



David Wilson Homes

Portsdown Hill, Havant

Bat Activity Survey

February 2014

The Loft, St Clair's Farm, Wickham Road, Droxford, Hants, SO32 3PW

Tel: 01489 872929

Email: ecology@wyg.com



Document Control

Project: Portsdown Hill, Havant

Client: David Wilson Homes

Job Number: A072629-1

File Origin: J:\Environmental Projects\A Projects - Awarded Projects\2013-2014 Ecology\ A083733 Portsdown Hill, Havant\700 Reports\Bat

Document Checking:

Prepared by:	Vicky Coulthard Consultant Ecologist	Signed:	
--------------	---	---------	---

Checked by:	Emily Hare Assistant Ecologist	Signed:	
-------------	-----------------------------------	---------	---

Verified by:	Clare May Principal Ecologist	Signed:	
--------------	----------------------------------	---------	---

Issue	Date	Status
-------	------	--------

1	February 2014	Issue
---	---------------	-------

2		
---	--	--

3		
---	--	--

4		
---	--	--



Contents Page

Executive Summary	1
1.0 Introduction	3
1.1 Background	3
1.2 Site Location and General Description	3
1.3 Planning guidance: Natural England's standing advice	4
1.4 Legislative considerations	5
2.0 Methodology.....	7
2.1 Data Search.....	7
2.2 Bat Activity Survey	7
2.3 Automated bat activity surveys	8
2.4 Weather Conditions and Timings for Nocturnal Bat Survey.....	8
2.5 Value of the on-site protected species population in a wider ecological context.....	8
3.0 Survey results.....	12
3.1 Data Search.....	12
3.2 Activity transects.....	12
3.3 Automated bat activity surveys	13
4.0 Interpretation	15
4.1 Limitations to survey	15
5.0 Potential Impact of the Development on Bats.....	17
5.1 Effects on roosts	17
5.2 Effects on foraging / commuting habitat.....	17
6.0 Recommendations and Mitigation	19
6.1 Survey Recommendations	19
6.2 Avoidance.....	19
6.3 Mitigation	19
6.4 Enhancement.....	21
7.0 References.....	23



Appendix Contents

Appendix A - Figures

Appendix B – Data search results

Appendix C – Native/Wildlife Friendly Plant Species

Appendix D – Bat Boxes, Bricks and Tubes



Executive Summary

Contents	Summary
Site location	The proposed site is approximately 4.75 ha, located directly to the west of Glebe Park Avenue and junction 5 of the A3, Bedhampton (OS grid reference SU 693 062) and is designated as a SINC site. The eastern boundary comprises residential buildings with gardens, beyond which lies the major infrastructure associated with the A27 and A3M. The southern corner of the proposed site borders Havant Road (A2030), and the proposed western boundary intersects the middle of the arable field and hence arable land lies beyond the western boundary. The northern boundary lies residential development beyond which lies Portsmouth Hill Road. In the centre of the northern boundary within a residential garden which lies over the boundary, it is understood that a former chalk quarrying area is present which is now heavily vegetated. The majority of the site is part of a large arable field, with an area of heavily grazed horse paddocks (improved grassland with scattered scrub) and associated run-down timber sheds occupying the north east corner of the site.
Previous reports/surveys	An extended Phase 1 habitat survey was completed at the site in August 2013. The survey identified the hedgerow, grassland and trees within the site boundary as offering 'low' potential to support foraging and commuting bats.
WYG Survey	The Bat Conservation Trust (2012) guidelines recommend that for a 'medium' sized site (1 – 15 ha), of 'low' habitat quality, bat activity surveys are recommended once a season (spring summer and autumn). However, due to the timescales of the project, bat activity surveys were carried out on three occasions over August and September. The Local Planning Authority has agreed this approach with another similar project and therefore it is considered that the survey data is sufficient to support the planning application. One transect across the site was walked using manual bat detectors and recorders. The BCT (2012) guidelines also recommend that automatic bat detectors are left for three consecutive nights per season to record bat passes at one location along the transect. Again, due to timescales of the project, automated bat detectors were left at the site for three consecutive nights on three occasions during August and September.
Survey Results	Up to seven species of bat were recorded using the habitats across the site. Species recorded include common pipistrelle, soprano



