb any animal whilst they are occupying such a place of shelter or protection. Some bat species, including soprano pipistrelle, are Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC).

Roost Sites

- 4.2 Four trees containing confirmed bat roosts were identified during the survey, three of these occurred within the site boundary and one off-site to the north east.
- 4.3 Tree T28 contained a single pipistrelle species bat hibernating. A single brown long-eared bat was also identified roosting within tree W3.6 in woodland W3 (off-site).
- 4.4 Unidentified bat droppings were present with T44. From the completed nocturnal survey work no bats have been identified roosting within T44 therefore it has been concluded that roost is not regularly used.
- 4.5 A number of unidentified bat droppings were also present within T49 (likely to be from a pipistrelle species). During the nocturnal surveys a single bat likely to be a pipistrelle species was identified roosting within a cavity in a branch on the western aspect. From the completed survey work it has been concluded that the roost is used by common or soprano pipistrelle bats on an occasional basis.
- 4.6 Trees T28, T44 and T49 are to be retained within an area of green infrastructure. Off-site tree W3.6 will be buffered from the development with a green corridor along the northern boundary which will be a minimum of 65m from the new access road. Mitigation measures to ensure the roosts are protected from disturbance should be implemented prior to and during the development works, this includes no lighting surrounding the trees at night and the implementation of the buffer zone prior to and during development works.

High/ Moderate Potential Trees

- 4.7 Thirteen trees were identified as containing moderate/ high potential for roosting bats (W6.3, T48, T30, T27, T26, T25, TG11.7, TG11.8, T60, T999, T69, W7.17, W7.21). All of these trees are retained within the development. From the completed survey work no bats have been identified roosting within these trees.
- 4.8 In order to ensure these trees remain suitable for roosting bats following completion of the development suitable mitigation measures will be employed. Five of these trees (T48, T30, T27, T26, T25) are to be retained within the green infrastructure buffer which at its minimum offers a distance of 65m and maximum 138m from the infrastructure road to the south. This is considered sufficient to avoid any impacts arising from light spill. Additional mitigation to be implemented will

include additional native species planting in the south to provide a buffer to noise impacts from the road which will further ensure these trees are protected from disturbance.

- 4.9 An off-site tree W6.3 will be retained, this tree is present within the woodland W6, thus no impacts are likely to arise from the proposed development. A buffer zone of woodland planting will be implemented on the development site on the northern, southern and eastern edges of this woodland providing a minimum distance of 18m from the tree to the woodland edge.
- 4.10 Trees T999, W7.17 and W7.21 will be retained within the woodland (W5/W7) which is to be suitably buffered. Mitigation measures are outlined below in Paragraph 4.21.
- 4.11 The remaining high / moderate potential trees, TG11.7, TG11.8, T60 and T69 are all to be retained and buffered within the green infrastructure that is to be maintained as a dark corridor thus maintaining the trees for future use by bats.
- 4.12 Incorporating the above mitigation measures with regards to the high/ moderate potential retained trees will overall be likely to result in enhancements to the available roost sites for bats within the development in the long term.

Low Potential Trees

- 4.13 From the completed survey work 42 trees were identified as offering low potential for roosting bats.
- 4.14 Tree T4 is the only tree identified with low bat roosting potential that will be removed to facilitate development. No bats were identified roosting within T4 during the completed survey work. As bats are known to frequently move roosts, utilising tree roosts on an occasional basis (in some cases) it is recommended that as a precaution immediately prior to removal an aerial inspection should be completed by a licensed bat worker to ensure bats are not present.
- 4.15 Two trees W6.1 and W6.2 occur within off-site woodland W6. These trees are to be retained. As stated in paragraph 4.6 this woodland is to be buffered within the development thus no further survey is recommended on these trees as it has been concluded that the development will not affect a bat roost if present within these trees.
- 4.16 Five trees (W3.1, W3.3, W3.5, W3.7 and W3.9) occur within off-site woodland W3. These trees are to be retained. These trees will be buffered from the development by a green corridor along the northern boundary. No further survey is recommended on these trees. From this assessment it has been concluded that the development will not affect a bat roost if present within these trees and the proposals are likely to result in enhancements for local bat populations in the long term.
- 4.17 Five trees (TG11.2, TG11.3, TG11.5, TG11.6 and TG11.9) occur within the east of the site away from the development within an area to be enhanced as green open space. No further survey is recommended on these trees. From this assessment it has been concluded that the development will not affect a bat roost if present within these trees and the proposals are likely to result in enhancements for local bat populations in the long term.
- 4.18 One additional tree (T72) containing low bat roost potential also occurred offsite. This tree is to be retained. A road already runs between the site boundary and the location of T72. In addition a buffer zone is to be implemented along the eastern boundary of the site between the development and T72. No further survey is recommended on this tree. From this assessment it

has been concluded that the development will not affect a bat roost if present within this tree and the proposals are likely to result in enhancements for local bat populations in the long term.

- 4.19 Five trees (T39, T40, T41, T42 and T982) are to be retained within the green infrastructure buffer in the centre of the site. As per paragraph 4.6 no further surveys are recommended on these trees. From this assessment it has been concluded that the development will not affect a bat roost if present in these trees and the proposals are likely to result in enhancements for local bat populations in the long term.
- 4.20 Nineteen trees containing low bat roost potential occur within woodland W5/W7 and along the southern eastern edge of W5 (T991, T995, W5.1, W7.1, W7.2, W7.3, W7.6, W7.7, W7.8, W7.9, W7.12, W7.13, W7.15, W7.16, W7.22, W7.23, W7.25, W7.28 and W7.29). All of these trees are to be retained. The following mitigation outlined below will ensure that there will be no impacts from disturbance and that the woodland will not be impacted upon by development.
- 4.21 A 15m buffer zone is to be implemented as a minimum along the eastern edge of the woodland W5 and W7 in order to maintain a lighting level of 1 lux or less (section 6 of The Prevention of Lighting Impacts on Bats Report (August 2015)). To the south of these woodlands a 65m buffer is provided. At the south west corner (close to trees T991, T995, W5.1) the buffer will be 21m.
- 4.22 In addition the overall lighting across the site has been considered to ensure that the woodland remains connected to dark corridors that extend to the wider environment ensuring that this habitat can continue to be utilised by bats.
- 4.23 The remaining three low potential trees T24, T19 and T16 trees are to be retained within the green infrastructure. Tree T24 is incorporated within the dark corridor running along the central stream across the site. T16 and T19 are to be buffered in new habitat corridors that are to be created extending out of the site where lighting has been designed to be minimal (below 1lux) on the outer non-development edge thus allowing bats to utilise this corridor in the future.
- 4.24 It is considered that with the above mitigation that the proposed development design will maintain the favourable conservation status of any UK tree dwelling bat species.

Foraging/ Commuting

- 4.25 Over the surveys ten species of bat were identified using the site. These species included common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, unidentified *Myotis* species, *Nyctalus* species, noctule, brown long-eared, Barbastelle, serotine and unidentified bat species.
- 4.26 Common pipistrelle is one of the UK's most common bat species and was the most frequently encountered across the site during both the transect survey and the static detector surveys. Soprano pipistrelle, pipistrelle species and *Nyctalus* species were also recorded throughout the entire bat active survey season but the frequency that these species were recorded was lower than that for common pipistrelle. Low numbers of *Myotis* species, noctule and Barbastelle (an Annex II species) were recorded every month except for April 2014. Brown long-eared bats were also recorded with a low frequency within July, August and September 2014 and April, May, June and July 2015.
- 4.27 The overall areas of peak bat activity comprised hedgerow H17 and associated Great Wilsey Farm track, H4, H19, H23 and woodland W5/7, W1 and young plantation woodland (pond 4) and the central dry watercourse. Activity was also identified in association with hedgerows W4, H1, H2, H12, H18, H21, and H25 though much less frequently.

- 4.28 Common pipistrelle, the most frequently recorded species, with the highest level of activity identified during the static detector survey was in association with hedgerow H19, hedgerow H4 and woodland W1, W5 and W7. Similarly for pipistrelle species the highest level of activity identified during the surveys was in association with hedgerow H4, H12, woodland W1, the central watercourse and young plantation woodland / pond 4. The results indicate that specifically these habitats form part of a small part of their foraging habitats within their natural range. The results do not demonstrate that the hedgerows form a significant commuting route to roost sites surrounding the site, as significant activity both at dusk and dawn was not recorded.
- 4.29 Soprano pipistrelles were recorded in extremely low numbers across the site with the most frequent numbers identified along the boundary of W5, hedgerow H12 & H19. Brown long-eared were also recorded in extremely low numbers with locations including the central dry watercourse, hedgerow H12, H19 and close to P4 and the young plantation woodland.
- 4.30 Noctule and *Nyctalus* species were recorded at a low frequency rate but were identified in association with H9, H14, H19, H23, H26, H27, H30, the tributary corridor and the young plantation woodland.
- 4.31 *Myotis* species were identified utilising H4, H12, H19, H23, H25 habitat close to pond 4, young plantation woodland, woodland W1, W5/W7 and the central dry watercourse.
- 4.32 Nathusius' pipistrelles are widespread but rare across the UK most commonly encountered on migration late summer/autumn although some do remain all year and breed in the UK. Single registrations of Nathusius' pipistrelle occurred during the April, May and June 2015 static detector surveys along hedgerow H4, and the woodland edges of W1, W5 and W7, a typical habitat in which this species would be found. No other registrations were identified. Within Suffolk it is likely that this species is under recorded and thus records of these species are not considered significant as it is likely that this species was foraging within its natural range.
- 4.33 Serotine are generally found within the south and south eastern counties of the UK. This species was identified with single registrations during April and July 2015 static detector surveys in association with woodland edges of W1, W5, W7 and offsite woodland W6, a typical habitat in which this species would be found foraging over. The presence of this species is not considered significant as it is likely that this species was foraging within its natural range.
- 4.34 Barbastelle (an Annex II species of The Habitats Directive) has been recorded regularly across the site in low numbers throughout the survey season of 2014 and 2015. Higher levels were recorded during spring 2015. This species was identified utilising hedgerows H4, H9, H10, H12, H13, H14, H16, H20, H23 and H26 along with woodland edges W1, W3, W4, W5, W6 and W7 and other areas including the central dry watercourse, the southern boundary and the north western boundary. Within Suffolk this species is known to be widespread within suitable habitat but in small number (*Bats in Suffolk Distribution Atlas 1982 – 2011*, Suffolk wildlife Trust) which concurs with the findings of the completed survey work. From the survey results it has been concluded that the features utilised by Barbastelle form a small proportion of the Barbastelle foraging range (as this species is known to forage over a large territory of mixed habitats) and they do not provide a significant commuting route for this species. These habitats are to be retained and incorporated within the green infrastructure of the development and as such the development is unlikely to effect the favourable conservation status of the local Barbastelle population given the habitat in the surrounding landscape. Furthermore, with the implementation

of appropriate enhancements / mitigation the potential foraging areas / commuting routes for Barbastelle are likely to be increased.

Mitigation & Enhancement for the Local Bat Population

- 4.35 Following the development the site offers significant opportunities to provide enhancements for the local population of bats particularly for Barbestelle (Annex II species) which was identified using features such as hedgerows and woodland edge habitat. The following provides an overview of the mitigation and enhancements which will be provided through development of the site.
- 4.36 To compensate for the partial loss of hedgerows (Hedgerow Removal Plan 5055-L-112 Appendix 7) H4, H5, H9, H11, H12, H13, H14, H19, H21, H22 and H23 (totalling 198m) to facilitate road and footpath access (this assumes 10 crossings through the hedgerows at approximately 12m wide each and 10 crossings of 3m width), additional native species planting will be provided throughout the green infrastructure and open space area greater than what is to be lost. The retained hedgerows will be included within the green linkages and should be “gapped up” with native species; this will increase species diversity, strengthen the hedgerow and improve the corridor for foraging bats.
- 4.37 Preference will be given to planting species of local provenance within the hedgerows and woodland that will be nectar and fruit producing species to provide foraging for insects, birds and mammals. Species should include alder *Alnus glutinosa*, beech *Fagus sylvatica*, silver birch *Betula pendula*, wych elm *Ulmus glabra*, gean cherry *Prunus avium*, hornbeam *Carpinus betulus*, English oak *Quercus robur*, rowan *Sorbus aucuparia*, goat willow *Salix caprea*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, field maple *Acer campestre*, blackthorn *Prunus spinosa*, dogwood, *Cornus sanguinea*, elder *Sambucus nigra*, guelder rose *Viburnum opulus*, field rose *Rosa arvensis* and dog rose *Rosa canina*.
- 4.38 Management of the hedgerows should be undertaken in an ecologically sensitive manner to enhance the nature conservation value. Such management may include;
- Allowing the hedgerow to reach at least a height of 3m. Once reached the hedgerow can be ‘topped out’ to maintain the height or to suit circumstances, with a width of at least 1-2m;
 - A proportion of trees within the hedgerow such as English oak *Quercus robur* and field maple *Acer campestre* should be allowed to mature into standard trees to provide nesting and foraging opportunities for local wildlife and a varied habitat structure; and
 - Grassland along the hedgerow base should be allowed to grow to provide a graduated sward height and habitat.
- 4.39 To compensate for woodland losses comprising: the partial loss of the young plantation woodland (0.31ha) in the centre of the site; woodland W1 (1.2ha) along the southern site boundary of the site and additional losses where the road intersects the central dry watercourse (at three locations) additional native species woodland planting (that of which will be greater than to be lost) will be provided in the area of green open space in the south east of the site and along the northern boundaries (Habitat Creation Plan 5055-L-113 B Appendix 8). This will comprise 4.3ha of new woodland habitat and 5.7 ha of reinforced boundary planting (including hedgerows).
- 4.40 Across the site, dark corridors have been designed to ensure and incorporate habitats of value to bats for foraging, potential roosting and commuting into the wider area. The Prevention of

Lighting Impacts on Bats Report (August 2015, Appendix 7) fully outlines the requirements for lighting and buffers across the site in order to maintain the dark corridor of movement (light below 1lux). The proposed lit routes are shown in Appendix 10. Below outlines the proposed strategy.

- 4.41 The dark corridor route for bats shown on Figure 30, incorporates natural dark routes already present within the site. This includes the unlit public footpath that runs through and to the south of woodland W1. Where no natural dark corridors are present they will be created, as set out below.
- 4.42 Development will be buffered from features of value to bats, such as hedgerows and woodland edges, that will be incorporated within the dark corridor, the buffer zones have been designed to be of sufficient size (a minimum of 10 or 15m) that will ensure that the features utilised by bats will maintain a light level of below 1 lux (see Section 6 & 7 of The Prevention of Lighting Impacts on Bats Report, Appendix 7). This will include the central dry watercourse running across the site, hedgerow H2, H6, H7, H23, both offsite woodlands and the central woodland W5/W7.
- 4.43 In order to maintain the linkages and an area of darkness (below 1lux) across the gaps created by the road access through the hedgerows, young plantation woodland and tributary corridor a 'hop over' will be created (Section 8, The Prevention of Lighting Impacts on Bats Report, Appendix 7). This comprises trees that are already semi-mature (6m in height) to be planted at either side of the road so that the canopies of these trees will be allowed to interlink over this section of road. It is recommended that in order to minimise the potential effects to bats (particularly Barbastelle) during the development these standard trees will be planted immediately following the removal of hedgerows/ trees to facilitate road access.
- 4.44 Running to the north from woodland W4, hedgerow H23 will be double planted to create a dark corridor between the hedgerows and a hop over will be created where the road crosses the hedgerow. These features will provide a corridor of movement to and from W4 and the central stream that runs across the site.
- 4.45 Habitat corridors to be created extending out of the site to the north have been designed with native species planting (2m in height) which will ensure that a dark corridor (below 1 lux) is maintained on the outer edge of the new habitats to increase linkages to the wider environment and provide additional foraging habitat for bats following completion of the development.
- 4.46 In addition the green infrastructure area should be implemented prior to the development commencing in order to allow the green linkage to establish, this includes planting of the buffer zones along woodland edges, creation of the green open space in the south east of the site and additional planting along the boundaries/ green infrastructure areas.
- 4.47 Other lighting considerations should also be implemented during construction and incorporated into the development in order to ensure minimal light spill from the site. It is recommended that;
- During the construction period no lighting is present at night.
 - Lighting is directed to where it is needed, to avoid light spillage, particularly along the hedgerow and woodland edges.
 - Buffer zones are not to be illuminated.
 - Lighting that is incorporated into the development design should be low pressure sodium lights as light is emitted at one wavelength and as such has a low attraction to insects.
 - Any upward lighting should be avoided.

- Security lighting on properties backing on to sensitive hedgerows and woodland will be low wattage LED which will be provided on the properties at construction to forestall a future homeowner installing unsuitable lighting which could impact on bats (Section 7 The Prevention of Lighting Impacts on Bats Report (August 2015)).
- 4.48 The implementation of all of the above will ensure habitat connectivity across the site and into the wider area for foraging and commuting bats. Overall the proposed design is likely to improve the quality and amount of resources available for bats across the site as a consequence of the proposals.
- 4.49 The introduction of a series of ponds across the site within the area of green infrastructure following development will also greatly increase the foraging opportunities for the local bat population. Adjacent to the ponds an area should be seeded with a mix with a high proportion of flower species to compensate for the loss of the field margin habitats. The inclusion of night scented species such as evening primrose *Oenothera biennis* and fleabane *Erigeron annuus* will attract night flying insects and in turn bats. In addition the new ponds have been designed to remain within the dark corridors. The implementation of this habitat creation will increase the diversity found within the site and will increase potential diversity of insects which will use the area and therefore increase the value of these features for bats.
- 4.50 The inclusion of a variety of bat boxes such as Schwegler 2F, 2F with double front panel, 1FF, 1FW (hibernation box) and Barbastelle bat boxes around the development site on suitable trees and particularly along the woodland edges would provide new potential roosting sites for bats within the local area. Bat boxes could be considered for inclusion within the design of proposed buildings including boxes such as Schwegler 1FQ, 1WQ, 1FR/ 2FR bat tube or the ibstock bat brick. Boxes will be located in sheltered spots and placed at a height of at least 3 metres from the ground. Boxes will also be arranged around the site so that a number of different aspects are covered.
- 4.51 With the application of the above mentioned mitigation and enhancements the overall proposed development has the potential to provide significant positive affects to the local bat population.