	pipistrelle, noctule, serotine, long-eared bat (likely brown) and Myotis (likely whiskered/ Brandt's).
Further Recommendations & Mitigation	Results of the bat activity survey will remain valid for 2 years. If works have not commenced within this time, it is recommended that the requirement for an update survey is considered to determine whether there have been any changes in bat activity across the site. A buffer of hedgerow, grassland and trees will be retained around the northern, eastern and southern boundary of the site (as shown in masterplan: (drawing number 1077401.10; (Appendix A), The density of houses within the residential development will be relatively low (approximately 14 dwellings per hectare) and proposed dwellings will be interspersed with areas of open space. Therefore, areas of habitat for foraging and commuting bats will be incorporated within the proposed development. To help maintain the favourable conservation status of roosting, foraging and commuting bats on site the following measures have been incorporated within the masterplan: • Planting species of value to foraging and commuting bats will be incorporated into the landscape plan (Appendix C), details of these species have been given to the landscape design team; • Lighting across the development will be designed to reduce impacts on bat foraging and commuting habitat. At the time of writing this report no lighting strategy was available but it is understood that there will be no lighting adjacent to the boundary habitats and only low level bollard lighting will be used within the residential areas. There will be no lighting columns within the proposed development; • Construction activity in proximity to boundary vegetation will cease at sunset to avoid impacts to bats during the construction phase.
Enhancement	Additional enhancement measures to be incorporated within the development include the provision of 8 artificial bat roosts on retained trees along the northern boundary. Additional planting across the site will incorporate species of value to foraging and commuting bats.



1.0 Introduction

1.1 Background

WYG was commissioned by David Wilson Homes to complete bat activity surveys in order to inform proposed development at Portsdown Hill, Havant (hereafter referred to as 'the site'). This follows an extended Phase 1 habitat survey completed by WYG in August 2013, which identified the potential for bats to use the habitat on site for foraging and commuting.

Bat activity surveys were recommended based on:

- The occurrence of bat records in the local area;
- The presence of suitable foraging and commuting habitat on site and in the surrounding landscape (hedgerows, grassland etc) and;
- Potential direct/indirect impacts to some of these habitats as a result of the development proposals.

1.2 Site Location and General Description

The site is approximately 4.75 ha, comprising the north east corner of a large arable field with horse paddocks in the northeast corner of the site.

The site is located on the western periphery of Bedhampton. The proposed site is approximately 4.75 ha, located directly to the west of Glebe Park Avenue and junction 5 of the A3, Bedhampton (OS grid reference SU 693 062) and is designated as a SINC site. The eastern boundary comprises residential buildings with gardens, beyond which lies the major infrastructure associated with the A27 and A3M. The southern corner of the proposed site borders Havant Road (A2030), and the proposed western boundary intersects the middle of the arable field and hence arable land lies beyond the western boundary. The northern boundary lies residential development beyond which lies Portsdown Hill Road. In the centre of the northern boundary within a residential garden which lies over the boundary, it is understood that a former chalk quarrying area is present which is now heavily vegetated.



Portsdown Hill, Havant: Bat Activity Survey

The majority of the site is part of a large arable field, with an area of heavily grazed horse paddocks (improved grassland with scattered scrub) and associated run-down timber sheds occupying the north east corner of the site.

The site is identified in the emerging Local Plan (Allocations) and David Wilson Homes is proposing to construct 47 new houses with associated access and recreational space within the proposed site boundary.

Refer to Figure 1, Appendix A for a plan of the site.

1.3 Planning guidance: Natural England's standing advice

The National planning policy Framework (NPPF) sets out the principles which Local Planning Authorities (LPA's) should adhere to when considering planning applications. These include:

- *Planning decisions should be based upon up-to-date information about the environmental characteristics of their areas. These characteristics should include the relevant biodiversity and geological resources of the area. In reviewing environmental characteristics local authorities should assess the potential to sustain and enhance those resources.*
- *Planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests. In taking decisions, local planning authorities should ensure that appropriate weight is attached to...protected species; and to biodiversity and geological interests within the wider environment.*
- *The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put in place. Where a planning decision would result in significant harm to biodiversity and geological interests which cannot be prevented or adequately mitigated against, appropriate compensation measures should be sought. If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.*

The NPPF also provides the following advice:



Portsmouth Hill, Havant: Bat Activity Survey

It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development. Where this is the case, the survey should be completed and any necessary measures to protect the species should be in place, through conditions and/or planning obligations, before the permission is granted.

Natural England's standing advice to LPA's follows the principles and advice set out in the NPPF. Where there is a reasonable likelihood that a protected species being present, sufficient information (in the form of species surveys) should be undertaken before the planning application is considered.

Furthermore, in terms of national conservation policy, seven of the 18 British species of bat are Priority Species covered by Biodiversity Action Plans (BAPs) of which, noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteinii*) and brown long-eared bats (*Plecotus auritus*) might be expected to be found on/in proximity to the site. These BAPs highlight the importance of certain habitats to species, detail the threats they face and propose measures to aid in the reversal of declines.