Appendix 1: Automated Static Detector Survey timings and conditions

Date	Survey type	Location on Figure 9	Area covered	Timing/ conditions	Weather
25- 29.04.14	Unit 4 - SM2 Static Detector	L1	Northern boundary along hedgerow H1	Sunset 20:20 to 20:27 Sunrise 05:48 to 05:41 Temperature 8 to 16°C Average wind speed 5 -13 km/h	Rain 0.5mm 29 th April 2014
25-28.09.14	Unit 3 - SM2 Static Detector	L2	Eastern edge of Great Field Plantation Woodland (W7)		
19-28.05.14	SM2 Static Detector	L3	Within the centre of hedgerow H12	Sunset 20:59 to 21:10 Sunrise 05:07 to 04:58 Temperature 8 to 22°C Average wind speed 6 -19 km/h No rain	
	SM2 Static Detector	L4	Along the northern edge of young plantation woodland		
23.06.14-01.07.14	SM2 Static Detector	L5	Along the northern edge of Great Field Plantation Woodland (W5)	Sunset 21:28 Sunrise 04:50 to 04:53 Temperature 13 to 27°C Average wind speed 5 -15 km/h Rain on 24 th , 27 th , 28 th and 29 th June.	
23-30.06.14	SM2 Static Detector	L6	Along a hedgerow present between two arable fields in the north of the site		
23.06.14	SM2 Static Detector (Static failed)	L7	Within hedgerow H4		

23.06.14- 01.07.14	SM2 Static Detector	L8	Along woodland edge (W1)	
23-28.06.14	SM2 Static Detector	L9	Along a woodland (W4) edge north of the tributary	
23.06.14- 01.07.14	SM2 Static Detector	L10	Along hedgerow H25 in the south of the site	
22.07.14 - 28.07.14	Unit 12 - SM2 Static Detector	L11	Along hedgerow H12	Sunset 21:10 to 21:03 Sunrise 05:17 to 05:24 Temperature 15 to 28°C Average wind speed 8 -15 km/h Rain on 22 nd July 2014
17-22.07.14	Unit 13 - SM2 Static Detector	L12	Eastern edge of Great Field Plantation Woodland (W7)	Sunset 21:16 to 21:11 Sunrise 05:10 to 05:16 Temperature 15 to 30°C Average wind speed 3 -13 km/h Rain on 18 th , 19 th & 20 th July 2014
17-24.07.14	Unit 15 - SM2 Static Detector	L13	Along the southern edge of the stream	Sunset 21:16 to 21:07 Sunrise 05:10 to 05:20 Temperature 15 to 30°C Average wind speed 3 -15 km/h Rain on 18 th , 19 th & 20 th & 22 nd July 2014
22-24.07.14	Unit 9- SM2 Static Detector	L14	Along the southern edge of a young plantation woodland	Sunset 21:10 to 21:07 Sunrise 05:17 to 05:20 Temperature 15 to 27°C Average wind speed 12 -15 km/h Rain on 22 nd July 2014
17-28.07.14	Unit 10 - SM2 Static Detector	L15	Within the northern section of hedgerow H19	Sunset 21:16 to 21:04 Sunrise 05:10 to 05:23 Temperature 15 to 30°C Average wind speed 3 -17 km/h Rain on 18 th , 19 th , 20 th , 22 nd July 2014

17-24.07.14	Unit 11 - SM2 Static Detector	L16	Along a woodland (W4) edge north of the stream	Sunset 21:16 to 21:08 Sunrise 05:10 to 05:18 Temperature 15 to 30°C Average wind speed 3 - 15 km/h Rain on 18 th , 19 th & 20 th July 2014
7-15.08.14	Unit 15 - SM2 Static Detector	L17	Located on the southern boundary along H30	Sunset 20:45 to 20:29 Sunrise 05:41 to 05:53 Temperature 11 to 24°C Average wind speed 6 - 23 km/h Rain on 7 th , 8 th , 9 th , 10 th , 14 th and 15 th Aug 2014
12-18.08.14	Unit 9 - SM2 Static Detector	L18	Along the boundary of two arable fields in the south of the site	Sunset 20:35 to 20:23 Sunrise 05:49 to 05:58 Temperature 10 to 21°C Average wind speed 8 - 24 km/h Rain on 14 th and 15 th Aug 2014
7-15.08.14	Unit 12 - SM2 Static Detector	L19	Along the western site boundary towards the south of woodland W1 in H26	Sunset 20:45 to 20:29 Sunrise 05:41 to 05:53 Temperature 11 to 24°C Average wind speed 6 - 23 km/h Rain on 7 th , 8 th , 9 th , 10 th , 14 th and 15 th Aug 2014
12-14.08.14	Unit 10- SM2 Static Detector	L20	South of the young plantation woodland	Sunset 20:35 to 20:33 Sunrise 05:49 to 05:50 Temperature 11 to 21°C Average wind speed 16 - 21 km/h No rain
22-25.08.14	Unit 11 - SM2 Static Detector	L20		Sunset 20:15 to 20:09 Sunrise 06:04 to 06:09 Temperature 7 - 18°C Average wind speed 8 - 14 km/h Rain on 22 nd , 23 rd and 25 th
28.07.14 – 05.08.14	Unit 11 - SM2 Static Detector	L21	At the woodland edge in the north east corner of woodland W7	Sunset 21:01 to 20:48 Sunrise 06:25 to 05:38 Temperature 12 - 26°C Average wind speed 8 - 16 km/h Rain on 28 th July, 1 st , 2 nd & 5 th Aug 2014

7-12.08.14	Unit 11 - SM2 Static Detector	L22	Along the boundary of arable fields in the north of the site (junction of H7 to H9)s	Sunset 20:45 to 20:35 Sunrise 05:41 to 05:49 Temperature 12 to 24°C Average wind speed 7 - 23 km/h Rain on 7 th , 8 th , 9 th , 10 th Aug 2014
20-25.09.14	Unit 14- SM2 Static Detector	L23	Along the footpath present within woodland W5	Sunset 19:10 to 19:01 Sunrise 06:51 to 06:57 Temperature 8 to 19°C Average wind speed 8 - 18 km/h Rain on 20 th and 24 th
20-25.09.14	Unit 13- SM2 Static Detector	L24	In the northern of the site along the edge of woodland adjacent to the boundary	
20-25.09.14	Unit 16- SM2 Static Detector	L25	Along the northern edge of woodland W1	
20-25.09.14	Unit 10- SM2 Static Detector	L26	At the junction of H3 and H4 close to the stream	
20-25.09.14	Unit 11- SM2 Static Detector	L27	In the north east corner of the site adjacent to an offsite woodland Mary Cole's Grove	
20-25.09.14	Unit 12- SM2 Static Detector	L28	Along hedgerow H20	
2015				

14-20.04.15	Unit 13- SM2 Static Detector	L29	Along hedgerow H4	Sunset 20:01 to 20:08 Sunrise 06:12 to 06:03 Temperature 5 to 29°C Average wind speed 8 - 17km/h No rain
	Unit 8- SM2 Static Detector	L30	Along the boundary of arable fields in the north of the site (junction of H7 to H9)s	
	Unit 15- SM2 Static Detector	L31	Along hedgerow H21	
	Unit 16- SM2 Static Detector	L32	Along the edge of the stream in the south	
	Unit 14- SM2 Static Detector	L33	Along woodland edge (W1)	
	Unit 11- SM2 Static Detector	L34	Along the edge of woodland (W5)	
	Unit 9- SM2 Static Detector	L35	In the north west corner of woodland (W7)	
	Unit 12- SM2 Static Detector	L36	Along the south east edge of woodland (W7)	
	Unit 10- SM2 Static Detector	L37	Along the north east edge of woodland (W7)	

07-12.05.15	Unit 26- SM2 Static Detector	L38	Along hedgerow H23, southern end	Sunset 20:39 to 20:47 Sunrise 05:26 to 05:18 Temperature 8 to 21°C Average wind speed 8 - 27km/h Light rain on occasion during the night on 7 th , 8 th and 9 th May 2015.
	Unit 27- SM2 Static Detector	L39	Along the edge of the stream in the centre of the site facing north	
	Unit 14- SM2 Static Detector	L40	In a break within the young plantation woodland	
	Unit 25- SM2 Static Detector	L41	Along woodland edge (W1)	
	Unit 11- SM2 Static Detector	L42	Along hedgerow H12	
	Unit 9- SM2 Static Detector	L43	Along the edge of off-site woodland in the north west	
	Unit 13- SM2 Static Detector	L44	Along the eastern edge of woodland (W7)	
	Unit 24- SM2 Static Detector	L45	Along the south west corner of woodland (W5)	
	Unit 10- SM2 Static Detector	L46	Along the north western corner of woodland (W7)	

03- 08 .06.15	Unit 13- SM2 Static Detector	L47	Along the southern boundary of woodland W1	Sunset 21:16 to 21:21 Sunrise 04:53 to 04:50 Temperature 8 to 40°C Average wind speed 9 - 25km/h Light rain on 8 th June during the day.
03- 08 .06.15	Unit 24- SM2 Static Detector	L48	Along the southern boundary of woodland W1	
03- 08 .06.15	Unit 14- SM2 Static Detector	L49	Southern end of hedgerow H3	
03- 08 .06.15	Unit 25- SM2 Static Detector	L50	Along hedgerow H19	
03- 08 .06.15	Unit 3- SM2 Static Detector	L51	Close to T60, group of trees in the north of the site	
03- 08 .06.15	Unit 12- SM2 Static Detector	L52	In a break within the young plantation woodland	
03- 08 .06.15	Unit 10- SM2 Static Detector	L53	Along the western edge of woodland (W7)	
03- 08 .06.15	Unit 9- SM2 Static Detector	L54	North west corner of woodland (W5)	
03- 08 .06.15	Unit 11- SM2 Static Detector	L55	Along the eastern edge of woodland (W7)	

02.07.15 – 08.07.15	Unit 14- SM2 Static Detector	L56	Northern edge of Woodland W4	Sunset 21:27 to 21:23 Sunrise 04:55 to 05:01 Temperature 10 to 27°C Average wind speed 7 - 20km/h, no rain at night.
02.07.15 – 08.07.15	Unit 25- SM2 Static Detector	L57	Along hedgerow H20	
02.07.15 – 08.07.15	Unit 24- SM2 Static Detector	L58	Along the tributary Stour corridor	
02.07.15 – 08.07.15	Unit 9- SM2 Static Detector	L59	Along hedgerow H11	
02.07.15 – 08.07.15	Unit 10- SM2 Static Detector	L60	Along the southern edge of off-site woodland W6	
02.07.15 – 08.07.15	Unit 26- SM2 Static Detector	L61	Along the southern edge of W1	
02.07.15 – 08.07.15	Unit 12- SM2 Static Detector	L62	Along the western edge of W7	
02.07.15 – 08.07.15	Unit 13- SM2 Static Detector	L63	Along the southern edge of W5	
02.07.15 – 08.07.15	Unit 11- SM2 Static Detector	L64	Along the eastern edge of W7	

Appendix 2: Activity Transect Results**Bat Contacts from Bat Transect**

Date	Ref.	Time	Species	No. Passes	Behaviour	
<i>29th April 2014 – Dusk Transect</i>						
29/04/14	N/A	20:10-20:26	No Bats	-	-	
	N/A	20:29-20:39	No Bats	-	-	
	N/A	20:42-20:56	No Bats	-	-	
	1	20:59-21:22	Common Pipistrelle	1	Foraging	
	2	21:25-21:47	Common Pipistrelle	3	Foraging	
	3		Common Pipistrelle	1	Foraging	
	4		Pipistrelle Species	1	Pass, faint call	
	5	21:49-21:57	Common Pipistrelle	1	Foraging	
6	22:00-22:22	Common Pipistrelle	1	Foraging		
7		Common Pipistrelle	1	Foraging		
<i>2nd June 2014 – Dusk Transects</i>						
02/06/14	Western Transect					
	N/A	20:50-21:15	No Bats	-	-	
	N/A	21:21-21:32	No Bats	-	-	
	N/A	21:37-21:46	No Bats	-	-	
	N/A	21:51-22:10	No Bats	-	-	
	N/A	22:17-22:43	No Bats	-	-	
	N/A	22:48-23:16	No Bats	-	-	
	N/A	23:24-23:43	No Bats	-	-	
	Eastern Transect					
	N/A	20:53-21:22	No Bats	-	-	
	N/A	21:25-21:49	No Bats	-	-	
	1	21:52-22:25	Noctule	1	Commuting	
	2		Noctule	1	Pass	
	3		Noctule	1	Pass	
	N/A	22:28-22:32	No Bats	-	-	
	N/A	22:35-22:40	No Bats	-	-	
	N/A	22:43-22:47	No Bats	-	-	
	4	22:50-23:10	Common Pipistrelle	1	Foraging	
	5		Common Pipistrelle	1	Foraging	
	6		Common Pipistrelle	1	Foraging	
	7		Common Pipistrelle	1	Foraging	
	Southern Transect					
	N/A	20:49-21:15	No Bats	-	-	
	N/A	21:20-21:38	No Bats	-	-	
	N/A	21:43-21:53	No Bats	-	-	
	1	21:58-22:18	Pipistrelle Species	4	Foraging	
	2		Common Pipistrelle	6	Foraging	
	3		Barbastelle	5	Foraging	
	4		Common Pipistrelle	3	Foraging	
	4		Myotis Species	1	Pass	
	5		Common Pipistrelle	8	Foraging	
	6		Myotis Species	2	Foraging	
	N/A		22:23-22:30	No Bats	-	-
	7		22:35-22:47	Common Pipistrelle	1	Pass
	7			Myotis Species	1	Pass
	8	Common Pipistrelle		1	Pass	
	9	22:52-23:10	Common Pipistrelle	1	Pass	
	9		Common Pipistrelle	2	Foraging	
	10		Common Pipistrelle	6	Foraging	
11	23:15-23:23	Pipistrelle Species	1	Pass		
<i>23rd June 2014 – Dusk Transect</i>						

23/06/14	Western Transect					
	N/A	21:09-21:11	No Bats	-	-	
	N/A	21:14-21:25	No Bats	-	-	
	N/A	21:28-21:34	No Bats	-	-	
	N/A	21:37-22:02	No Bats	-	-	
	N/A	22:05-22:42	No Bats	-	-	
	N/A	22:45-22:52	No Bats	-	-	
	N/A	22:55-23:11	No Bats	-	-	
	N/A	23:14-23:20	No Bats	-	-	
	N/A	23:23-23:35	No Bats	-	-	
	Eastern Transect					
	N/A	21:08-21:25	No Bats	-	-	
	N/A	21:29-21:48	No Bats	-	-	
	N/A	21:52-21:59	No Bats	-	-	
	N/A	22:02-22:07	No Bats	-	-	
	N/A	22:10-22:15	No Bats	-	-	
	N/A	22:18-22:29	No Bats	-	-	
	1	22:32-23:02	Common Pipistrelle & Noctule	2	Pass	
	2		Noctule	2	Foraging	
	3		Common Pipistrelle	1	Pass	
	4	23:05-23:31	Common Pipistrelle	1	Pass	
	5		Soprano Pipistrelle	1	Pass	
	6		Common Pipistrelle	1	Foraging	
	7	23:34-23:36	Common Pipistrelle	1	Foraging	
	Southern Transect					
	N/A	21:09-21:17	No Bats	-	-	
	N/A	21:20-21:25	No Bats	-	-	
	N/A	21:28-21:40	No Bats	-	-	
	1	21:43-21:52	Common Pipistrelle	1	Pass	
	2	21:55-22:30	2x Common Pipistrelle	2	Foraging	
	3		Common Pipistrelle	1	Foraging	
	4		Soprano Pipistrelle	10	Foraging	
	5		Common Pipistrelle	5	Foraging	
N/A	22:33-22:52	No Bats	-	-		
6	22:55-23:12	Common Pipistrelle	1	Foraging, faint		
7		Common Pipistrelle	2	Foraging		
17 th July 2014 – Dusk Transect						
17/10/14	Western Transect					
	N/A	20:48-21:20	No Bats	-	-	
	N/A	21:23-21:29	No Bats	-	-	
	1	21:32-22:08	Common Pipistrelle	1	Pass	
	2		Common Pipistrelle	1	Pass	
	3		Common Pipistrelle	1	Pass	
	4		Common Pipistrelle	4	Foraging	
	5		Common Pipistrelle	2	Foraging	
	6		22:11-22:33	Common Pipistrelle	10	Foraging
	7			Common Pipistrelle	1	Foraging
	8			Common Pipistrelle	4	Foraging
	9			Soprano Pipistrelle	4	Foraging
	10			2x Common Pipistrelle	7	Foraging
	11		Common Pipistrelle	2	Foraging	
	12		Common Pipistrelle	1	Foraging	
	N/A	22:36-22:40	No Bats	-	-	
	N/A	22:43-22:49	No Bats	-	-	
N/A	22:52-23:00	No Bats	-	-		

	13	23:03-23:18	Common Pipistrelle	5	Foraging	
	14		Common Pipistrelle	8	Foraging	
	15	23:21-23:25	Common Pipistrelle	Continuous	Foraging	
	16		Soprano Pipistrelle	3	Foraging	
Eastern Transect						
	N/A	20:49-21:02	No Bats	-	-	
	N/A	21:05-21:26	No Bats	-	-	
	N/A	21:29-21:52	No Bats	-	-	
	1	21:56-22:21	Soprano Pipistrelle	Continuous	Foraging	
	2	22:24-22:40	Common Pipistrelle	4	Foraging	
	3	22:43-22:52	Common Pipistrelle	2	Foraging	
	4	22:55-23:03	Common Pipistrelle	2	Foraging	
	5	23:06-23:10	Common Pipistrelle	1	Foraging	
	6	23:13-23:27	Common Pipistrelle	3	Foraging	
	7		Myotis	1	Foraging	
	8		Soprano Pipistrelle	1	Foraging	
Southern Transect						
	N/A	20:51-20:56	No Bats	-	-	
	N/A	23:59-21:10	No Bats	-	-	
	N/A	21:13-21:26	No Bats	-	-	
	N/A	21:29-21:38	No Bats	-	-	
	1	21:42-21:59	Common Pipistrelle	1	Commuting	
	2	22:02-22:21	Common Pipistrelle	1	Foraging	
	3	22:24-22:40	Common Pipistrelle	1	Foraging	
	4		Common Pipistrelle	1	Foraging	
	5		Pipistrelle Species	2	Foraging	
	6		Common Pipistrelle	1	Foraging	
	7	22:45-22:52	Common Pipistrelle	2	Foraging	
	8	22:56-23:15	Common Pipistrelle	Continuous	Foraging	
	9		Common Pipistrelle	2	Foraging	
7 th August 2014 – Dusk Transect						
07/08/14	Western Transect					
	N/A	20:26-20:38	No Bats	-	-	
	N/A	20:41-20:48	No Bats	-	-	
	N/A	20:51-20:53	No Bats	-	-	
	1	20:56-21:13	2x Common Pipistrelle	2	Foraging	
	N/A	21:16-21:35	No Bats	-	-	
	2	21:38-21:49	Common Pipistrelle	1	Pass	
	3	21:52-22:24	Myotis	1	Pass	
	4		Common Pipistrelle	1	Pass	
	5		Pipistrelle Species	2	Foraging	
	6		Common Pipistrelle	1	Pass	
	7		Myotis	1	Foraging	
	8		Common Pipistrelle	1	Pass	
	9		Common Pipistrelle	1	Foraging	
	N/A	22:28-22:33	No Bats	-	-	
	N/A	22:36-22:39	No Bats	-	-	
	Eastern Transect					
		N/A	20:20-20:42	No Bats	-	-
		N/A	20:45-20:30	No Bats	-	-
		N/A	20:33-21:00	No Bats	-	-
		N/A	21:03-21:11	No Bats	-	-
		1	21:14-21:32	Common Pipistrelle	3	Foraging
		2	21:35-22:00	Common Pipistrelle	Continuous	Foraging
		3	22:03-22:23	Common Pipistrelle	Continuous	Foraging
		4		2x Common Pipistrelle	2	Foraging

	5		Common Pipistrelle	1	Foraging	
	6	22:23-22:36	Common Pipistrelle	1	Foraging	
	7		Common Pipistrelle	1	Foraging	
	N/A	22:40-22:43	No Bats	-	-	
Southern Transect						
	N/A	20:26-20:44	No Bats	-	-	
	1	20:47-21:04	Common Pipistrelle	1	Commuting	
	N/A	21:08-21:18	No Bats	-	-	
	2	21:23-21:38	Pipistrelle Species	1	Faint Pass	
	3		Common Pipistrelle	1	Foraging	
	4		Common Pipistrelle	2	Foraging & Social	
	5	21:41-21:53	Common Pipistrelle & Bat Species	2	Foraging & Social	
	6		Common Pipistrelle	1	Foraging	
	7	21:55-22:04	Common Pipistrelle	4	Foraging	
	8		Common Pipistrelle	1	Foraging	
	9		Soprano Pipistrelle & Brow Long-eared	2	Faint Pass	
	10	22:07-22:18	Common Pipistrelle	1	Foraging	
	11		Common Pipistrelle	1	Foraging	
	12		Common Pipistrelle	Continuous	Foraging	
	13		Common Pipistrelle	1	Foraging	
	14		Common Pipistrelle	1	Foraging	
	15	22:21-22:27	Common Pipistrelle	6	Foraging	
	16	22:30-22:35	Common Pipistrelle	3	Foraging	
	17		Common Pipistrelle	2	Foraging	
22 nd September 2014 – Dusk Transect						
22/09/14	Western Transect					
	N/A	18:44-19:00	No Bats	-	-	
	N/A	19:03-19:09	No Bats	-	-	
	1	19:12-19:42	Soprano Pipistrelle	1	Commuting	
	2		Common Pipistrelle	1	Pass	
	3	19:45-20:05	Bat Species	1	Faint pass	
	4		Myotis	1	Faint Pass	
	5	20:08-20:15	Bat Species	1	Faint Pass	
	6		Soprano Pipistrelle	2	Foraging	
	7	20:18-20:33	Pipistrelle Species	1	Faint Pass	
	N/A	20:36-20:39	No Bats	-	-	
	8	20:42-20:47	Common Pipistrelle	3	Foraging	
	9	20:50-21:04	Common Pipistrelle	1	Pass	
	10		Common Pipistrelle	1	Pass	
	Eastern Transect					
	N/A	18:54-19:09	No Bats	-	-	
	N/A	19:12-19:20	No Bats	-	-	
	1	19:24-19:39	Myotis	1	Faint Pass	
	2	19:43-19:58	Common Pipistrelle	3	Foraging	
	3	20:02-20:26	Common Pipistrelle	1	Pass	
	4		Bat Species	2	Faint Passes	
	5		Soprano Pipistrelle	1	Faint Pass	
	6		Barbastelle	1	Pass	
	N/A	20:29-20:34	No Bats	-	-	
	N/A	20:37-20:44	No Bats	-	-	
	N/A	20:47-20:51	No Bats	-	-	
	N/A	20:54-21:02	No Bats	-	-	
	Southern Transect					
	N/A	18:45-19:05	No Bats	-	-	
	N/A	19:08-19:15	No Bats	-	-	
	1	19:18-19:37	Soprano Pipistrelle	3	Foraging	

	2		Soprano Pipistrelle	2	Foraging	
	3	19:40-19:52	Common Pipistrelle	1	Pass	
	4	19:55-20:09	Myotis	1	Pass	
	5	20:13-20:25	Soprano Pipistrelle	1	Pass	
	6		Common Pipistrelle	1	Foraging	
	7		Common Pipistrelle	2	Foraging	
	8		Pipistrelle Species	1	Faint pass	
	9		Common Pipistrelle	2	Foraging	
	10		20:28-20:47	Common Pipistrelle	2	Foraging
	11	2x Soprano Pipistrelle		2	Foraging	
	12	Common Pipistrelle		1	Foraging	
	13	Soprano Pipistrelle		1	Foraging	
	14	Common Pipistrelle		4	Foraging	
	N/A	20:50-20:55		No Bats	-	-
	15	20:58-21:16	Common Pipistrelle	2	Foraging	
	16		Myotis	1	Foraging	
	17		Soprano Pipistrelle	2	Foraging	
	18		Common Pipistrelle	1	Foraging	
	19		Common Pipistrelle	1	Foraging	
	20		Common Pipistrelle	1	Foraging	
23rd September 2014 – Dawn Transect						
23/09/14	Western Transect					
	N/A	04:41-04:53	No Bats	-	-	
	N/A	04:56-05:05	No Bats	-	-	
	N/A	05:08-05:35	No Bats	-	-	
	N/A	05:38-05:50	No Bats	-	-	
	N/A	05:53-06:02	No Bats	-	-	
	N/A	06:05-06:19	No Bats	-	-	
	N/A	06:22-06:24	No Bats	-	-	
	N/A	06:27-06:30	No Bats	-	-	
	N/A	06:33-06:45	No Bats	-	-	
	Eastern Transect					
	N/A	04:42-04:54	No Bats	-	-	
	N/A	04:57-05:05	No Bats	-	-	
	N/A	05:08-05:28	No Bats	-	-	
	N/A	05:31-05:47	No Bats	-	-	
	N/A	05:50-06:10	No Bats	-	-	
	N/A	06:13-06:16	No Bats	-	-	
	N/A	06:19-06:27	No Bats	-	-	
	N/A	06:30-06:35	No Bats	-	-	
	N/A	06:38-06:45	No Bats	-	-	
	Southern Transect					
	N/A	04:46-04:51	No Bats	-	-	
	N/A	04:54-05:00	No Bats	-	-	
	1	05:03-05:19	Common Pipistrelle	2	Foraging	
	N/A	05:22-05:31	No Bats	-	-	
	2	05:34-05:47	Soprano Pipistrelle	1	Pass	
	N/A	05:51-05:59	No Bats	-	-	
	N/A	06:03-06:14	No Bats	-	-	
	N/A	06:17-06:24	No Bats	-	-	
	N/A	06:27-06:45	No Bats	-	-	
	13th April 2015 – Dusk Transect					
	13/04/15	Western Transect				
N/A		19:25-19:48	No Bats	-	-	
N/A		19:51-20:01	No Bats	-	-	
N/A		20:04-20:10	No Bats	-	-	
N/A		20:13-20:29	No Bats	-	-	
N/A		20:32-20:41	No Bats	-	-	

	1	20:44-21:02	Common Pipistrelle	2	Foraging	
	N/A	21:05-21:35	No Bats	-	-	
	N/A	21:38-21:43	No Bats	-	-	
	N/A	21:46-21:52	No Bats	-	-	
Eastern Transect						
	N/A	19:36-19:51	No Bats	-	-	
	N/A	19:54-20:02	No Bats	-	-	
	N/A	20:05-20:14	No Bats	-	-	
	N/A	20:17-20:27	No Bats	-	-	
	N/A	20:30-20:42	No Bats	-	-	
	N/A	20:45-21:00	No Bats	-	-	
	1	21:03-21:23	Common Pipistrelle	4	Foraging	
	2	21:26-21:35	Common Pipistrelle	2	Foraging	
	N/A	21:38-21:47	No Bats	-	-	
Southern Transect						
	N/A	19:37-19:47	No Bats	-	-	
	N/A	19:50-20:06	No Bats	-	-	
	N/A	20:09-20:22	No Bats	-	-	
	1	20:25-20:40	Bat Species	1	Not Visible	
	2	20:43-20:58	Bat Species	1	Foraging – no sound	
	3		Myotis species	3	-	
	N/A	21:04-21:13	No Bats	-	-	
	N/A	21:16-21:23	No Bats	-	-	
	N/A	21:26-21:28	No Bats	-	-	
	4	21:31-21:37	Common Pipistrelle	1	Foraging	
	5		Pipistrelle Species	1	Foraging	
7 th May 2015 - Dusk Transect						
07.05.15	Western Transect					
	N/A	20:15-20:24	No Bats	-	-	
	N/A	20:27-20:33	No Bats	-	-	
	1	20:36-20:59	Pipistrelle species	1	Pass	
	2		Bat species	2	Foraging along tree line	
	2		Bat species	1		
	3		Common pipistrelle	1	Foraging	
	3		Myotis species	3	Pass	
	3		Barbastelle	1	Pass	
	4		Soprano pipistrelle	1	Pass	
	5		Common pipistrelle	2	Pass	
	5		Myotis species	1	Pass	
	6		21:02-21:22	Pipistrelle species	2	Faint pass, NV
	N/A	21:36-21:50	No Bats	-	-	
	N/A	21:54-21:58	No Bats	-	-	
	N/A	22:01-22:14	No Bats	-	-	
	7	22:21-22:32	Pipistrelle species	1	Faint pass, NV	
	8		Common pipistrelle	1	Pass, NV	
	Eastern Transect					
		N/A	20:17-20:29	No Bats	-	-
		N/A	20:32-20:41	No Bats	-	-
		N/A	20:44-21:00	No Bats	-	-
		N/A	21:03-21:19	No Bats	-	-
		1	21:22-21:42	Brown long-eared	2	Foraging, tree/hedgeline
		2		Common pipistrelle	3	Foraging building, NV
		3		Common pipistrelle	4	Foraging near pond, NV
		4		Brown long-eared	1	Foraging/

					commuting
	5		Pipistrelle species	2	Foraging in field
	6	21:45-21:56	Common pipistrelle	1	Foraging near wood
	7		Soprano pipistrelle	1	Foraging along wood
	8		Common pipistrelle	1	Foraging along hedge
	8		Barbastelle	2	Foraging along hedge
	9	21:59-22:08	Common pipistrelle	2	Foraging along wood
	N/A	22:11-22:17	No Bats	-	-
	11		Common pipistrelle	1	Foraging along hedge
	12		Soprano pipistrelle	2	Social calling x 2 bats
	13		Common pipistrelle	3	Foraging along hedge
	14	22:20-22:33	Common pipistrelle	5	Foraging along hedge
Southern Transect					
	N/A	20:17-20:27	No Bats	-	-
	N/A	20:30-20:39	No Bats	-	-
	N/A	20:42-20:51	No Bats	-	-
	N/A	20:54-21:03	No Bats	-	-
	2		Soprano pipistrelle	1	commuting along tree line
	3	21:05-21:17	Soprano pipistrelle	4	2 x bats foraging
	4		Barbastelle	1	Pass
	5		Common pipistrelle	3	Foraging
	5	21:20-21:34	Common pipistrelle	2	Foraging
	6		Common pipistrelle	3	Foraging
	8	21:37-21:45	Bat species	1	faint pass
	10	21:48-21:53	Common pipistrelle	1	Pass
	11		Common pipistrelle	1	Foraging
	13	21:56-22:33	Common pipistrelle	1	Pass
3rd June 2015 – Dusk Transect					
03.06.15	Western Transect				
	N/A	20:55-21:06	No Bats	-	-
	N/A	21:09-21:17	No Bats	-	-
	N/A	21:20-21:26	No Bats	-	-
	N/A	21:28-21:42	No Bats	-	-
	1	21:45-21:58	Soprano pipistrelle	2	Foraging
	2	22:02-22:24	Common pipistrelle	1	NV, Pass
	3		Common pipistrelle	2	Foraging
	4		Soprano pipistrelle	Multiple	Foraging
	5		Soprano pipistrelle	Multiple	Foraging
	6		Common pipistrelle	1	Pass
	N/A	22:27-22:49	No Bats	-	-
	N/A	22:52-22:58	No Bats	-	-
	N/A	23:00-23:10	No Bats	-	-
	Eastern Transect				
	N/A	20:55-21:10	No Bats	-	-
	N/A	21:15-21:21	No Bats	-	-
	N/A	21:26-21:34	No Bats	-	-
	N/A	21:39-21:53	No Bats	-	-

	1	21:58-22:22	Bat species	1	silent	
	2		Common pipistrelle	1	Foraging along hedge	
	3		Common pipistrelle	1	Pass	
	4		Common pipistrelle	3	Foraging	
	5		Common pipistrelle	Multiple	Foraging	
	6	22:27-22:39	Common pipistrelle	1	Pass	
	N/A	22:44-22:57	No Bats	-	-	
	N/A	23:02-23:09	No Bats	-	-	
	N/A	23:14-23:20	No Bats	-	-	
Southern Transect						
	N/A	20:55-21:10	No Bats	-	-	
	N/A	21:13-21:29	No Bats	-	-	
	1		Common pipistrelle	3	Foraging	
	2	21:32-21:45	Common pipistrelle	2	Foraging	
	3		Common pipistrelle	1	Pass	
	4	21:48-21:59	Noctule	1	Pass	
	5		Common pipistrelle	1	Pass	
	6	22:02-22:19	Common pipistrelle	1	Pass	
	7	22:22-22:30	Common pipistrelle	4	Foraging	
	8		Common pipistrelle	2	Foraging	
	9	22:34-22:44	Noctule	1	Pass	
	10		Common pipistrelle	2	Foraging	
	11		Common pipistrelle	1	Pass	
	N/A	22:48-22:59	No Bats	-	-	
	N/A	23:03-23:10	No Bats	-	-	
<i>2nd July 2015 – Dusk Transect</i>						
02.07.15	Western Transect					
	N/A	21:08-21:15	No Bats	-	-	
	N/A	21:18-21:31	No Bats	-	-	
	1	21:34-22:07	Common pipistrelle	3	Pass along tree line	
	2		Common pipistrelle	1	Commuting along hedgerow	
	3	22:10-22:33	Common pipistrelle	2	Foraging	
	3		Common pipistrelle	2	Foraging	
	4		Common pipistrelle	Multiple	Foraging	
	5		Common pipistrelle	1	Foraging	
	5	22:36-22:47	Common pipistrelle	1	Foraging	
	6		Common pipistrelle	1	Foraging	
	N/A	22:51-23:06	No Bats	-	-	
	N/A	23:09-23:17	No Bats	-	-	
	N/A	23:20-23:27	No Bats	-	-	
	7	23:30-23:38	Common pipistrelle	1	Foraging	
	Eastern Transect					
	N/A	21:13-21:25	No Bats	-	-	
	N/A	21:30-21:38	No Bats	-	-	
	N/A	21:43-21:57	No Bats	-	-	
	1	22:02-22:17	Common pipistrelle	3	Foraging along hedge	
	2	22:22-22:37	Common pipistrelle	2	Foraging along hedge	
	N/A	22:42-22:48	No Bats	-	-	
	3	22:53-23:00	Common pipistrelle	1	Pass	
4	23:05-23:15	Common pipistrelle	1	Foraging		
N/A	23:20-23:24	No Bats	-	-		
Southern Transect						

	N/A	21:13-21:16	No Bats	-	-	
	N/A	21:19-21:27	No Bats	-	-	
	N/A	21:31-21:51	No Bats	-	-	
	1	21:54-22:29	Common pipistrelle	3	Foraging	
	2		Common pipistrelle	3	Foraging x 2 bats	
	3		Common pipistrelle	3	Foraging x 3 bats	
	4	22:33-22:46	Common pipistrelle	1	Pass	
	5		Common pipistrelle	3	Foraging	
	6		Common pipistrelle	1	Foraging	
	7	22:52-23:05	Common pipistrelle	1	Faint pass	
	8		Soprano pipistrelle	1	Pass	
	9	23:07-23:13	Common pipistrelle	2	Pass	
	10		Common pipistrelle	1	Pass	
	N/A	23:16-23:22	No Bats	-	-	
<i>3rd August 2015 – Dusk Transect</i>						
03/08/15	Western Transect					
	N/A	20:30-20:42	No Bats	-	-	
	N/A	20:45-20:51	No Bats	-	-	
	N/A	20:54-20:59	No Bats	-	-	
	N/A	21:02-21:16	No Bats	-	-	
	N/A	21:19-21:29	No Bats	-	-	
	2	21:32-21:57	Common pipistrelle	3	Foraging	
	3		Pipistrelle species	2	Foraging	
	4		Common pipistrelle	1	Foraging	
	5		Common pipistrelle	5	Foraging	
	6		Common pipistrelle	5	Foraging	
	7		Common pipistrelle	5	Foraging	
	9	22:00-22:35	Common pipistrelle	3	Foraging	
	10		Common pipistrelle	5	Foraging	
	11		Common pipistrelle	Multiple	Foraging x 2 bats	
	12		Common pipistrelle	Multiple	Foraging x 2 bats	
	13		Common pipistrelle	Multiple	Foraging	
	N/A	22:38-22:43	No Bats	-	-	
	N/A	22:46-22:52	No Bats	-	-	
	Eastern Transect					
	N/A	20:30-20:39	No Bats	-	-	
	N/A	20:44-20:52	No Bats	-	-	
	N/A	20:57-21:08	No Bats	-	-	
	N/A	21:13-21:20	No Bats	-	-	
	1	21:25-21:39	Common pipistrelle	1	Pass	
	3	21:44-21:54	Soprano pipistrelle	1	Pass	
	4		Soprano pipistrelle	1	Pass	
	N/A	22:04-22:22	No Bats	-	-	
	N/A	22:27-22:36	No Bats	-	-	
	N/A	22:41-22:45	No Bats	-	-	
	Southern Transect					
	N/A	20:30-20:50	No Bats	-	-	
N/A	21:53-21:06	No Bats	-	-		
N/A	21:53-21:06	No Bats	-	-		
1	21:09-21:23	Common pipistrelle	1	Pass		
2		Soprano pipistrelle	1	Pass		
5	21:35-21:39	Soprano pipistrelle	2	Pass		
6	21:42-21:59	Common pipistrelle	1	Pass		
7		Common pipistrelle	Multiple	Foraging		
8		Common pipistrelle	1	Foraging		
N/A	22:02-22:10	No Bats	-	-		
11	22:13-22:26	Noctule	Multiple	Foraging		
12		Common pipistrelle	1	Pass		

	13	22:29-22:39	Soprano pipistrelle	1	Pass
	14		Soprano pipistrelle & Common pipistrelle	Multiple	Foraging
	16	22:42-22:45	Common pipistrelle	1	Pass

Point Counts from Bat Transect

Date	Ref.	Time	Species	No. Passes	Behaviour	
<i>29th April 2014 – Dusk Transect</i>						
29/04/14	PC1	20:26-20:29	No Bats	-	-	
	PC2	20:39-20:42	No Bats	-	-	
	PC3	20:56-20:59	Pipistrelle Species	1	Pass, faint call	
	PC4	21:22-21:25	No Bats	-	-	
	PC5	21:47-21:49	Common Pipistrelle	1	Foraging	
	PC6	21:57-22:00	No Bats	-	-	
<i>2nd June 2014 – Dusk Transects</i>						
02/06/14	Western Transect					
	PC1	21:15-21:21	No Bats	-	-	
	PC2	21:32-21:37	No Bats	-	-	
	PC3	21:46-21:51	No Bats	-	-	
	PC4	22:10-22:17	No Bats	-	-	
	PC5	22:43-22:48	No Bats	-	-	
	PC6	23:16-23:24	No Bats	-	-	
	Eastern Transect					
	PC1	21:22-21:25	No Bats	-	-	
	PC2	21:49-21:52	No Bats	-	-	
	PC3	22:25-22:28	Common Pipistrelle	1	Foraging	
	PC4	22:32-22:35	No Bats	-	-	
	PC5	22:40-22:43	Common Pipistrelle	1	Commuting	
			Common Pipistrelle	1	Pass	
	PC6	22:47-22:50	No Bats	-	-	
	Southern Transect					
	PC1	21:15-21:20	No Bats	-	-	
	PC2	21:38-21:43	No Bats	-	-	
	PC3	21:53-21:58	No Bats	-	-	
	PC4	22:18-22:23	Myotis Species	2	Foraging	
	PC5	22:30-22:35	No Bats	-	-	
	PC6	22:47-22:52	No Bats	-	-	
	PC7	23:10-23:15	Common Pipistrelle	2	Foraging	
			Common Pipistrelle	2	Foraging	
	<i>23rd June 2014 – Dusk Transect</i>					
	23/06/14	Western Transect				
		PC1	21:11-21:14	No Bats	-	-
PC2		21:25-21:28	No Bats	-	-	
PC3		21:34-21:37	No Bats	-	-	
PC4		22:02-22:05	No Bats	-	-	
PC5		22:42-22:45	No Bats	-	-	
PC6		22:52-22:55	No Bats	-	-	
PC7		23:11-23:14	No Bats	-	-	
PC8		23:20-23:23	No Bats	-	-	
Eastern Transect						
PC1		21:25-21:29	No Bats	-	-	
PC2		21:48-21:52	No Bats	-	-	
PC3		21:59-22:02	Common Pipistrelle	3	Foraging	
PC4		22:07-22:10	No Bats	-	-	
PC5		22:15-22:18	No Bats	-	-	
PC6		22:29-22:32	Common Pipistrelle	1	Pass	

	PC7	23:02-23:05	Common Pipistrelle	3	Foraging	
			Common Pipistrelle	1	Pass	
	PC8	23:31-23:34	Noctule & 2x	3	Foraging	
			Common Pipistrelle			
	Southern Transect					
	PC1	21:17-21:20	No Bats	-	-	
	PC2	21:25-21:28	No Bats	-	-	
	PC3	21:40-21:43	No Bats	-	-	
	PC4	21:52-21:55	Common Pipistrelle	1	Foraging	
	PC5	22:30-22:33	Noctule	1	Pass	
PC6	22:52-22:55	Pipistrelle Species	2	Foraging, faint		
PC7	23:12-23:15	No Bats	-	-		
17 th July 2014 – Dusk Transect						
17/07/14	Western Transect					
	PC1	21:20-21:23	No Bats	-	-	
	PC2	21:29-21:32	No Bats	-	-	
	PC3	22:08-22:11	Soprano Pipistrelle	4	Foraging	
			Barbastelle	1	Pass	
			Common Pipistrelle	3	Pass	
	PC4	22:33-22:36	No Bats	-	-	
	PC5	22:40-22:43	No Bats	-	-	
	PC6	22:49-22:52	Soprano Pipistrelle	1	Foraging	
			Common Pipistrelle	2	Foraging	
	PC7	23:00-23:03	No Bats	-	-	
	PC8	23:18-23:21	Barbastelle	1	Pass	
			Common Pipistrelle	6	Foraging	
	Eastern Transect					
	PC1	21:02-21:05	No Bats	-	-	
	PC2	21:26-21:29	No Bats	-	-	
	PC3	21:52-21:56	No Bats	-	-	
	PC4	22:21-22:24	Common Pipistrelle	1	Pass	
	PC5	22:40-22:43	Common Pipistrelle	3	Foraging	
	PC6	22:52-22:55	Common Pipistrelle	3	Foraging	
	PC7	23:03-23:06	Common Pipistrelle	2	Foraging	
	PC8	23:10-23:13	No Bats	-	-	
	Southern Transect					
	PC1	20:56-23:59	No Bats	-	-	
	PC2	21:10-21:13	No Bats	-	-	
	PC3	21:26-21:29	No Bats	-	-	
	PC4	21:38-21:42	No Bats	-	-	
	PC5	21:59-22:02	No Bats	-	-	
	PC6	22:21-22:24	No Bats	-	-	
	PC7	22:40-22:45	Common Pipistrelle	Continuous	Foraging	
PC8	22:52-22:56	Common Pipistrelle	Continuous	Foraging		
7 th September 2014 – Dusk Transect						
07/08/14	Western Transect					
	PC1	20:38-20:41	No Bats	-	-	
	PC2	20:48-20:51	No Bats	-	-	
	PC3	20:53-20:56	No Bats	-	-	
	PC4	21:13-21:16	No Bats	-	-	
	PC5	21:35-21:38	Common Pipistrelle	1	Pass	
	PC6	21:49-21:52	Common Pipistrelle	1	Pass	
	PC7	22:24-22:28	No Bats	-	-	
	PC8	22:33-22:36	No Bats	-	-	
	Eastern Transect					
	PC1	20:42-20:45	No Bats	-	-	
	PC2	20:30-20:33	No Bats	-	-	
	PC3	21:00-21:03	No Bats	-	-	

	PC4	21:11-21:14	No Bats	-	-	
	PC5	21:32-21:35	No Bats	-	-	
	PC6	22:00-22:03	No Bats	-	-	
	PC7	22:23-22:23	No Bats	-	-	
	PC8	22:36-22:40	No Bats	-	-	
	Southern Transect					
	PC1	20:44-20:47	No Bats	-	-	
	PC2	21:04-21:08	No Bats	-	-	
	PC3	21:18-21:23	No Bats	-	-	
	PC4	21:38-21:41	No Bats	-	-	
	PC5	21:53-21:55	No Bats	-	-	
	PC6	22:04-22:07	Common Pipistrelle	1	Foraging	
	PC7	22:18-22:21	Common Pipistrelle	3	Foraging	
	PC8	22:27-22:30	2x Common Pipistrelle	Continuous	Foraging	
22 nd September 2014 – Dusk Transect						
22/09/14	Western Transect					
	PC1	19:00-19:03	No Bats	-	-	
	PC2	19:09-19:12	No Bats	-	-	
	PC3	19:42-19:45	No Bats	-	-	
	PC4	20:05-20:08	No Bats	-	-	
	PC5	20:15-20:18	No Bats	-	-	
	PC6	20:33-20:36	Common Pipistrelle	1	Foraging	
	PC7	20:39-20:42	No Bats	-	-	
	PC8	20:47-20:50	No Bats	-	-	
	Eastern Transect					
	PC1	19:09-19:12	No Bats	-	-	
	PC2	19:20-19:24	No Bats	-	-	
	PC3	19:39-19:43	No Bats	-	-	
	PC4	19:58-20:02	Common Pipistrelle	2	Foraging	
	PC5	20:26-20:29	Common Pipistrelle	1	Foraging	
	PC6	20:34-20:37	Common Pipistrelle	3	Foraging	
	PC7	20:44-20:47	Common Pipistrelle	2	Foraging	
	PC8	20:51-20:54	No Bats	-	-	
	Southern Transect					
	PC1	19:05-19:08	No Bats	-	-	
	PC2	19:15-19:18	No Bats	-	-	
	PC3	19:37-19:40	No Bats	-	-	
	PC4	19:52-19:55	No Bats	-	-	
	PC5	20:09-20:13	Common Pipistrelle	1	Pass	
	PC6	20:25-20:28	Soprano Pipistrelle	1	Foraging	
			Common Pipistrelle	1	Foraging	
	PC7	20:47-20:50	Soprano Pipistrelle	1	Foraging	
	PC8	20:55-20:58	No Bats	-	-	
	23 rd September 2014 – Dawn Transect					
	23/09/14	Western Transect				
		PC1	04:53-04:56	No Bats	-	-
		PC2	05:05-05:08	No Bats	-	-
PC3		05:35-05:38	No Bats	-	-	
PC4		05:50-05:53	No Bats	-	-	
PC5		06:02-06:05	No Bats	-	-	
PC6		06:19-06:22	No Bats	-	-	
PC7		06:24-06:27	No Bats	-	-	
PC8		06:30-06:33	No Bats	-	-	
Eastern Transect						
PC1		04:54-04:57	No Bats	-	-	
PC2	05:05-05:08	No Bats	-	-		
PC3	05:28-05:31	No Bats	-	-		

	PC4	05:47-05:50	No Bats	-	-	
	PC5	06:10-06:13	No Bats	-	-	
	PC6	06:16-06:19	No Bats	-	-	
	PC7	06:27-06:30	No Bats	-	-	
	PC8	06:35-06:38	No Bats	-	-	
	Southern Transect					
	PC1	04:51-04:54	No Bats	-	-	
	PC2	05:00-05:03	No Bats	-	-	
	PC3	05:19-05:22	No Bats	-	-	
	PC4	05:31-05:34	No Bats	-	-	
	PC5	05:47-05:51	Pipistrelle Species	1	Faint pass	
			Myotis	1	Pass	
	PC6	05:59-06:03	No Bats	-	-	
	PC7	06:14-06:17	No Bats	-	-	
	PC8	06:24-06:27	No Bats	-	-	
	13 th April 2015 – Dusk Transect					
13/04/15	Western Transect					
	PC1	19:48-19:51	No Bats	-	-	
	PC2	20:01-20:04	No Bats	-	-	
	PC3	20:10-20:13	No Bats	-	-	
	PC4	20:29-20:32	No Bats	-	-	
	PC5	20:41-20:44	No Bats	-	-	
	PC6	21:02-21:05	No Bats	-	-	
	PC7	21:35-21:38	No Bats	-	-	
	PC8	21:43-21:46	No Bats	-	-	
		Eastern Transect				
		PC1	19:51-19:54	No Bats	-	-
		PC2	20:02-20:05	No Bats	-	-
		PC3	20:14-20:17	No Bats	-	-
		PC4	20:27-20:30	No Bats	-	-
		PC5	20:42-20:45	No Bats	-	-
		PC6	21:00-21:03	No Bats	-	-
		PC7	21:23-21:26	No Bats	-	-
		PC8	21:35-21:38	No Bats	-	-
		Southern Transect				
		PC1	19:47-19:50	No Bats	-	-
		PC2	20:06-20:09	No Bats	-	-
		PC3	20:22-20:25	No Bats	-	-
		PC4	20:40-20:43	No Bats	-	-
		PC5	20:58-21:04	No Bats	-	-
		PC6	21:13-21:16	No Bats	-	-
		PC7	21:23-21:26	No Bats	-	-
		PC8	21:28-21:31	No Bats	-	-
		7 th May 2015 – Dusk Transect				
	07.05.15	Western Transect				
		PC1	20:24-20:27	No Bats	-	-
		PC2	20:33-20:36	No Bats	-	-
		PC3	20:59-21:02	No Bats	-	-
PC4		21:22-21:25	No Bats	-	-	
PC5		21:33-21:36	Common pipistrelle	5	Foraging, NV, x 2 bats	
PC6		21:50-21:53	No Bats	-	-	
PC7		21:58-22:01	No Bats	-	-	
PC8		22:14-22:17	No Bats	-	-	
		Eastern Transect				
		PC1	20:29-20:32	No Bats	-	-
	PC2	20:41-20:44	No Bats	-	-	
	PC3	21:00-21:03	No Bats	-	-	

	PC4	21:19-21:22	No Bats	-	-
	PC5	21:42-21:45	No Bats	-	-
	PC6	21:56-21:59	No Bats	-	-
	PC7	22:08-22:11	Common pipistrelle	5	2 x bats foraging in wood, 10
	PC8	22:17-22:20	No Bats	-	-
Southern Transect					
	PC1	20:27-20:30	No Bats	-	-
	PC2	20:39-20:42	No Bats	-	-
	PC3	20:51-20:54	No Bats	-	-
	PC4	21:03-21:05	Barbastelle	1	Ref 1, commuting along tree line
	PC5	21:17-21:20	Common pipistrelle	Multiple	Ref 5, Foraging
	PC6	21:34-21:37	Pipistrelle species	1	Ref 7, Pass
	PC7	21:45-21:48	Common pipistrelle	1	Ref 9, Foraging
	PC8	21:53-21:56	Common pipistrelle	2	Ref 12, Foraging
3rd June 2015 – Dusk Transect					
03.06.15	Western Transect				
	PC1	21:06-21:09	No Bats	-	-
	PC2	21:17-21:20	No Bats	-	-
	PC3	21:25-21:28	No Bats	-	-
	PC4	21:42-21:45	Common pipistrelle	1	Pass
	PC5	21:58-22:02	No Bats	-	-
	PC6	22:24-22:27	No Bats	-	-
	PC7	22:49-22:52	No Bats	-	-
	PC8	22:58-23:00	No Bats	-	-
	Eastern Transect				
	PC1	21:10-21:15	No Bats	-	-
	PC2	21:21-21:26	No Bats	-	-
	PC3	21:34-21:39	No Bats	-	-
	PC4	21:53-21:58	No Bats	-	-
	PC5	22:22-22:27	No Bats	-	-
	PC6	22:39-22:44	No Bats	-	-
	PC7	22:58-23:02	No Bats	-	-
	PC8	23:09-23:14	No Bats	-	-
	Southern Transect				
	PC1	21:20-21:13	No Bats	-	-
	PC2	21:29-21:32	No Bats	-	-
	PC3	21:45-21:48	Common pipistrelle	5	Foraging
			Common pipistrelle	2	Foraging
	PC4	21:59-22:02	No Bats	-	-
	PC5	22:19-22:22	Common pipistrelle	3	Foraging
	PC6	22:30-22:34	Common pipistrelle	2	Foraging
			Common pipistrelle	Multiple	Foraging
	PC7	22:44-22:48	Common pipistrelle	3	Foraging
	PC8	22:59-23:03	No Bats	-	-
	2nd July 2015 – Dusk Transect				
02.07.15	Western Transect				
	PC1	21:15-21:18	No Bats	-	-
	PC2	21:31-21:34	No Bats	-	-
	PC3	22:07-22:10	Common pipistrelle	1	Pass
	PC4	22:33-22:36	No Bats	-	-
	PC5	22:47-22:51	No Bats	-	-
	PC6	23:06-23:09	Common pipistrelle	1	Foraging
	PC7	23:17-23:20	No Bats	-	-
	PC8	23:27-23:30	No Bats	-	-
	Eastern Transect				
PC1	21:25-21:30	No Bats	-	-	

	PC2	21:38-21:43	No Bats	-	-	
	PC3	21:57-22:02	No Bats	-	-	
	PC4	22:17-22:22	No Bats	-	-	
	PC5	22:37-22:42	Common pipistrelle	5	Foraging	
			Noctule	1	Pass, NV	
	PC6	22:48-22:53	Common pipistrelle	2	Foraging	
			Common pipistrelle	1	Pass, NV	
	PC7	23:00-23:05	Common pipistrelle	1	Pass	
			Common pipistrelle	3	Foraging	
			Common pipistrelle	2	Foraging	
	PC8	23:15-23:20	Common pipistrelle	2	Foraging	
Southern Transect						
	PC1	21:16-21:19	No Bats	-	-	
	PC2	21:27-21:31	No Bats	-	-	
	PC3	21:51-21:54	No Bats	-	-	
	PC4	22:29-22:33	No Bats	-	-	
	PC5	22:46-22:52	Pipistrelle species	1	Faint	
	PC6	23:05-23:07	Common pipistrelle	1	Pass	
			Common pipistrelle	1	Pass	
	PC7	23:13-23:16	Myotis species	1	Pass	
			Common pipistrelle	2	Pass	
<i>3rd August 2015 – Dusk Transect</i>						
03/08/15	Western Transect					
	PC1	20:42-20:45	No Bats	-	-	
	PC2	20:51-20:54	No Bats	-	-	
	PC3	20:59-21:02	No Bats	-	-	
	PC4	21:16-21:19	No Bats	-	-	
	PC5	21:29-21:32	Common pipistrelle	5	Foraging, ref 1	
	PC6	21:57-22:00	Common pipistrelle	1	Pass, ref 8	
	PC7	22:35-22:38	Common pipistrelle	1	Foraging	
	PC8	22:43-22:46	No Bats	-	-	
	Eastern Transect					
	PC1	20:39-20:44	No Bats	-	-	
	PC2	20:52-20:57	No Bats	-	-	
	PC3	21:08-21:13	No Bats	-	-	
	PC4	21:20-21:25	No Bats	-	-	
	PC5	21:49-21:44	Common pipistrelle	1	Pass, ref 2	
	PC6	21:54-22:04	No Bats	-	-	
	PC7	22:22-22:27	No Bats	-	-	
	PC8	22:36-22:41	No Bats	-	-	
	Southern Transect					
	PC1	20:50-21:53	No Bats	-	-	
	PC2	21:06-21:09	No Bats	-	-	
	PC3	21:23-21:35	Common pipistrelle	Multiple	Foraging, ref 3	
			Soprano pipistrelle	1	Pass, ref 3	
			Common pipistrelle	Multiple	Foraging, ref 4	
	PC4	21:39-21:42	No Bats	-	-	
	PC5	21:59-22:02	Common pipistrelle	2	Foraging, ref 9	
			Soprano pipistrelle	1	Foraging, ref 9	
	PC6	22:10-22:13	Common pipistrelle	Multiple	Foraging x 2 bats, ref 10	
	PC7	22:26-22:29	Common pipistrelle	Multiple	Foraging, ref 13	
	PC8	22:39-22:42	Soprano pipistrelle & Common pipistrelle	2	Foraging, ref 15	

Appendix 3: Static Detector Results 2014

Month	Location	Survey Dates	Survey Hours	Total Avg. per hour	Total Registrations	Common Pipistrelle			Soprano Pipistrelle			Pipistrelle Species			Barbastelle			Nyctalus Species			Myotis Species			Noctule			Brown Long-eared			Unknown Species					
						Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total
Apr	L1	25/04/2014 - 29/04/2014	54	0.16	9	0.04	1	2	0.02	1	1	0.02	1	1	0.00	0	0	0.09	3	5	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Apr	L2	25/04/2014 - 28/04/2014	45	4.44	202	0.37	9	17	4.05	107	184	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
May	L3	20/05/2014 - 28/05/2014	70	1.09	77	1.09	37	77	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
May	L4	19/05/2014 - 28/05/2014	78	0.96	75	0.73	49	57	0.06	3	5	0.01	1	1	0.14	11	11	0.01	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L5	23/06/2014 - 30/06/2014	65	2.17	142	2.02	50	132	0.15	6	10	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L6	25/05/2014 - 30/06/2014	43	0.02	1	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L7		0	0.00	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L8	23/06/2014 - 30/06/2014	65	4.30	281	3.67	114	240	0.51	16	33	0.08	4	5	0.02	1	1	0.03	2	2	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L9	23/06/2014 - 27/06/2014	43	0.49	21	0.30	9	13	0.05	1	2	0.02	1	1	0.02	1	1	0.05	1	2	0.05	1	2	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L10	23/06/2014 - 30/06/2014	65	2.02	132	1.35	31	88	0.15	4	10	0.38	21	25	0.00	0	0	0.08	3	5	0.03	1	2	0.03	1	2	0.00	0	0	0.00	0	0	0.00	0	0
Jul	L11	22/07/2014 - 27/07/2014	56	11.44	646	5.61	107	317	5.19	145	293	0.07	2	4	0.05	2	3	0.00	0	0	0.42	12	24	0.00	0	0	0.09	4	5	0.00	0	0	0.00	0	0
Jul	L12	17/07/2014 - 21/07/2014	47	2.95	139	2.36	73	111	0.57	14	27	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jul	L13	17/07/2014 - 24/07/2014	63	10.07	637	8.73	174	552	0.90	24	57	0.05	2	3	0.00	0	0	0.27	13	17	0.00	0	0	0.06	3	4	0.05	2	3	0.02	1	1	0.00	0	0
Jul	L14	22/07/2014 - 24/07/2014	31	1.56	49	1.24	16	39	0.25	5	8	0.03	1	1	0.00	0	0	0.00	0	0	0.03	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jul	L15	17/07/2014 - 26/07/2014	79	27.75	2209	25.23	542	2008	1.92	49	153	0.45	29	36	0.00	0	0	0.04	2	3	0.10	4	8	0.00	0	0	0.01	1	1	0.00	0	0	0.00	0	0
Jul	L16	17/07/2014 - 24/07/2014	63	6.04	382	5.11	162	323	0.73	14	46	0.06	2	4	0.00	0	0	0.11	3	7	0.03	1	2	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Aug	L17	07/08/2014 - 15/08/2014	81	2.83	230	2.08	68	169	0.50	14	41	0.02	1	2	0.11	5	9	0.01	1	1	0.09	2	7	0.00	0	0	0.00	0	0	0.02	1	1	0.00	0	0
Aug	L18	12/08/2014 - 18/08/2014	64	0.81	52	0.68	41	44	0.02	1	1	0.00	0	0	0.00	0	0	0.09	3	6	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Aug	L19	07/08/2014 - 15/08/2014	81	10.77	875	9.97	347	810	0.31	11	25	0.01	1	1	0.33	13	27	0.05	2	4	0.06	4	5	0.01	1	1	0.05	2	2	0.00	0	0	0.00	0	0
Aug	L20	12/08/2014 - 21/08/2014	93	0.10	9	0.06	4	6	0.00	0	0	0.00	0	0	0.00	0	0	0.03	2	3	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Aug	L21	28/07/2014 - 05/08/2014	85	7.52	641	6.91	304	589	0.41	6	35	0.01	1	1	0.04	1	3	0.01	1	1	0.08	2	7	0.06	1	5	0.00	0	0	0.00	0	0	0.00	0	0
Aug	L22	07/08/2014 - 12/08/2014	44	22.12	980	20.63	470	914	0.72	23	32	0.00	0	0	0.74	15	33	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Sep	L23	20/09/2014 - 24/09/2014	70	0.24	17	0.10	5	7	0.07	3	5	0.00	0	0	0.00	0	0	0.00	0	0	0.06	2	4	0.01	1	1	0.00	0	0	0.00	0	0	0.00	0	0
Sep	L24	20/09/2014 - 24/09/2014	70	1.06	74	0.63	14	44	0.16	3	11	0.06	2	4	0.20	6	14	0.00	0	0	0.01	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Sep	L25	20/09/2014 - 24/09/2014	70	2.36	165	1.13	38	79	0.40	16	28	0.07	2	5	0.06	2	4	0.54	25	38	0.07	3	5	0.09	3	6	0.00	0	0	0.00	0	0	0.00	0	0
Sep	L26	20/09/2014 - 24/09/2014	70	3.63	254	2.37	103	166	0.96	36	67	0.13	8	9	0.13	7	9	0.03	1	2	0.01	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Sep	L27	20/09/2014 - 24/09/2014	70	3.66	256	2.48	69	174	0.60	20	42	0.04	3	3	0.33	19	23	0.07	2	5	0.10	3	7	0.01	1	1	0.01	1	1	0.00	0	0	0.00	0	0
Sep	L28	20/09/2014 - 24/09/2014	70	1.48	104	1.06	52	74	0.21	11	15	0.14	4	10	0.01	1	1	0.01	1	1	0.03	1	2	0.01	1	1	0.00	0	0	0.00	0	0	0.00	0	0

Appendix 4: Static Detector Results 2015

Recording Period	Location	Survey Dates	Survey Hours	Total Avg. per hour	Total Registrations	Common Pipistrelle			Soprano Pipistrelle			Barbastelle			Nyctalus Species			Noctule			Myotis Species			Brown Long-eared			Pipistrelle Species			Serotine			Unknown Species			Nathusius' pipistrelle		
						Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total	Avg. per hour	Peak Count	Period Total
Apr	30	14/04/2015 - 19/04/2015	59	0.24	14	0.22	9	13	0.00	0	0	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Apr	35	14/04/2015 - 19/04/2015	59	4.93	291	1.64	56	97	1.51	51	89	1.32	42	78	0.00	0	0	0.00	0	0	0.34	13	20	0.02	1	1	0.08	5	5	0.00	0	0	0.02	1	1	0.00	0	0
Apr	37	14/04/2015 - 19/04/2015	59	1.66	98	0.30	17	18	0.49	22	29	0.76	40	45	0.00	0	0	0.00	0	0	0.07	2	4	0.00	0	0	0.02	1	1	0.00	0	0	0.02	1	1	0.00	0	0
Apr	34	14/04/2015 - 19/04/2015	59	7.62	450	5.35	258	316	2.08	123	123	0.07	3	4	0.00	0	0	0.00	0	0	0.08	2	5	0.00	0	0	0.00	0	0	0.00	0	0	0.03	1	2	0.00	0	0
Apr	36	14/04/2015 - 19/04/2015	59	2.01	119	1.34	52	79	0.64	32	38	0.00	0	0	0.03	1	2	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Apr	29	14/04/2015 - 20/04/2015	68	2.39	164	0.66	27	45	1.58	50	108	0.04	3	3	0.00	0	0	0.00	0	0	0.10	3	7	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.01	1	1
Apr	33	14/04/2015 - 20/04/2015	68	2.67	183	0.77	41	53	0.22	9	15	1.46	64	100	0.03	2	2	0.00	0	0	0.13	4	9	0.04	3	3	0.00	0	0	0.01	1	1	0.00	0	0	0.00	0	0
Apr	31	14/04/2015 - 19/04/2015	59	0.14	8	0.14	8	8	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0

Apr	32	14/0 4/20 15 - 19/0 4/20 15	59	2.17	128	1.7 6	61	10 4	0.1 4	4	8	0.1 7	8	10	0.0 8	3	5	0.0 0	0	0	0.0 2	1	1	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0
May	L38	07/0 5/20 15 - 12/0 5/20 15	50	11.0 6	559	6.0 0	16 5	30 3	1.2 9	28	65	1.4 0	32	71	1.6 6	69	84	0.4 7	10	24	0.0 8	2	4	0.0 6	2	3	0.1 0	3	5	0.0 0	0	0	0.0 0	0	0
May	L39	07/0 5/20 15 - 12/0 5/20 15	50	3.88	196	1.8 2	42	92	0.4 9	10	25	1.0 7	34	54	0.0 0	0	0	0.0 6	1	3	0.4 0	9	20	0.0 2	1	1	0.0 2	1	1	0.0 0	0	0	0.0 0	0	0
May	L40	07/0 5/20 15 - 12/0 5/20 15	50	7.97	403	5.1 6	91	26 1	2.6 5	50	13 4	0.0 4	2	2	0.0 6	2	3	0.0 2	1	1	0.0 4	2	2	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0
May	L41	07/0 5/20 15 - 12/0 5/20 15	50	39.7 9	2011	29. 54	66 2	14 93	1.2 5	23	63	3.9 0	52	19 7	2.3 3	66	11 8	2.3 0	92	11 6	0.3 2	6	16	0.0 8	3	4	0.0 6	2	3	0.0 0	0	0	0.0 0	0	0
May	L42	07/0 5/20 15 - 12/0 5/20 15	50	0.93	47	0.5 7	9	29	0.0 2	1	1	0.2 0	8	10	0.0 0	0	0	0.0 0	0	0	0.1 0	3	5	0.0 4	2	2	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0
May	L43	07/0 5/20 15 - 11/0 5/20 15	42	0.20	10	0.1 4	4	7	0.0 0	0	0	0.0 6	3	3	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0
May	L44	07/0 5/20 15 - 12/0 5/20 15	50	6.45	326	1.4 4	24	73	0.4 7	9	24	2.9 3	69	14 8	1.0 5	50	53	0.0 0	0	0	0.3 8	5	19	0.1 8	4	9	0.0 0	0	0	0.0 0	0	0	0.0 0	0	0
May	L45	07/0 5/20 15 - 12/0 5/20 15	50	29.7 4	1503	20. 00	45 7	10 11	7.8 2	16 2	39 5	1.1 9	32	60	0.1 4	6	7	0.0 6	2	3	0.4 6	8	23	0.0 4	2	2	0.0 2	1	1	0.0 0	0	0	0.0 0	0	0
May	L46	07/0 5/20 15 - 12/0 5/20 15	50	6.00	303	3.8 4	14 9	19 4	0.2 2	6	11	1.3 3	22	67	0.2 0	9	10	0.0 6	2	3	0.1 8	4	9	0.1 4	5	7	0.0 0	0	0	0.0 0	0	0	0.0 2	1	1

Jun	L47	03/06/2015 - 08/06/2015	44	5.37	237	4.78	131	211	0.18	7	8	0.25	3	11	0.02	1	1	0.07	1	3	0.02	1	1	0.02	1	1	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L48	03/06/2015 - 08/06/2015	44	20.06	886	13.52	291	597	0.18	4	8	1.04	19	46	1.54	36	68	3.51	104	155	0.18	3	8	0.02	1	1	0.07	2	3	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L49	03/06/2015 - 08/06/2015	44	11.48	507	8.45	219	373	1.29	35	57	0.32	7	14	0.23	7	10	0.00	0	0	1.11	16	49	0.02	1	1	0.07	3	3	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L50	03/06/2015 - 08/06/2015	44	12.32	544	11.46	268	506	0.63	14	28	0.00	0	0	0.02	1	1	0.05	1	2	0.07	2	3	0.00	0	0	0.09	2	4	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L51	03/06/2015 - 08/06/2015	44	5.37	237	4.78	131	211	0.18	7	8	0.25	3	11	0.02	1	1	0.07	1	3	0.02	1	1	0.02	1	1	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L52	03/06/2015 - 08/06/2015	44	4.66	206	2.22	76	98	0.95	15	42	1.25	30	55	0.09	3	4	0.09	1	4	0.07	2	3	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L53	03/06/2015 - 08/06/2015	44	3.71	164	2.81	61	124	0.70	17	31	0.05	1	2	0.05	1	2	0.05	2	2	0.02	1	1	0.00	0	0	0.05	1	2	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L54	03/06/2015 - 08/06/2015	44	30.68	1355	26.29	473	1161	3.67	86	162	0.23	4	10	0.05	1	2	0.16	3	7	0.20	4	9	0.05	1	2	0.05	1	2	0.00	0	0	0.00	0	0	0.00	0	0
Jun	L55	03/06/2015 - 08/06/2015	44	3.22	142	1.52	24	67	0.61	9	27	0.36	11	16	0.38	8	17	0.07	2	3	0.16	3	7	0.11	2	5	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jul	56	02/07/2015 - 09/07/2015	59	47.05	2784	31.49	1214	1863	5.02	214	297	0.10	4	6	0.22	5	13	0.14	5	8	10.09	124	597	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0

Jul	57	02/07/2015 - 09/07/2015	59	30.81	1823	29.25	471	1731	0.66	10	39	0.61	15	36	0.05	1	3	0.02	1	1	0.19	3	11	0.02	1	1	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0
Jul	58	02/07/2015 - 09/07/2015	59	29.34	1736	15.53	245	919	6.32	96	374	0.12	3	7	0.00	0	0	0.12	3	7	7.23	105	428	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jul	59	02/07/2015 - 09/07/2015	59	1.10	65	0.86	25	51	0.08	2	5	0.00	0	0	0.08	3	5	0.05	1	3	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jul	60	02/07/2015 - 09/07/2015	59	8.10	479	6.42	95	380	0.19	3	11	0.25	6	15	0.29	7	17	0.02	1	1	0.71	11	42	0.20	4	12	0.00	0	0	0.02	1	1	0.00	0	0	0.00	0	0
Jul	61	02/07/2015 - 09/07/2015	59	4.95	293	4.38	87	259	0.39	7	23	0.02	1	1	0.00	0	0	0.03	2	2	0.14	3	8	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0
Jul	62	02/07/2015 - 09/07/2015	59	3.45	204	2.45	63	145	0.54	15	32	0.24	10	14	0.15	4	9	0.02	1	1	0.03	1	2	0.00	0	0	0.00	0	0	0.02	1	1	0.00	0	0	0.00	0	0
Jul	63	02/07/2015 - 09/07/2015	59	19.96	1181	17.91	401	1060	1.06	29	63	0.03	2	2	0.12	3	7	0.00	0	0	0.66	8	39	0.12	4	7	0.00	0	0	0.05	1	3	0.00	0	0	0.00	0	0
Jul	64	02/07/2015 - 09/07/2015	59	2.75	163	1.88	48	111	0.22	7	13	0.27	7	16	0.25	8	15	0.08	3	5	0.03	2	2	0.02	1	1	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0

Appendix 5: Tree Assessments

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
Confirmed Roost						
T44	English Oak <i>Quercus robur</i> , branch socket cavities and minor and major dead wood in the crown.	2a – High/ Moderate	N: 3 woodpecker holes at 10m, 3in, 2in and 4in deep respectively. Opening of hole with droppings inside is 2inches wide. Extends down for 7in and connects with hole below it past a horizontal ledge. Dropping sample taken. Tear out on side doesn't go anywhere and tear outs underneath are 8in long and 3in long.	Confirmed Roost	Nocturnal Surveys (minimum of three)	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
T49	Crack willow <i>Salix fragilis</i> , On edge of foot path, craggy bark, dead wood in canopy.	2a – High/ Moderate	<p>N: Hazard beam at 1.5m opening is 5cm wide. Bat droppings on bark. Sample taken.</p> <p>E: Evidence of past roost. Frayed bark and stained entrance hole where bark presumed used to be.</p> <p>E: Second hole where two branches had crossed and created a cavity. Dropping at entrance.</p> <p>All features 1.5-2m. Dropping samples taken.</p>	Confirmed Roost	Nocturnal Surveys (minimum of three)	Retained
T28	English Oak <i>Quercus robur</i> within field, dead branches in canopy splits and cracks seen.	2a – High/ Moderate	<p>S: Cavity in main stem at 5m. Extends down 20cm nesting material present, no evidence of bats. Lightning strike has killed branch an crevices have formed where tree has healed around. Pip bat found within feature hibernating.</p>	Confirmed Pipistrelle Roost	Nocturnal Surveys (minimum of three)	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W3.6	English oak <i>Quercus robur</i> , branch cavity	2a - High / Moderate Potential	N: Branch socket cavity at 7m extending downwards by 2 inches, negligible. Start of cavity with heart wood still in fact, negligible. S: Branch socket cavity at 8m extending horizontal 4 inches with debris, negligible E: Branch tear small cavity at 7m extending inwards 3 inches, negligible Central leader has tear out at 11m extending downwards with cavity entrance 30cm vertical, cavity is 20cm in depth extending upwards to the top which is slightly open, Brown long eared bat found in cavity.	Confirmed Roost – Brown long-eared	None as offsite and buffered from development	Retained-offsite
2a – High/ Moderate						
T48	Mature oak <i>Quercus robur</i> Dead branches in canopy, loose bark, cracks in dead wood, 1 rot hole on south facing limb.	2a – High/ Moderate	S: 3 large cavities entering hollow main stem with cracks and fissures within.	2a – High/ Moderate	None	Retained – in buffer zone
T30	English Oak <i>Quercus robur</i> within field, dead branches in canopy.	2b Low	S: Lightning strike causing main stem to hollow. Large open cavity extending upwards from 3m to 5m. Birds nest present no evidence.	2a – High/ Moderate	None	Retained – in buffer zone

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
T27	English Oak <i>Quercus robur</i> , dead south facing branches with splits and cracks.	2a – High/Moderate	S: Woodpecker hole into cavity at 10m. Honey bee nest present with active news at entrance. Further survey needed as unable to check with endoscope due to bees.	2a – High/Moderate	None	Retained – in buffer zone
T26	Mature oak <i>Quercus robur</i> , dead south facing branches with splits and cracks.	2a – High/Moderate	S: Woodpecker hole at 8m entering into large cavity, extends 40cm down and 2cm upward. 5cm in diameter. Smooth inside with some dark areas.	2a – High/Moderate	None	Retained – in buffer zone
T25	English Oak <i>Quercus robur</i> , dead south facing branches with splits and cracks.	2a – High/Moderate	S: Branch socket cavity at 6m. Extends 6cm downwards, opening 5cm diameter. Rough exposed heart wood inside, no evidence. 2 woodpecker holes at 15m opening 15cm diameter extends 1m smooth inside and around entrance. Nesting material at end furthest from main stem.	2a – High/Moderate	None	Retained – in buffer zone
T69	English oak <i>Quercus robur</i> , dead wood in canopy wood pecker holes	2b Low	N: Branch tear out at 3m extends 1.5m complex network of deep fissures. No evidence but smooth inside.	2a High/Moderate	Nocturnal Surveys	Retained
TG11.7(B)	Ash <i>Fraxinus excelsior</i> , failed tree with cavities.	2b Low	Failed main leader with large cavities at break point. Rolled over healed bark around wound provides good potential. No evidence.	2a High / Moderate	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
T999	English oak <i>Quercus robur</i>	2a High / Moderate	S: Open BSC at 2m. E: Lightening strike at 8m extends down all the way to the base. Stops 1.5m above ground level. 3 entry holes examined to cover as much of feature as possible with endoscope but areas remained unchecked. Entry holes exist at 8m, 4m and 2m. Above the 2m entry hole, the feature extends in a foot before splitting into two compartments.	2a High / Moderate	Nocturnal Surveys	Retained
T60	Ash <i>Fraxinus excelsior</i> , 2 woodpecker holes 5m	2b Low	S: 2 woodpecker holes 5m, bottom hole is a woodpecker hole 5x5. Rough and looks sooty, rough on inside. Goes down 20cm and goes up 10. Branch socket cavity 20cm wide, only goes in 5cm.	2a High / Moderate	Nocturnal Surveys	Retained
W7.17	English Elm <i>Ulmus procera</i> , woodpecker hole 3m south	2a - High / Moderate Potential	N: 2 woodpecker holes at 4m. Upper is Smooth inside extends 45cm. Lower extends 2in.	2a - High / Moderate Potential	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W7.21	English Elm <i>Ulmus procera</i> , union join	2b Low	E: Union join has created a hollow between the two stems. Birds nest present. Not active. 4.5m high Second Hollow at 6m is a branch socket cavity, extends 1m upwards, extends down to meet open union join. Hole 3x4in. In hedgerow and facing field.	2a - High / Moderate Potential	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
TG11.8	Ash <i>Fraxinus excelsior</i> , woodpecker holes, branch tears	2a - High / Moderate	<p>N: Branch socket cavity at 8m. Large internal cavity with entrance hole of 15cm diameter which extends upwards by 50cm, smooth inside dark staining on bark inside with a lot of debris in the bottom Cat2a. Nice open direct line of flight. Branch socket cavity at 9.5m. Really rough inside with debris. Woodpecker hole at 9.8m goes back 10cm full of debris.</p> <p>W: Branch tear out at 9.5m has a small cavity extending 2in.</p> <p>S: Branch socket cavity at 8m, Branch wall to access, downwards facing, entrance of 11cm wide, smooth inside with dark staining, extends 15cm.</p> <p>E: Knot hole at 7m, 10cm in diameter. Slightly covered by ivy growth. Smooth. Extends backwards 40cm, clean and smooth inside. Cat2b.</p> <p>Branch socket cavity at 8m, Branch walk to access, horizontal with entrance hole of 8cm, bird droppings in entrance, feature used as night time bird roost. Smooth inside and extends 40cm upwards.</p>	2a - High / Moderate	Nocturnal Surveys	Retained
W6.3	Dead stump, species unknown, woodpecker holes north, east, south and west at varying heights	2a High/ Moderate	Dead not safe to climb	2a High/ Moderate	None	Retained - Offsite

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
2b - Low						
T19	Mature oak <i>Quercus robur</i> Dead branches in canopy, small wood pecker hole, loose bark, cracks in dead wood.	2a – High/ Moderate	Minor loose bark in centre at 14m. Woodpecker hole at 12m dead upward pointing limb. Extends 20cm into cavity extending 30cm down.	2b - Low	Nocturnal Surveys	Retained
T42	English Oak <i>Quercus robur</i> , branch socket cavities, woodpecker holes, split trunk, dead wood with cracks and crevices.	2a – High/ Moderate	S: Woodpecker hole at 12m 40cm deep, reached hole on opposite side. Birds nest present.	2b Low	None	Retained
T41	English Oak <i>Quercus robur</i> , branch socket cavities, minor and major dead wood in the crown and woodpecker holes.	2b Low	S: Branch Socket Cavity at 7m. Extends 20cm inwards. Dark staining. Fairly large round cavity with no crevices.	2b Low	None	Retained
T40	English Oak <i>Quercus robur</i> , branch socket cavities, minor and major dead wood in the crown and woodpecker holes.	2b Low	N: 2 woodpecker holes 4in deep. E: 3 woodpecker holes all 4in deep. Small splits 2in deep.	2b Low	None	Retained
T39	English Oak <i>Quercus robur</i> , woodpecker holes.	2b Low	N: 1 woodpecker hole S: 4 woodpecker holes around 6in deep. All connected into hollow trunk.	2b Low	None	Retained
T4(U)	Semi-mature ash <i>Fraxinus excelsior</i> main trunk dead with large north facing 2 x wood pecker holes.	2a – High/ Moderate	Numerous woodpecker holes on main stem . Extending in no more than 10cm. No evidence	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
T16	English oak <i>Quercus robur</i> , dead branches in canopy with splits and cracks, loose bark.	2a – High/ Moderate	N: Splits in exposed heart wood at terminal limb failure at 7m. Extends down 10cm no evidence. S: Large branch tear out around. Exposed heart wood. At 3 to 5m no features deep enough for bats to utilise. W: Split in branch at 9m extends 35cm. 2cm deep no evidence.	2b Low	Nocturnal Surveys	Retained
T72	English Elm <i>Ulmus procera</i> , dead branches in canopy.	2b Low	4 woodpecker holes around 6 inches deep. All connected into hollow trunk.	2b Low	None	Retained
991	English oak <i>Quercus robur</i> ,	2b Low	W: Large branch split at 9m. Half of split was unsafe to check as nearly broken off. Split on half of limb closest to the main stem was checked. This was a split on the underside which extended for 1m. Bark smooth and clean throughout. Base of the tear was mucky and had standing water. Top of the limb had multiple holes with flaking bark. These are separate little compartments to the main split. Including the unsafe part, feature 3m long,	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
995	English oak <i>Quercus robur</i>	2b Low	E: 3.5m hole in limb extended 10in wide and down 4in. 5m split in branch extends 4in and was split into two compartments each 1in wide. Clean, had potential for use.	2b Low	Nocturnal Surveys	Retained
T24	Black Poplar <i>Populus nigra</i> , holes in branch cavity dead wood and main stem very large hole cavity internally.	2a - High / Moderate	Main stem v.large hole cavity internal extending beyond endoscope , spongy inside N: Tear out at 8m, extends 1m in length, damp inside lots of decaying wood with fras at base. In center a piece of wood covering a pocket at the back and the pocket extends 10cm,upwards 20cm and down 15cm. Solid at each end, rotten and mucky inside with lots of fras. Water runs inside, no evidence.	2b Low	Nocturnal Surveys	Retained
TG11.2	Unknown species dead stump, woodpecker holes all over x8, dead stem	2b Low	Dead not safe to climb	2b Low	None	Retained
TG11.3	Unknown species dead stump, 3 woodpecker holes, decaying stem	2b Low	Dead not safe to climb	2b Low	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
TG11.9	English Elm, <i>Ulmus procera</i> , woodpecker holes	2a - High / Moderate	E: 6cm woodpecker holes at 4m, on 20cm, upwards 10cm, frass, crack at rear of hole letting in light, no evidence.	2b Low	None	Retained
TG11.5	English Elm <i>Ulmus procera</i> dead stump, woodpecker hole x 2 at 5m and dead trunk	2b Low	N: woodpecker hole x1 9m approximately 5cm opening. Dead stem.	2b Low	None	Retained
TG11.6	Unknown species dead stump, woodpecker hole 10m northern aspect and woodpecker hole 10m eastern aspect. Around the woodpecker holes is dense undershirt scrub no clear flight paths are available.	2b Low	Dead not safe to climb	2b Low	None	Retained
W5.1	Ash <i>Fraxinus excelsior</i> , tear in branch 5m dark staining western aspect	2b Low	N: North east 8m high 50cm x 15cm branch tear out inwards of 20cm. Open and wet dirty inside. Full of frass. No potential. S: Branch socket cavity 8m high 10cm entrance rough around edges facing upwards depth of 8cm.	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W7.1	Scots Pine <i>Pinus sylvestris</i> , 3 woodpecker holes 6, 7, 8 m north, 3 woodpecker holes 6 7 8 m east	2b Low	N: 3 woodpecker holes 6 7 8 m. Lower hole is 2in in diameter goes up 7in goes down 16in with bird nesting material in bottom. Smooth inside no staining. E: cavity into trunk with cobweb	2b Low	Nocturnal Surveys	Retained
W7.2	Ash <i>Fraxinus excelsior</i>	2a High/ Moderate	W: Branch tear out, upwards facing, damp with soil in. 25 to 30cm. Delaminating Bark at 9 to 11m high, 5cm deep,extening130cm, grass and wood inside, exposed Branch socket cavity at 12m opening 4cm square, linked to hole 15cm below fungi. Exposed cavity full of frass , though and dry.	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W7.3	English Elm, <i>Ulmus procera</i> , cavity in main trunk open wound west	2b Low	S: Branch socket cavity at 5.5m. Two chambers, one goes right up into small branch 15cm. 4cm side, clean inside. Second goes left 8cm wide goes up into main stem for 40cm. Quite wet and dirty inside but back wall quite smooth. Cat 2b. W: cavity in main trunk open wound. Goes up about 6m but full of dead wood fallen out of trunk. Cat 3 negligible	2b Low	Nocturnal Surveys	Retained
W7.6	Unknown species dead stump, cracks in bark main trunk south	2b Low	S: cracks in bark main trunk, completely open, 40cm by 6cm at 4m. Bird poo wildlife, cobwebs. Long crack 30cm with 4 holes connected 8cm deep, rough, dry, no evidence. Grass dry but exposed E: Woodpecker hole at 7m, 5cm round, rough opening, 10cm deep, 5cm high, down 3cm,	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W7.7	Beech <i>Fagus sylvatica</i> , woodpecker hole 4m n wound 3m south	2b Low	S: Branch socket cavity 6m, 5cm wide, leads nowhere. E: 12cm deep cavity, 5cm round, bottom of hole smooth, dry with Bird poo @8m.	2b Low	Nocturnal Surveys	Retained
W7.8	Ash <i>Fraxinus excelsior</i> , woodpecker hole in main trunk 7msouth	2b Low	Unsafe to climb	2b Low	Nocturnal Surveys	Retained
W7.9	Ash <i>Fraxinus excelsior</i> , woodpecker hole 5m east	2b Low	Unsafe to climb, dead	2b Low	Nocturnal Surveys	Retained
W7.12	Silver Birch <i>Betula pendula</i> , woodpecker hole 2m east, dead wood on floor with holes.	2b Low	Dead wood on floor with holes. N: North east cavity opening 20cm x 30cm backwards 5cm upwards 50cm. Clean dry smooth inside. Bird droppings at the base. E: woodpecker hole 2m high 5cm hole 10cm deep. Frass at the base. Damp inside. Woodpecker hole 3cm square 5cm deep up 5cm. Cavity south east 15cm x 10cm opening back 15cm and stretches 15cm upwards. No potential. W: Flaking bark from 1m to 2m. Inwards 5cm touch dusty.	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W7.13	Scots Pine <i>Pinus sylvestris</i> , 2 woodpecker holes 5m 7m south	2b Low	Tree fallen	N/A	Nocturnal Surveys	Retained
W7.14	Unknown species dead stump, large cavity in trunk n woodpecker holes 4 to 6m south	2b Low	Unsafe to climb	N/A	Nocturnal Surveys	Retained
W7.15	Unknown species dead stump, 2 woodpecker holes 3.5m north, woodpecker hole 4m west	2b Low	E: Dead stem with many woodpecker holes extending inside hollow stem-unsafe to climb	N/A	Nocturnal Surveys	Retained
W7.16	English Elm <i>Ulmus procera</i> , woodpecker hole 7m north	2b Low	N: woodpecker hole 7m Grey and white coloring at occlusion. S: Opening 5cm, extends 20cm then downwards 30cm, spongy material at base of cavity. 6.5m. Links to additional cavity. Completely hollow stem with grass in the bottom of billowing. Poss owl, feathers. Woody material at base. E: 6m 5cm opening, rough, dry inside 25cm deep, frass at bottom. Flaking bark at 4.5m teaching up 1m, smooth and clean on the inside. Empty.	2b Low	Nocturnal Surveys	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
W7.22	English Elm <i>Ulmus procera</i> , tear	2b Low	S: Tear out at 2m. Smooth bark inside. Extends upwards for 30cm. Very clean.	2b Low	Nocturnal Surveys	Retained
W7.23	English Elm <i>Ulmus procera</i> , split in trunk	2b Low	E: Included split at 1.5m up to 2m inwards 6cm. No signs. 4m from field edge	2b Low	Nocturnal Surveys	Retained
W7.25	Beech, <i>Fagus sylvatica</i> , split in trunk	2b Low	E: Narrow split at 1m, cavity extending upward by 15cm, wet inside.	2b Low	Nocturnal Surveys	Retained
W7.29	Scots Pine, <i>Pinus sylvestris</i> S: woodpecker hole 3m	2b Low	Unsafe to climb	2b Low	Nocturnal Surveys	Retained
W7.28	Goat Willow, <i>Salix caprea</i>	2b Low	N: wound knot hole. Feature smooth and open at top where it meets the woodpecker hole on opposite side 1m higher. W: Woodpecker hole meets other feature.	2b Low	Nocturnal Surveys	Retained
982	English oak <i>Quercus robur</i> , 2 woodpecker holes 2 3m 4m and hole into trunk	2b Low	Unsafe to climb	2b Low	None	Retained
W6.1	Dead stump, species unknown, 4 woodpecker holes 4 n 5m southern aspect	2b Low	Dead not safe to climb	2b Low	None	Retained - Offsite

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W6.2	Dead stump, species unknown, 2 woodpecker holes northern aspect, cracks into thick bark	2b Low	North: 2 woodpecker holes dusty and dirty does down 50cm. Also goes up by 20cm very dusty and cobwebs. Entrance is cluttered by surrounding vegetation. S: cracking into thick bark.	2b Low	None	Retained - Offsite
W3.5	Ash <i>Fraxinus excelsior</i> , 3 woodpecker holes 5m	2b Low	N: Woodpecker hole @ 9m 10cm entrance, stretches inwards 12cm, rough inside, cobwebs, damp debris inside, reached down 30cm, no evidence but potential. Cavity at 6m, 8cm wide smooth opening, grass at bottom, no evidence, completely hollow stem, low potential. S: 3 woodpecker holes 6m, 4cm by 3cm, frass, no evidence. 4 cavities at 5m, hollow stem linking holes, low potential, too exposed. W: Woodpecker hole @8m, 4cm wide rough dry, no potential	2b Low	None	Retained-offsite
W3.3	Ash <i>Fraxinus excelsior</i> , woodpecker hole 6m east	2b Low	S: woodpecker holes x2. Light passing through. Dead stump holes in main stem to bark, exposed.	2b Low	None	Retained-offsite

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W3.7	English Elm, <i>Ulmus procera</i> dead branch	2b Low	S: Dead branch with 4 woodpecker holes at 8m, from bottom to top 1st hole 3cm diameter extending 5cm inwards, 2nd hole links with 3rd hole, downwards direction for 30cm, nesting material and dry inside extends upwards 30cm dry inside, top hole extends 3cm inwards, top of branch in open to the top	2b Low	None	Retained-offsite
W3.1	Ash <i>Fraxinus excelsior</i> , cavity into branch east, large hole into main stem on wound dark staining 4m	2a High/ Moderate	E: Branch socket cavity approximately 6m high goes in 5inches rough inside. 5cm circular rough. Dry inside. No evidence. W: large hole into main stem on wound dark staining 4m. Entrance is 5cm by 10cm smooth dark staining a lot of sludge and muck in the bottom of the hole extends backwards by 6 inches goes heartening main stem by 15inches. Smooth inside dark staining. No evidence.	2b Low	None	Retained-offsite

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W3.9		2a - High / Moderate Potential	E: Limb that had time and is caught up in adjacent tree. Pockets around the fracture at 7m the split is approximately 1.5m long 2cm high by 5-6cm dry inside but very exposed with holes located at both sides of the fracture. No evidence. Large amounts of Bird faeces on the top of the fracture.	2b Low	None	Retained-offsite
Negligible						
T29	English Oak <i>Quercus robur</i> , branch socket cavities, broken branches evident.	2a – High/ Moderate	S: Terminal branch socket cavity at 11m. Extends down 25cm upwards facing and open to the elements. No evidence. Woodpecker hole at 16m extends in 5cm to shallow for bats.	3 Negligible	None	Retained
T51	Mature oak <i>Quercus robur</i> , dead branches in canopy and dense ivy covering.	2a – High/ Moderate	No suitable features identified.	3 Negligible	None	Retained
T5(U)	Semi-mature ash <i>Fraxinus excelsior</i> with large north facing 2 x wood pecker holes.	2a – High/ Moderate	E: Terminal branch socket cavity at 5 and 7 m both extend down 10cm. Open to the elements. No evidence.	3 Negligible	None	Removed
T12(B)	Elm <i>Ulmus sp.</i> covered with dense ivy	2b Low	No suitable features identified.	3 Negligible	None	Retained
T11	English oak <i>Quercus robur</i> , loose bark and cracks	2b Low	No suitable features identified.	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
TG18	English oak <i>Quercus robur</i> , dense ivy	2b Low	E: Large failed limb at 10m. Exposed and deeply fissured heart wood. Open upwards an full of leaves. No evidence.	3 Negligible	None	Retained
T13	English oak <i>Quercus robur</i> , dead branches in canopy with splits and cracks.	2a – High/Moderate	S: Rotten branch stub. Large upwards facing cavity at 3.5m. Extends 20cm no evidence	3 Negligible	None	Removed
T15	English oak <i>Quercus robur</i> , dead branches in canopy with splits and cracks, loose bark, south facing wood pecker hole.	2a – High/Moderate	No suitable features identified.	3 Negligible	None	Retained
T17	English oak <i>Quercus robur</i> , dead branches in canopy with splits and some ivy covering.	2b Low	N: Branch rear out at 4 to 5m. Well healed bark around edges. To shallow for bats Branch rear out at 6m heading west, extends 70cm to shallow for bats.	3 Negligible	None	Retained
T59(A)	English oak <i>Quercus robur</i> , dead branches in canopy.	2b Low	No suitable features identified.	3 Negligible	None	Retained
TG23 a	Semi-mature oak <i>Quercus robur</i> , dead branches in canopy, some ivy.	2b Low	No suitable features identified.	3 Negligible	None	Retained
TG23 b	Semi-mature oak <i>Quercus robur</i> , dead branches in canopy, dense ivy.	2b Low	No suitable features identified.	3 Negligible	None	Retained
TG23 c	Semi-mature oak <i>Quercus robur</i> , dead branches in canopy, some ivy.	2b Low	No suitable features identified.	3 Negligible	None	Retained
T71(A)	English oak <i>Quercus robur</i> dead wood in canopy with splits and cracks.	2b Low	N: Minor split at 6.5m minor and doesn't go anywhere	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
T70(A)	Mature <i>Quercus robur</i> dead wood in canopy with splits and cracks	2b Low	N: Pruning wound cavities 2 and 4in deep. Woodpecker hole doesn't go anywhere. E: Pruning wound at 5m has a cavity 5in wide at the end which extends 8in. Wet and crumbling wood at base. Cavity facing south on same limb extends the length, around 2m. 1st meter is covered over with bark and second meter is completely exposed. 1st section is dry and 3in wide with lead litter. Second compartment is dirty with decaying matter in. 4in wide.	3 Negligible	None	Retained
T68(A)	Mature <i>Quercus robur</i> dead wood in canopy wood pecker holes	2a – High/Moderate	No suitable features identified.	3 Negligible	None	Retained
T67(A)	Semi-mature <i>Quercus robur</i> dead wood in canopy	2b Low	No suitable features identified.	3 Negligible	None	Retained
T66(A)	Semi-mature <i>Quercus robur</i> dense ivy	2b Low	No suitable features identified.	3 Negligible	None	Retained
T65(U)	Dead tree with some cracks and crevices	2b Low	No suitable features identified.	3 Negligible	None	Removed
983 (previously T3 aerial assessment)	English Elm <i>Ulmus procera</i> , dead stum with woodpecker holes.	2a – High/Moderate	Small tree with top snapped out. 4 woodpecker holes extending no more than 5cm. No evidence.	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
984	English oak <i>Quercus robur</i>	2b Low	S: Split limb and woodpecker hole. Split limb 4in deep full of nesting material. Exposed at trunk and as it extended the holes became exposed. 5m. Woodpecker hole extended just 4in in. Features exposed and damp with water.	3 Negligible	None	Retained
992	English oak <i>Quercus robur</i>	2b Low	W: Broken limb with minor split at 5m was open and exposed to water and wind, 5.5m split branch but no suitable crevices.	3 Negligible	None	Retained
994	English oak <i>Quercus robur</i>	2b Low	S: Hazard beam. Extended 10cm in quite open and quickly narrowed to a tight crack. Cobwebs and exposed.	3 Negligible	None	Retained
997	English oak <i>Quercus robur</i>	2b Low	W: Trunk cavity	3 Negligible	None	Retained
T61	Ash <i>Fraxinus excelsior</i> , branch socket cavities x3 6m	2b Low	W: branch socket cavities x3 6m. Don't go anywhere, evening sun illuminates back wall.	3 Negligible	None	Retained
TG24.1	Field Maple <i>Acer campestre</i> , cavity in main trunk and wound on main stem	2b Low	N: Basel cavity in main trunk and wound on main stem. Basel cavity is 30cm wide, exposed for 1m. Extends upwards for 80cm, damp inside and rough. No evidence.	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
TG24.2	Ash <i>Fraxinus excelsior</i> , woodpecker hole main trunk 6m, branch socket cavity and 3 woodpecker holes 6m	2a - High / Moderate	N: woodpecker hole main trunk Goes all the way thru to the others. S: branch socket cavity 6m, opening 6x6cm wide goes in 5cm, dry but rough E: 3 woodpecker holes 6m meet the others, open at top and so exposed to elements. Branch socket cavity 3m up, smooth and goes back 15cm and dirty inside, doesn't extend up or down.	3 Negligible	None	Retained
TG24.5	Ash <i>Fraxinus excelsior</i> , woodpecker hole	2b Low	N: Woodpecker hole at 10/11m but top leader snapped off and so exposed to rain.	3 Negligible	None	Retained
TG11.4	English Oak <i>Quercus robur</i> , hole in to main stem at wound northern aspect	2b Low	E: Branch socket cavity at approximately 6m opening 8cm in diameter rough around the edge and inside goes in 10cm. Dry inside and clean. No evidence.	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re-assessed Category	What further Survey required	Retained /Lost
W4.1	Hybrid Black Poplar <i>Populus x canadensis</i>	2b Low	Loose cracked bark W: woodpecker hole 7 cm in stem height. SAR: could see woodpecker hole but bark cracks due to bacterial infection. These don't go anywhere.	3 Negligible	None	Retained
TG11.1	Ash <i>Fraxinus excelsior</i> , woodpecker hole 4m dark staining around hole, missing top of tree large decay holes in bark.	2a - High / Moderate	N: Branch socket cavity at 4m dark staining around hole, doesn't go back anywhere. S: Branch socket cavity at 4m, very cluttered. Missing top of tree large decay holes in bark and Open at the top	3 Negligible	None	Retained
W7.4	Ash <i>Fraxinus excelsior</i> , woodpecker hole 7m north	2b Low	N: woodpecker hole 7m, part of top section which is completely open. S: Branch socket cavity at 4m goes back 10cm. W: Tear out 1in wide 3in tall. Goes upwards into branch 7in. Quite rough inside.	3 Negligible	None	Retained
W7.5	Unknown species dead stump, cracking in bark north, woodpecker hole 3.5m south	2b Low	S: woodpecker hole 3.5m, doesn't go anywhere. 1in deep. N: cracking in bark.	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
W7.10	Ash <i>Fraxinus excelsior</i> , 3 woodpecker holes 5-6m south, woodpecker hole 5m north	2a High/ Moderate	S: 3 woodpecker holes 5-6m. Lower goes back 10cm. Upper extends 10cm. N: woodpecker hole 5m	3 Negligible	None	Retained
W7.11	Beech <i>Fagus sylvatica</i> , cavity in main stem overgrown 5m west	2b Low	S: Branch socket cavity at 8m doesn't extend. Woodpecker hole extends 5cm. W: cavity in main stem overgrown 5m.	3 Negligible	None	Retained
W7.18	English Elm <i>Ulmus procera</i> , wound knot hole west	2b Low	N: Woodpecker hole at 1.5m. Extends 2in.	3 Negligible	None	Retained
W7.20	English Elm <i>Ulmus procera</i> , woodpecker hole	2b Low	S: 2 woodpecker holes at 2.5m. Both extend 2/3 inches.	3 Negligible	None	Retained
W7.24	Beech, <i>Fagus sylvatica</i> , split in trunk	2b Low	N: Branch socket cavity 5cm x 2cm opening smooth around opening. Inwards 2cm. Upwards 1cm	3 Negligible	None	Retained
W7.30	Field Maple, <i>Acer campestre</i>	2b Low	W: 5m. Woodpecker hole extends 10cm.	3 Negligible	None	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
W3.2	Ash <i>Fraxinus excelsior</i> , species unknown, 2 woodpecker holes northern aspect, cracks into thick bark.	2b Low	Central leader two woodpecker holes 12m, 1st hole 6cm in diameter extends up by 2 inches and back by 1 inch, 2nd hole 6cm in diameter extending upwards 4 inches narrowing to crevice clean and smooth inside extending downwards 20cm narrow clean smooth and dry with leaves in, basal cavity extending upwards dusty and light E: woodpecker hole 8m extends horizontal 1inch.	3 Negligible	None	Retained-offsite
W3.4	English oak <i>Quercus robur</i> , cavity in branch 6m and 7m west	2b Low	W: 2 cavities in branch 6m and 7m. Neither go anywhere.	3 Negligible	None	Retained-offsite
W3.8	Field Maple, <i>Acer campestre</i>	2b Low	N: Hazard bark at 5m extends 5 inches back towards the stem narrowing evidence of rooting birds	3 Negligible	None	Retained-offsite
W3.10	English Elm <i>Ulmus procera</i>	2b Low	N: Crack running from 2m to the top with woodpecker holes. Limited potential hole 2cm deep	3 Negligible	None	Retained - offsite
T50	Ash <i>Fraxinus excelsior</i> no features observed.	3 Negligible	N/A	N/A	N/A	Retained

Tree ref Arb	Notes	Category	Aerial Inspection	Re- assessed Category	What further Survey required	Retained /Lost
T14	English oak <i>Quercus robur</i> , None potentiel identified.	3 Negligible	N/A	N/A	N/A	Retained
T57	Semi-mature oak <i>Quercus robur</i> , no features observed.	3 Negligible	N/A	N/A	N/A	Retained
985	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
986	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
987	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
988	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
989	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
990	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
993	English oak <i>Quercus robur</i> , no suitable features identified.	3 Negligible	N/A	N/A	N/A	
996	English oak <i>Quercus robur</i> , minor dead wood on northern aspect. No bat roosting potential.	3 Negligible	N/A	N/A	N/A	
998	English oak <i>Quercus robur</i> , Minor flaking bark	3 Negligible	N/A	N/A	N/A	
T56(U)	Ash <i>Fraxinus excelsior</i> , ivy coverage not dense, no features identified.	3 Negligible	N/A	N/A	N/A	removed

Appendix 6: Nocturnal tree survey Results

Location	Ref.	Time	Species	No. Passes	Behaviour
<i>4th June 2015 – Dawn T4</i>					
L1 (RJJH)	NV	3:31	Pipistrelle species	1	Pass
L2 (LOA)	1	3:30	Common pipistrelle	1	Pass
<i>23rd June 2015, Dusk T69, TG11.7, TG11.8</i>					
L1 TG11.7 (RSO)	1	21:50	Common pipistrelle	1	Foraging
	1	22:01	Common pipistrelle	1	Foraging
	2	22:08	Common pipistrelle	3	Foraging
	NV	22:11	Soprano pipistrelle	1	Pass
	NV	22:13	Soprano pipistrelle	2	Pass
	NV	22:14	Pipistrelle species	1	Pass
	NV	22:16	Common pipistrelle	1	Pass
	3	22:18	Common pipistrelle	1	Foraging
	1	22:18	Common pipistrelle	2	Foraging
	NV	22:30	Myotis species	1	Pass
	NV	22:30	Common pipistrelle	1	Foraging
	NV	22:39	Barbastelle	1	Foraging
	NV	22:39	Soprano pipistrelle	1	Foraging
L2 TG11.8 (DT)	1	22:43	Myotis species	1	Foraging
	4	22:10	Soprano pipistrelle	9	Foraging
	5	22:13	Common pipistrelle	1	Pass
	6	22:14	Common pipistrelle	1	Foraging
	7	22:18	Bat Species	1	Silent
	8	22:29	Common pipistrelle	1	Pass
	NV	22:36	Common pipistrelle	2	Foraging
L3 TG11.7 (GM)	NV	22:40	Barbastelle	1	Faint
	9	21:49	Common pipistrelle	1	Pass along tree line
	9	22:01	Common pipistrelle	1	
	NV	22:13	Soprano pipistrelle	1	Pass
	9	22:18	Common pipistrelle	1	Pass along tree line
	NV	22:29	Common pipistrelle	1	Pass
	10	22:32	Bat species	1	silent
	11	22:34	Common pipistrelle	1	Foraging
	NV	22:36	Myotis species & Common pipistrelle	5	Pass
	NV	22:41	Common pipistrelle	1	Pass
	12	22:43	Myotis species	1	Pass
L4 TG11.7 (LOA)	NV	22:43	Bat species	1	Pass
	NV	22:50	Bat species	1	Pass
	NV	22:08	Common pipistrelle	1	Faint pass
	12	22:13	Common pipistrelle	2	Foraging
	12	22:28	Common pipistrelle	1	Foraging
	NV	22:34	Barbastelle	1	Faint pass
L5 T69 DG)	11	22:35	Common pipistrelle	5	Foraging
	NV	22:41	Barbastelle	1	Pass
	NV	21:54	Soprano pipistrelle	1	Pass
	NV	21:58	Common pipistrelle	2	Foraging
	13	22:01	Common pipistrelle	3	Foraging
	13	22:05	Common pipistrelle	1	Pass
	NV	22:11	Bat species	2	Pass
	14	22:20	Myotis species	2	Pass
NV	22:23	Bat species	2	Pass	
NV	22:24	Bat species &	Multiple	Foraging	

			Common pipistrelle		
	NV	22:30	Common pipistrelle	Multiple	Foraging
	NV	22:38	Common pipistrelle	Multiple	Foraging
	NV	22:40	Bat species	Multiple	Foraging
L6 T69 (MJ)	15	21:58	Common pipistrelle	3	Pass
	NV	22:19	Common pipistrelle	Multiple	2 x bats foraging
	16	22:33	Common pipistrelle	Multiple	Foraging
	NV	22:36	Common pipistrelle	Multiple	Foraging
	NV	22:40	Common pipistrelle & Soprano pipistrelle	Multiple	Foraging
<i>24th June 2015, Dawn T28, T44, T49</i>					
L1 T28 (MJ)	No Bats				
L2 T28 (DG)	No Bats				
L3 T49 (RO)	NV	03:52	Common pipistrelle	1	Pass
L4 T49 (GM)	NV	03:26	Bat species	1	Pass
L5 T44 (LOA)	NV	03:16	Barbastelle/Myotis species	1	Very faint
	1	03:20	Soprano pipistrelle	Multiple	Foraging along tree line
	NV	03:23	Noctule	1	Pass
	NV	03:23	Barbastelle	1	Pass
	NV	03:25	Barbastelle	1	Pass
L6 T44 (DT)	NV	03:18	Soprano pipistrelle	1	Pass
	NV	03:21	Barbastelle	1	Pass
	NV	03:21	Soprano pipistrelle	1	Pass
	NV	03:22	Bat species	2	Very faint
	NV	03:23	Barbastelle	1	Pass
	NV	03:25	Soprano pipistrelle	1	Very faint
	NV	03:26	Soprano pipistrelle	1	Very faint
<i>2nd July 2015, Dusk T60, T999, W3.6</i>					
L1 (AW) W3.6	NV	22:26	Common pipistrelle	2	Foraging
	NV	22:30	Bat species	1	Faint pass
	NV	22:32	Bat species	2	Pass
	NV	22:41	Common pipistrelle	2	Pass
	NV	22:46	Soprano pipistrelle	1	Pass
L2 (GM) W3.6	1	22:27	Common pipistrelle	1	Foraging
	NV	22:42	Common pipistrelle	1	Pass
	NV	22:47	Common pipistrelle	1	Pass
L3 (ECJ) T60	2	22:30	Bat species	1	Pass
	NV	22:39	Bat species	Multiple	Foraging
L4 (AA) T60	3	22:32	Common pipistrelle	Multiple	Foraging around tree
	3	22:44	Common pipistrelle & brown long-eared	Multiple	Foraging around tree
	NV	22:48	Common pipistrelle & Myotis species	Multiple	2x Foraging around tree
	NV	22:50	Brown long-eared	2	Foraging
L5 (MRD) T999	4	22:04	Common pipistrelle & Soprano pipistrelle	3	Commuting along woodland edge
	NV	22:10	Pipistrelle species	2	Pass
	NV	22:15	2 x Bat species	1	Pass
	NV	22:18	Soprano pipistrelle	2	Pass
	4	22:20	Pipistrelle species	1	Commuting
	4	22:23	Common pipistrelle x	3	Commuting&

			2 bats		foraging
	5	22:28	Common pipistrelle 2	3	Foraging
	4,5	22:31	Pipistrelle species x 2	3	2x Foraging
		22:35	Serotine & Soprano pipistrelle	1	Pass
	4	22:37	Common pipistrelle	1	Pass
	NV	22:45	Soprano pipistrelle	1	Pass
	NV	22:46	Common pipistrelle x 2 bats	1	Pass
	NV	22:48	Pipistrelle species	2	Pass
L6 (RD) T999	NV	21:55	Bat species	1	Faint pass
	NV	21:58	Soprano pipistrelle	1	Pass
	6	22:00	Common pipistrelle	2	Foraging
	7	22:05	Brown long-eared	5	Visual only no sound
	NV	22:10	Common pipistrelle	Multiple	Foraging
	NV	22:19	Common pipistrelle	Multiple	Foraging
	NV	22:26	Myotis species x 3 bats	Multiple	Foraging
	NV	22:30	Common pipistrelle	4	Foraging
	NV	22:44	Common pipistrelle	1	Pass
	NV	22:44	Common pipistrelle	2	Foraging
<i>3^o July 2015, Dusk T25, T26, T48, W7.17, W7.21</i>					
L1 (MRD) T25/26	1	03:34	Bat species	1	Pass, silent
	NV	03:39	Soprano pipistrelle	1	Pass
	NV	03:39	Common pipistrelle	3	Foraging
	NV	03:47	Common pipistrelle	1	Pass
L2 (ECJ) T25/26	2	03:39	Pipistrelle species	4	Foraging
	NV	03:47	Bat species	1	Pass
	3	04:03	Bat species	1	Pass
L3 (RD) T25/26	4	03:31	Bat species	1	Pass
	5	03:33	Common pipistrelle	4	Foraging
	NV	03:44	Common pipistrelle	1	Foraging
L4 (LOA) T48		03:35	Common pipistrelle	3	Foraging along treeline
	6				
L5 (AA) T48	NV	03:31	Common pipistrelle	1	Foraging
	NV	03:40	Pipistrelle species	3	Foraging
L6 (AW) W7.21	NV	03:18	Common pipistrelle	1	Pass
	NV	03:19	Common pipistrelle	3	Pass
	NV	03:23	Common pipistrelle	1	Pass
	7	03:25	Common pipistrelle	2	Foraging
	8	03:34	Common pipistrelle	1	Pass
	9	03:42	Common pipistrelle	1	Foraging
	7	03:46	Common pipistrelle	1	Foraging
	NV	03:51	Common pipistrelle	1	Pass
	10	03:53	Common pipistrelle	1	Pass
	L7 (GM) W7.21	NV	03:23	Pipistrelle species	1
NV		03:26	Common pipistrelle	1	Pass
NV		03:34	Common pipistrelle	1	Pass
NV		03:43	Common pipistrelle	1	Pass
NV		03:47	Pipistrelle species	1	Pass
L8 (MJ) W7.17		03:54	Bat species	1	Pass
	NV				
L9 (RS) W7.17	NV	03:40	Common pipistrelle	3	Pass
	NV	03:42	Common pipistrelle	1	Pass
	NV	04:15	Bat species	1	Pass
<i>20th July 2015, Dusk T27, T30, W6.3</i>					
L1 (RD)	NV	21:43	Pipistrelle species	1	Pass

T27	NV	21:56	Common pipistrelle	1	Pass
	1	22:00	Common pipistrelle	10	2 x bats Foraging
	NV	22:09	Common pipistrelle	1	Pass
	NV	22:15	Bat species	1	Pass
	2	22:16	Barbastelle	1	Pass
	NV	22:18	Common pipistrelle	1	Pass
	NV	22:22	Common pipistrelle	1	Pass
	NV	22:29	Common pipistrelle	1	Pass
L2 (AM) T27	NV	22:33	Common pipistrelle	2	Pass
	NV	21:33	Bat species	1	Pass
	NV	21:47	Bat species	1	Pass
	NV	21:51	Bat species	1	Pass
	NV	21:57	Bat species	1	Pass
	3	22:04	Bat species	1	Foraging
	NV	22:09	Common pipistrelle	1	Pass
	NV	22:13	Bat species	1	Pass
	NV	22:15	Bat species	1	Pass
	NV	22:16	Common pipistrelle	1	Pass
	NV	22:18	Common pipistrelle	1	Pass
	NV	22:22	Common pipistrelle	1	Pass
	NV	22:25	Bat species	1	Pass
	NV	22:27	Bat species	1	Pass
L3 (AW) T30	NV	22:38	Bat species	1	Pass
	NV	21:50	Common pipistrelle	1	Pass
	5	21:57	Common pipistrelle	3	Foraging
	5	22:04	Common pipistrelle	Multiple	Foraging
	5	22:08	Common pipistrelle	3	Foraging
	NV	22:12	Common pipistrelle	2	Foraging
	NV	22:22	Common pipistrelle	1	Pass
	NV	22:27	Common pipistrelle	1	Pass
L4 (GM) T30	NV	22:33	Common pipistrelle	1	Pass
	4	21:45	Soprano pipistrelle		Pass
	NV	21:49	Common pipistrelle		Pass
	NV	21:57	Common pipistrelle		Foraging
	NV	22:04	Common pipistrelle		Foraging
	NV	22:09	Common pipistrelle		Foraging
	NV	22:22	Common pipistrelle		Pass
	NV	22:27	Common pipistrelle		Pass
L5 (LOA) W6.3	NV	22:34	Pipistrelle species		Pass
	NV	21:27	Common pipistrelle	3	Foraging
	NV	21:25	Common pipistrelle	2	Foraging
L6 (JL) W6.3	NV	21:35-21:40	Common pipistrelle	Multiple	Foraging
	NV	21:25	Common pipistrelle	3	Foraging
	NV	21:30	Common pipistrelle	Multiple	Foraging
	NV	21:35-21:49	Common pipistrelle	Multiple	Foraging
<i>21st July 2015, Dawn T28, T44, T49</i>					
L1 (JL) T28	1	4:23	Common pipistrelle	1	Pass
L2(LOA) T28	NV	03:37	Common pipistrelle	1	Foraging
	NV	03:40	Soprano pipistrelle	2	Foraging
L3 (RD) T49	NV	03:19	Common pipistrelle	10	Foraging
	NV	03:28	Bat species	1	Faint pass
	NV	03:33	Common pipistrelle	1	Pass
	NV	03:36	Barbastelle	1	Pass
	NV	03:37	Common pipistrelle & Soprano pipistrelle	3	Foraging
	2	03:41	Common pipistrelle	11	Foraging
	NV	03:43	Barbastelle	1	Pass

	2	03:44	Common pipistrelle & Soprano pipistrelle	4	Foraging
	NV	03:50	Soprano pipistrelle	1	Pass
	2	03:53	Common pipistrelle & Soprano pipistrelle	5	Foraging
	2	03:55	Common pipistrelle	1	Pass
	2	04:01	Common pipistrelle	2	Foraging
	2	04:05	Common pipistrelle	2	Foraging
	2	04:08	Common pipistrelle & Soprano pipistrelle	3	2 x bats social calling/ Foraging
L4 (GM) T49	NV	03:22	Common pipistrelle	Multiple	Foraging
	NV	03:24	Soprano pipistrelle	Multiple	Foraging
	NV	03:26	Common pipistrelle	Multiple	Foraging
	NV	03:30	Common pipistrelle	Multiple	Foraging
	NV	03:37	Common pipistrelle	Multiple	Foraging
	3	03:42	Soprano pipistrelle & Bat species	Multiple	Foraging
	NV	03:46	Common pipistrelle	Multiple	Foraging
	NV	03:51	Common pipistrelle	Multiple	Foraging
	4	03:55	Soprano pipistrelle	Multiple	Foraging
	NV	03:56	Common pipistrelle	1	Pass
	NV	03:59	Common pipistrelle & Soprano pipistrelle	Multiple	Foraging
	NV	04:09	Common pipistrelle	1	Pass
	NV	04:12	Common pipistrelle & Soprano pipistrelle	1	Pass
	NV	04:27	Soprano pipistrelle	1	Pass
	NV	04:28	Silent bat re-entry likely pipistrelle species	1	Re-entry Into cavity on branch west facing near fork in tree branches
L5 (AW) T44	No Bats				
L6 (AM) T44	No Bats				
<i>23rd July 2015, Dusk T69, TG11.7, TG11.8, T999</i>					
L1 (MJ) TG11.8	1	21:23	Common pipistrelle	1	Commuting along treeline
	NV	21:30	Common pipistrelle	1	Foraging
	2	21:41	Soprano pipistrelle	2	Foraging
	NV	21:46	Common pipistrelle	4	Foraging
	3	21:50	Common pipistrelle	2	Foraging
	3	21:51	Soprano pipistrelle	1	Foraging
	NV	21:55	Common pipistrelle	1	Foraging
	NV	21:58	Soprano pipistrelle	1	Foraging
	NV	21:59	Common pipistrelle	4	Foraging
	NV	22:10	Soprano pipistrelle	1	Foraging
	NV	22:12	Soprano pipistrelle	1	Foraging
	NV	22:16	Common pipistrelle	Multiple	Foraging
L2 (DT) TG11.8	NV	22:31	Soprano pipistrelle	1	Foraging
	4	21:51	Soprano pipistrelle	1	Pass
	4	21:55	Common pipistrelle	2	Pass
	NV	22:00	Common pipistrelle	1	Pass
	4	22:01	Common pipistrelle	2	Pass
	5	22:01	Common pipistrelle	1	Pass
5	22:04	Common pipistrelle	3	Pass x 2 bats	
NV	22:06	Common pipistrelle	5	Pass	

	5	22:08	Common pipistrelle	1	Pass
	NV	22:09	Bat species	2	Pass
	NV	22:10	Soprano pipistrelle	1	Pass
	NV	22:11	Soprano pipistrelle	4	Pass
	4	22:13	Common pipistrelle	1	Pass
	NV	22:18	Soprano pipistrelle	1	Pass
	NV	22:19	Common pipistrelle	4	Pass
	NV	22:23	Pipistrelle species	4	Foraging
	NV	22:29	Common pipistrelle	1	Pass
	NV	22:30	Common pipistrelle	1	Pass
L3 (RJJH) TG11.7	6	21:23	Common pipistrelle	1	Commuting
	6	21:31	Common pipistrelle	1	Commuting
	6	21:46	Common pipistrelle	1	Commuting
	NV	21:46	Common pipistrelle	1	Commuting
	7	21:49	Bat species	1	Foraging
	6	21:50	Bat species	1	Silent visual
	6	21:51	Common pipistrelle & Soprano pipistrelle	6	Commuting
	6	21:53	Common pipistrelle & Soprano pipistrelle	2	Commuting
	8	21:56	Common pipistrelle	3	Foraging
	NV	21:59	Common pipistrelle & Soprano pipistrelle	8	Foraging
	NV	22:04	Common pipistrelle	1	Pass
	NV	22:05	Common pipistrelle & Soprano pipistrelle	9	Foraging
	NV	22:10	Common pipistrelle & Soprano pipistrelle	7	Foraging
	NV	22:13	Common pipistrelle & Soprano pipistrelle	9	Foraging
	NV	22:17	Soprano pipistrelle	4	Foraging x 2 bats
	NV	22:19	Common pipistrelle & Soprano pipistrelle	4	Foraging
	NV	22:22	Common pipistrelle & Soprano pipistrelle	7	Foraging
	NV	22:30	Common pipistrelle & Bat species	5	Foraging
L4 (AA) TG11.7	NV	21:44	Bat species	1	Pass
	9	21:54	Soprano pipistrelle/ Myotis species	Multiple	Foraging
	NV	22:10	Common pipistrelle	Multiple	Foraging
	NV	22:21	Soprano pipistrelle	1	Foraging
	NV	22:23	Soprano pipistrelle	1	Foraging
	NV	22:29	Soprano pipistrelle	1	Foraging
	NV	22:32	Myotis species	1	Foraging
NV	22:33	Noctule	1	Pass	
L5 (JL) T69	NV	21:35	Common pipistrelle	1	Pass
	10	21:54	Common pipistrelle	2	Foraging
	10	22:01	Common pipistrelle	Multiple	Foraging
	NV	22:19	Myotis species	2	Foraging
	NV	22:25	Myotis species	2	Foraging
L6 (LOA) T69	NV	21:41	Common pipistrelle	1	Pass
	11	22:00	Common pipistrelle	1	Foraging
	11	22:05	Common pipistrelle	3	Foraging
L7 (LG) T999	12	21:22	Common pipistrelle	3	
	NV	21:33	Common pipistrelle	1	
	NV	21:35	Common pipistrelle	2	
	13	21:45	Bat species	1	

	14	21:48	Common pipistrelle	2	
	NV	21:49	Common pipistrelle	1	Pass
	12	21:49	Common pipistrelle	2	Pass
	NV	21:51	Common pipistrelle	1	Pass
	NV	21:52	Soprano pipistrelle	2	Pass
	12	21:53	Common pipistrelle	2	Pass
	NV	21:54	Common pipistrelle	1	Pass
	15	21:55	Common pipistrelle	1	Pass
	NV	21:56	Common pipistrelle	1	Pass
	12	21:57	Common pipistrelle	2	Pass
	12	21:59	Common pipistrelle	2	Pass
	NV	22:00	Common pipistrelle	5	Foraging
	12	22:02	Common pipistrelle	3	Foraging
	NV	22:03	Common pipistrelle & Bat species	4	2 x bats
	NV	22:04	Common pipistrelle & Bat species	6	2 x bats
	NV	22:05	Common pipistrelle & Soprano pipistrelle	5	Foraging
	NV	22:07	Common pipistrelle & Soprano pipistrelle	7	Foraging
	NV	22:08	Common pipistrelle	5	Foraging
	NV	22:10	Common pipistrelle	2	Pass
	12	22:11	Common pipistrelle	2	Pass
	NV	22:13	Common pipistrelle	7	Foraging
	NV	22:14	Common pipistrelle	2	Pass
	NV	22:14	Common pipistrelle	1	Pass
	NV	22:15	Common pipistrelle	3	Foraging
	NV	22:16	Common pipistrelle	5	Foraging
	NV	22:17	Soprano pipistrelle	2	Pass
	NV	22:18	Common pipistrelle	4	Foraging
	NV	22:19	Common pipistrelle	1	Pass
	16	22:20	Common pipistrelle	9	Foraging
	NV	22:23	Common pipistrelle	9	Foraging
	16	22:26	Soprano pipistrelle	Multiple	2 x bats
	NV	22:28	Common pipistrelle	4	Foraging
	NV	22:30	Soprano pipistrelle	4	Foraging
L8 (DG) T999	NV	21:33	Myotis species	1	Foraging
	NV	21:44	Bat species	2	Foraging
	NV	21:49	Common pipistrelle	1	Pass
	NV	21:54	Common pipistrelle	2	Foraging
	NV	21:59	Common pipistrelle	1	Commuting
	NV	22:01	Common pipistrelle	3	Foraging
	NV	22:04	Common pipistrelle	7	Foraging
	NV	22:12	Common pipistrelle	2	Foraging
	NV	22:13	Common pipistrelle	2	Foraging
	NV	22:16	Common pipistrelle	2	Foraging
	NV	22:21	Common pipistrelle	5	Foraging
	NV	22:29	Common pipistrelle	1	Foraging
<i>24th July 2015, Dawn T69, TG11.7, TG11.8, T999</i>					
L1 (MJ) TG11.8	NV	03:33	Common pipistrelle	2	Foraging
	NV	03:40	Common pipistrelle	1	Pass
	NV	03:48	Common pipistrelle	2	Pass
	NV	03:50	Common pipistrelle	1	Foraging
	NV	04:01	Common pipistrelle	1	Commuting
	NV	04:07	Common pipistrelle	2	Pass
	NV	04:17	Common pipistrelle	5	Pass
L2 (DT)	NV	03:37	Common pipistrelle	1	Foraging

TG11.8	NV	03:41	Bat species	1	Pass
	NV	03:47	Bat species	1	Pass
	NV	03:47	Common pipistrelle	1	Pass
	NV	03:52	Common pipistrelle	2	Pass
	NV	03:54	Common pipistrelle	1	Foraging
	NV	03:57	Common pipistrelle	2	Pass
	NV	03:58	Common pipistrelle	1	Pass
	NV	04:02	Common pipistrelle	1	Pass
	1	04:06	Common pipistrelle	1	Pass
	1	04:20	Common pipistrelle	1	Pass
	NV	04:26	Common pipistrelle	1	Pass
	1	04:42	Common pipistrelle	1	Pass
L3 (RJJH) TG11.7	NV	03:37	Common pipistrelle	1	Pass
	NV	03:38	Common pipistrelle	1	Pass
	NV	03:41	Common pipistrelle	1	Pass
	NV	03:44	Soprano pipistrelle	1	Pass
	NV	03:48	Common pipistrelle	1	Pass
	NV	03:50	Soprano pipistrelle & Common pipistrelle	2	Pass
	NV	03:51	Soprano pipistrelle	2	Pass
	NV	03:55	Common pipistrelle	1	Pass
	NV	03:58	Common pipistrelle	1	Pass
	NV	03:59	Common pipistrelle	1	Pass
	NV	04:02	Soprano pipistrelle	1	Pass
	NV	04:06	Common pipistrelle	4	Foraging
	2,3	04:08	Common pipistrelle & Pipistrelle species	2	Foraging
	NV	04:10	Common pipistrelle	1	Pass
	NV	04:21	Soprano pipistrelle	1	Pass
	NV	04:25	Soprano pipistrelle	1	Pass
	NV	04:26	Soprano pipistrelle	1	Pass
	NV	04:27	Soprano pipistrelle	1	Pass
	NV	04:32	Common pipistrelle	1	Pass
	L4 (AA) TG11.7	NV	03:34	Myotis species	1
4		03:48	Soprano pipistrelle	1	Foraging
4		03:57	Soprano pipistrelle	1	Foraging
NV		04:01	Myotis species	1	Pass
NV		04:03	Myotis species	1	Pass
NV		04:06	Myotis species	1	Pass
4		04:08	Soprano pipistrelle	2	Pass
NV		04:12	Myotis species	1	Foraging
4		04:22	Soprano pipistrelle	1	Foraging
L5 (JL) T69	NV	04:28	Myotis species	1	Foraging
	5	03:23	Common pipistrelle	Multiple	Foraging
	5	03:24	Myotis species	1	Foraging
	NV	03:39	Myotis species	1	Pass
	5	03:44	Myotis species	Multiple	Foraging
	5	03:46	Common pipistrelle	Multiple	Foraging
	NV	04:11	Nyctalus species	1	Pass
L6 (LOA) T69	5	04:11	Soprano pipistrelle	Multiple	Foraging
	6	03:23	Common pipistrelle	Multiple	Foraging
	NV	03:34	Soprano pipistrelle	1	Pass
	NV	03:36	Barbastelle	1	Pass
	NV	03:39	Barbastelle	1	Pass
	NV	03:43	Barbastelle	1	Pass
	NV	03:44	Myotis species	1	Pass
NV	03:45	Common pipistrelle	1	Pass	
NV	03:49	Common pipistrelle	Multiple	Foraging	

L7 (LG) T999	6	03:55	Barbastelle	1	Pass
	6	04:10	Soprano pipistrelle	3	Foraging
	NV	03:21	Common pipistrelle	4	Foraging
	7	03:23	Soprano pipistrelle	10	Foraging
	NV	03:26	Common pipistrelle	4	Foraging
	NV	03:29	Common pipistrelle	2	Foraging
	NV	03:30	Common pipistrelle	6	Foraging
	NV	03:32	Common pipistrelle	4	Foraging
	NV	03:34	Common pipistrelle	1	Pass
	NV	03:37	Common pipistrelle	3	Foraging
	NV	03:39	Common pipistrelle	6	Foraging
	NV	03:41	Soprano pipistrelle	2	Foraging
	NV	03:44	Common pipistrelle	12	Foraging
	NV	03:46	Common pipistrelle	6	Foraging
	NV	03:47	Common pipistrelle	4	Foraging
	NV	03:50	Common pipistrelle	2	Foraging
	NV	03:53	Common pipistrelle	15	Foraging
	NV	03:58	Common pipistrelle	10	Foraging
	NV	04:01	Common pipistrelle	13	Foraging
	NV	04:04	Common pipistrelle	8	Foraging
	NV	04:06	Common pipistrelle	7	Foraging
	7	04:08	Common pipistrelle	1	Pass
	NV	04:08	Common pipistrelle	4	Foraging
	NV	04:10	Common pipistrelle	6	Foraging
	NV	04:13	Common pipistrelle	1	Pass
	NV	04:15	Common pipistrelle	2	Foraging
	NV	04:16	Common pipistrelle	3	Foraging
	NV	04:17	Common pipistrelle	6	Foraging
	NV	04:21	Common pipistrelle	9	Foraging
	NV	04:23	Common pipistrelle	4	Foraging
	NV	04:25	Common pipistrelle	4	Foraging
	NV	04:28	Common pipistrelle	2	Foraging
	NV	04:28	Common pipistrelle	1	Pass
	NV	04:29	Common pipistrelle	4	Foraging
	NV	04:30	Common pipistrelle	1	Pass
	NV	04:31	Common pipistrelle	2	Foraging
NV	04:32	Common pipistrelle	1	Pass	
NV	04:34	Common pipistrelle	1	Pass	
NV	04:36	Common pipistrelle	1	Pass	
NV	04:39	Common pipistrelle	1	Pass	
NV	04:45	Common pipistrelle	1	Pass	
L8 (DG) T999	NV	03:38	Myotis species	4	Pass
	NV	03:42	Myotis species	3	Foraging
	NV	03:43	Common pipistrelle	1	Pass
	NV	03:44	Bat species	3	Pass
	NV	03:45	Common pipistrelle & Myotis species	5	Pass
	NV	03:50	Myotis species	1	Foraging
	NV	03:55	Common pipistrelle	2	Pass
	8	03:56	Common pipistrelle	1	Pass
	NV	03:59	Bat species	5	Pass
	10	04:02	Common pipistrelle	7	Foraging
	9	04:07	Myotis species	1	Commuting
	9	04:10	Common pipistrelle	1	Commuting
	9	04:14	Common pipistrelle	1	Commuting
	10	04:17	Common pipistrelle	3	Foraging
	11	04:20	Pipistrelle species	6	Foraging
NV	04:39	Pipistrelle species	2	Pass	

28 th July 2015, Dusk W3.6, T48, T60					
L1 (JL) T60	1	21:28	Common pipistrelle	1	Foraging
	NV	21:43	Common pipistrelle	1	Pass
	2	21:45	Common pipistrelle	2	Foraging
	3	21:52	Common pipistrelle	2	Pass
	NV	22:11	Common pipistrelle	1	Pass
L2 (LOA) T60	4	21:29	Common pipistrelle	1	Pass
	4	21:43	Common pipistrelle	1	Pass
	2	21:45	Common pipistrelle	4	Foraging
	4	21:52	Common pipistrelle	2	Foraging
	NV	21:56	Common pipistrelle	1	Pass
	4	21:57	Common pipistrelle	2	Foraging
	NV	22:11	Common pipistrelle	1	Pass
L3 (MJ) T48		21:57	Bat species	1	Pass very faint
	NV				
L4 (RJJH) T48	NV	21:37	Common pipistrelle	1	Pass
	NV	21:42	Common pipistrelle	1	Pass
	NV	21:46	Common pipistrelle	1	Pass
	NV	21:50	Common pipistrelle	2	Pass
	NV	21:58	Common pipistrelle	1	Pass
	NV	22:08	Common pipistrelle	1	Pass
	NV	22:11	Common pipistrelle	1	Pass
L5 (DG) W6.3	NV	21:13	Common pipistrelle	1	Foraging
	NV	21:18	Common pipistrelle	1	Foraging
	NV	21:32	Common pipistrelle	1	Pass
	NV	21:44	Common pipistrelle	3	Foraging
	NV	21:48	Common pipistrelle	1	Foraging
	NV	21:55	Common pipistrelle	3	Foraging
	NV	22:08	Common pipistrelle	3	Foraging
	NV	22:12	Common pipistrelle	1	Foraging
L6 (DT) W6.3	NV	21:12	Common pipistrelle	Multiple	Foraging
	NV	21:19	Common pipistrelle	Multiple	Foraging
	NV	21:24	Common pipistrelle	Multiple	Foraging
	NV	21:29	Common pipistrelle	1	Foraging
	NV	21:32	Common pipistrelle	2	Foraging
	NV	21:36	Common pipistrelle	Multiple	Foraging
	NV	21:44	Common pipistrelle	Multiple	Foraging
	NV	21:47	Common pipistrelle	Multiple	Foraging
	NV	21:55	Common pipistrelle	Multiple	Foraging
	NV	22:08	Common pipistrelle	Multiple	Foraging
NV	22:13	Common pipistrelle	3	Foraging	
29 th July 2015, Dusk W3.6, T48, T60					
L1 (JL) T60	1	03:47	Common pipistrelle	1	Pass
L2 (LOA) T60	1	03:47	Common pipistrelle	1	Pass
L3 (MJ) T48	No Bats				
L4 (RJJH) T48	2	04:27	Brown long-eared	1	Foraging
	3	04:31	Brown long-eared	2	Foraging
L5 (DG) W6.3	NV	04:09	Common pipistrelle	1	Pass
L6 (DT) W6.3	NV	04:09	Common pipistrelle	1	Pass
30 th July 2015, Dusk T25, T26, T27, W7,17, W7.21					
L1 (JL) T25	1	21:22	Common pipistrelle	1	Foraging
	2	21:29	Common pipistrelle	Multiple	Foraging

	NV	21:58	Common pipistrelle	1	Foraging
	NV	22:12	Soprano pipistrelle	2	Pass
L2 (SLB) T25	3	21:19	Common pipistrelle	1	Foraging
	4	21:34	Common pipistrelle	5	Foraging
	4	21:37	Common pipistrelle	Multiple	Foraging x 2 bats
	NV	21:43	Common pipistrelle	2	Foraging
	NV	21:47	Common pipistrelle & soprano pipistrelle	1	Foraging
	NV	21:49	Common pipistrelle	1	Pass
	NV	21:51	Myotis species	1	Pass
	NV	21:52	Noctule	1	Pass
	4	22:00	Common pipistrelle	3	Foraging
	NV	22:11	Common pipistrelle	1	Pass
	NV	22:15	Bat species	1	Pass very faint
	L3 (LOA) T26	5	21:24	Common pipistrelle	2
NV		21:31	Soprano pipistrelle	3	Pass
2		21:34	Common pipistrelle	2	Foraging
NV		21:55	Soprano pipistrelle	1	Pass
NV		21:59	Common pipistrelle	1	Pass
NV		22:07	Common pipistrelle	1	Foraging
NV		22:13	Brown long-eared	1	Pass faint
NV		22:2-0	Myotis species	1	Pass
L4 (AM) T26	NV	21:11	Soprano pipistrelle	4	Faint passes
	6	21:14	Soprano pipistrelle	1	Foraging
	NV	21:16	Soprano pipistrelle	1	Pass
	NV	21:19	Soprano pipistrelle	5	Foraging
	7	21:23	Bat species	1	Pass
	NV	21:25	Common pipistrelle	4	Foraging
	NV	21:26	Common pipistrelle	1	Pass
	8	21:33	Common pipistrelle	5	Foraging
	NV	21:37	Common pipistrelle	9	Foraging
	NV	21:43	Common pipistrelle	1	Foraging
	9	21:45	Common pipistrelle	2	Foraging
	NV	21:46	Soprano pipistrelle	2	Foraging
	NV	21:49	Common pipistrelle	1	Foraging
	NV	21:50	Myotis species	1	Foraging
	NV	21:51	Myotis species	5	Foraging
	NV	21:54	Barbastelle	1	Pass
	NV	22:00	Common pipistrelle	2	Foraging
	NV	22:11	Common pipistrelle	3	Foraging
	NV	22:15	Common pipistrelle	1	Foraging
	L5 (RJJH) T27	NV	21:10	Pipistrelle species	4
10		21:12	Soprano pipistrelle	Multiple	Foraging
NV		21:30	Common pipistrelle	1	Pass
NV		21:35	Common pipistrelle	Multiple	Foraging
NV		21:38	Common pipistrelle & pipistrelle species	Multiple	Foraging
NV		21:42	Pipistrelle species	2	Foraging
NV		21:43	Common pipistrelle	1	Foraging
NV		21:43	Pipistrelle species	2	Foraging
NV		21:45	Common pipistrelle	Multiple	Foraging
NV		21:51	Myotis species	1	Foraging
NV		21:51	Common pipistrelle	Multiple	Foraging
NV		22:03	Brown long-eared	1	Foraging
NV		22:12	Common pipistrelle	3	Foraging
L6 (DT) T27		NV	21:13	Common pipistrelle	1
	10	21:20	Common pipistrelle	1	Pass
	NV	21:22	Common pipistrelle	5	Pass

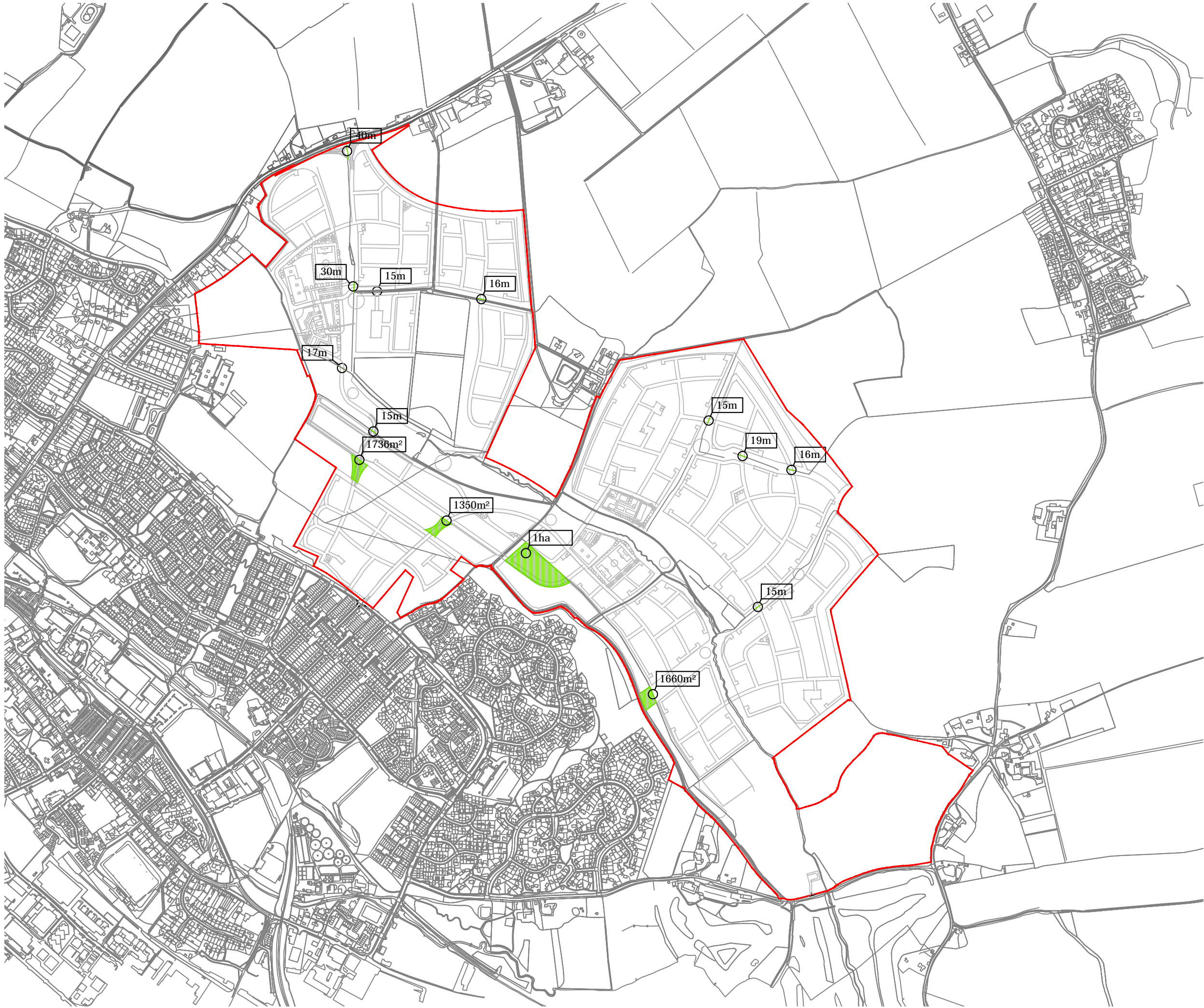
	NV	21:25	Common pipistrelle	3	Pass
	10	21:26	Common pipistrelle	Multiple	Foraging
	10	21:34	Pipistrelle species	5	Pass
	10	21:36	Common pipistrelle	Multiple	Foraging
	11	21:41	Common pipistrelle	Multiple	Foraging
	NV	21:43	Common pipistrelle	4	Pass
	11	21:45	Common pipistrelle	Multiple	Foraging
	NV	21:50	Common pipistrelle	Multiple	Foraging
	NV	21:57	Common pipistrelle	2	Foraging
	NV	22:03	Common pipistrelle	2	Pass
	NV	22:07	Common pipistrelle	5	Pass
	NV	22:20	Common pipistrelle	1	Pass
L7 (MJ) W7.21	NV	21:20	Bat species	1	Faint pass
	NV	21:33	Common pipistrelle	1	Pass
	NV	21:41	Common pipistrelle	1	Pass
	NV	21:51	Soprano pipistrelle	1	Pass
	NV	21:57	Common pipistrelle	2	Pass
	NV	22:08	Common pipistrelle	1	Pass
	NV	22:15	Soprano pipistrelle	2	Pass
L8 (AA) W7.21	NV	21:20	Common pipistrelle	1	Pass
	NV	21:33	Common pipistrelle	1	Pass
	12	21:42	Soprano pipistrelle	2	Foraging
	NV	21:43	Soprano pipistrelle	1	Foraging
	NV	21:49	Myotis species	1	Foraging
	NV	21:53	Bat species	1	Faint pass
	NV	22:05	Common pipistrelle	1	Foraging
	NV	22:08	Soprano pipistrelle	1	Foraging
	NV	22:16	Soprano pipistrelle	2	Foraging
	NV	22:21	Soprano pipistrelle	1	Pass
L9 (EC) W7.17	NV	21:54	Pipistrelle species	2	Faint passes
L10 (MD) W7.17	No Bats				
<i>31st July 2015, Dawn T25, T26, T27, W7,17, W7.21</i>					
L1 (JL) T25	No Bats				
L2 (SLB) T25	NV	04:22	Bat species	1	Faint pass
L3 (LOA) T26	NV	03:50	Myotis species	1	Pass
	NV	04:17	Brown long-eared	1	Pass
L4 (AM) T26	NV	04:09	Myotis species	1	Pass
	NV	04:18	Bat species	1	Pass
	1	04:22	Bat species	1	Pass
	NV	04:24	Myotis species	1	Pass
L5 (RJJH) T27	NV	04:04	Pipistrelle species	1	Pass
	NV	04:34	Common pipistrelle	1	Pass
L6 (DT) T27	NV	04:05	Common pipistrelle	1	Pass
	NV	04:34	Common pipistrelle	1	Pass
L7 (MJ) W7.21	No Bats				
L8 (AA) W7.21	No Bats				
L9 (EC) W7.17	No Bats				
L10 (MD) W7.17	2	03:52	Bat species	1	Pass
<i>3rd August 2015, Dusk T30, W3,6, T999</i>					
L1 (RJJH)	NV	21:25	Brown long-eared	3	Pass

T30	NV	21:31	Soprano pipistrelle	1	Pass
	NV	21:33	Brown long-eared	1	Pass
	NV	21:34	Common pipistrelle	4	Pass
	NV	21:35	Brown long-eared	2	Pass
	NV	21:38	Brown long-eared & Common pipistrelle	5	Pass
	NV	21:40	Pipistrelle species, Brown long-eared	Multiple	Pass
	NV	21:50	Pipistrelle species	7	Pass
	NV	21:53	Pipistrelle species	1	Pass
	NV	22:01	Bat species	1	Pass
	NV	22:04	Common pipistrelle	6	Pass
L2 (DT) T30	1	21:30	Soprano pipistrelle	3	Pass
	2	21:35	Soprano pipistrelle	Multiple	Foraging
	NV	21:37	Soprano pipistrelle	1	Pass
	1	21:38	Common pipistrelle	1	Pass
	NV	21:40	Soprano pipistrelle	Multiple	Pass
	NV	21:46	Common pipistrelle	1	Pass
	NV	21:48	Soprano pipistrelle	Multiple	Foraging
	NV	21:59	Common pipistrelle	2	Pass
NV	22:07	Common pipistrelle	1	Pass	
L3 (MJ) W3.6	No bats				
L4 (DG) T999	NV	21:13	Common pipistrelle	1	Pass
	NV	21:16	Common pipistrelle	3	Foraging
	NV	21:21	Common pipistrelle	1	Pass
	3	21:22	Common pipistrelle	5	Pass
	NV	21:25	Common pipistrelle	Multiple	Foraging
	4	21:27	Common pipistrelle	Multiple	Foraging
	5	21:28	Common pipistrelle	1	Pass
	5	21:29	Common pipistrelle	1	Pass
	3	21:31	Soprano pipistrelle	Multiple	Foraging
	NV	21:41	Common pipistrelle	Multiple	Pass
	NV	21:42	Common pipistrelle	Multiple	Foraging
	NV	21:51	Common pipistrelle	2	Pass x 2 bats
	NV	21:55	Common pipistrelle	Multiple	Foraging
	NV	22:04	Soprano pipistrelle	3	Foraging
	NV	22:06	Soprano pipistrelle	2	Pass
NV	22:08	Common pipistrelle	Multiple	Foraging	
<i>4th August 2015, Dawn T30, W3.6, T999, TG11.7, TG11.8</i>					
L1 (RJJH) T30	NV	04:16	Common pipistrelle	1	Pass
	NV				
L2 (DT) T30	NV	04:23	Common pipistrelle	1	Pass
	NV	04:23	Common pipistrelle	Multiple	Pass
	NV	04:30	Common pipistrelle	1	Pass
	NV	04:31	Soprano pipistrelle	1	Pass
	NV	04:35	Common pipistrelle	4	Pass
	NV	04:39	Common pipistrelle	1	Pass
	NV	04:42	Soprano pipistrelle	2	Pass
	NV	04:48	Common pipistrelle	1	Pass
NV	04:55	Common pipistrelle	Multiple	Pass	
L3 (MJ) W3.6	NV	04:20	Common pipistrelle	1	Pass
	NV	04:24	Common pipistrelle	1	Pass
L4 (DG) T999	NV	04:03	Common pipistrelle	2	Foraging
	NV	04:08	Common pipistrelle	1	Pass
	NV	04:13	Myotis species	1	Pass
	1	04:23	Common pipistrelle	3	Pass
	NV	04:31	Bat species	2	Pass

	NV	04:32	Soprano pipistrelle	1	Pass
	NV	04:35	Common pipistrelle	1	Pass
	NV	04:36	Common pipistrelle	1	Pass
	2	04:37	Common pipistrelle	1	Pass
	NV	04:40	Common pipistrelle	1	Pass
	NV	04:42	Soprano pipistrelle	3	Pass
	3	04:47	Common pipistrelle	1	Pass
L5 (AA) TG11.8	NV	03:55	Common pipistrelle	3	Pass
	NV	04:03	Common pipistrelle	2	Pass
	NV	04:07	Common pipistrelle	1	Pass
	NV	04:10	Common pipistrelle	1	Pass
	NV	04:16	Common pipistrelle	2	Pass
	4	04:27	Soprano pipistrelle	5	Pass
	4	04:38	Soprano pipistrelle	2	Pass
L6 (LOA) TG11.7 & TG11.8	5	04:32	Common pipistrelle	1	Pass
	NV	04:37	Common pipistrelle	1	Pass
L7 (JL) TG11.7	NV	03:56	Common pipistrelle	1	Pass
	NV	03:59	Common pipistrelle	Multiple	Foraging
	NV	04:10	Soprano pipistrelle	1	Pass
	6	04:16	Common pipistrelle	Multiple	Foraging
	6	04:19	Soprano pipistrelle	1	Pass
	6	04:29	Common pipistrelle	Multiple	Foraging

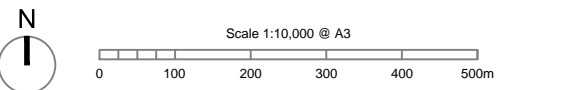
Appendix 7: Hedgerow removal Plan 5055-L-112 C

Appendix 8: Habitat Creation Plan 5055-L-113 B



NOTES

All dimensions to be verified on site. Do not scale this drawing.
 All discrepancies to be clarified with project Landscape Architect.
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- Application boundary 168.34ha
- Hedgerow to be removed to facilitate road access (Total length) 198m
(Assumed 2.5 roadside clearance for visibility)
- Woodland to be removed (Total area) 1.47ha

rev	date	description	by
D	20.08.15	Amended in line with survey	NJE
C	10.08.15	Couplals Road access / car park included	NJE
B	06.08.15	Change to site access	NJE
A	21.07.15	Change to road layout	SJ

masterplanning ■
 environmental assessment ■
 landscape design ■
 urban design ■ FPCR Environment and Design Ltd
 ecology ■ Lockington Hall
 architecture ■ Lockington
 arboriculture ■ Derby DE74 2RH

t: 01509 672772
 f: 01509 674565
 e: mail@fpcr.co.uk
 w: www.fpcr.co.uk

client
HALLAM LAND MANAGEMENT LTD

project
**Great Wilsey Park
 Haverhill**

drawing title
Hedgerow Removal Plan

scale
 1:10,000@A3

drawn
 NJE

date
 July 2015

drawing number
5055-L-112

rev
D