The effects of development proposals should be considered when assessing the impact of the maintenance of favorable conservation status of local bat populations, especially those mentioned on the BAP. The presence of BAP species is a material consideration in determining a planning application and it is therefore appropriate for the LPA to ensure that these species are not adversely affected by development.

Barbastelle, serotine (*Eptesicus serotinus*), Bechstein's, soprano pipistrelle and greater horseshoe (*Rhinolophus ferrumequinum*) bats are listed on the Hampshire BAP. The Hampshire BAP species are of material consideration in the determination of the planning application.

1.4 Legislative considerations

All 18 British bat species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and under Schedule 2 of the *Conservation of Habitats and Species (Amended) Regulations 2012* as



Portsdown Hill, Havant: Bat Activity Survey

European protected species. Furthermore, the *Countryside and Rights of Way Act 2000* (Schedule 12, Paragraph 5) has amended Section 9 of the 1981 Act. They are, therefore, fully protected under Section 9 of the 1981 Act and under Regulation 41 of the *Conservation of Habitats and Species (Amended) Regulations 2012* which transposes the Habitats Directive into UK law.

This makes it an offence to:

- Deliberately capture, injure or kill any bat;
- Deliberately disturb bats, in particular where it is likely to:
 - Impair their ability to breed or reproduce, or to rear or nurture their young;
 - Impair their ability to hibernate or migrate; or
 - Affect significantly the local distribution or abundance of bats.
- Intentionally or recklessly damage, destroy or obstruct the access to the place of shelter or protection; and
- Damage or destroy a bats breeding site or resting place.

Unmitigated removal of linear corridors such as grassland field margins and increases in habitat disturbance (through lighting, noise and vibration impacts) during construction and operational phases of a proposed development could indirectly impact bats that use the site to forage and commute.

Furthermore direct impacts to bats may occur through road traffic mortalities in the operational phase of a proposed development. Such indirect and direct impacts could result in an offence being committed.



2.0 Methodology

2.1 Data Search

As part of the extended Phase 1 habitat survey completed by WYG in August 2013, site and species specific information was sourced through direct consultation with the Hampshire Biodiversity Information Centre (HBIC). HBIC provided information in relation to the presence of protected species, designated sites and areas of particular regional, national or international importance within 2km of the site.

2.2 Bat Activity Survey

According to the guidance set out in the Bat Conservation Trust's *Bat Surveys: Good Practice Guidelines, 2nd Edition* (2012), Portsdown Hill, Havant is a medium-sized site (site area 1 - 15ha) and the habitat on site was considered to be of 'low habitat quality' as it is predominantly arable and horse grazed pasture. Based on this, one transect per season (Spring, Summer and Autumn) was recommended. However, due to the timescales of the project, bat activity surveys were carried out during August and September 2013. This approach was verbally agreed with the Local Planning Authority and therefore it is considered that the survey data is sufficient to support the planning application.

Activity surveys were carried out on 22nd August, 10th September and 26th September 2013. Two surveyors were used for each survey, walking one transect route, which incorporated habitat likely to be used by foraging and commuting bats such as grassland, scattered trees and scrub.

Dusk surveys commenced 15 minutes prior to sunset and concluded approximately two and a quarter hours after. Weather conditions (temperature, precipitation and wind speed) were recorded on each survey.

The surveyors made a note of bat activity, using both visual observation and audio bat detectors to identify foraging and / or commuting behaviour. Surveyors recorded the time and a description of any activity. Additionally, where bats could be seen, the patterns / directions of the bats' flight were also recorded. Surveyors were all qualified ecologists and experienced at undertaking bat surveys. All surveyors used a Batbox Duet (frequency division and heterodyne) bat detector or a Pettersson (time expansion) bat detector and walked along the transect routes at a steady pace. The direction in which the transect was walked varied between survey visits to record activity in different locations at different times. Surveyors also stopped in a number of fixed locations along the transect route. Any notable calls were recorded on Zoom H2 digital audio recorders and later analysed using specialist software (BatSound) on a PC. The



Portsdown Hill, Havant: Bat Activity Survey

recordings and the field notes were used to help build a picture of bat use across the site and to identify areas of relatively higher use.

2.3 Automated bat activity surveys

In accordance with BCT (2012) guidelines, it is recommended that automated bat detectors (Song Metre 2) are left at the site for three nights per season. However, due to the timescales of the project, automated bat detectors were left at the site for a minimum of three consecutive nights on three occasions during August and September to record bat passes at one location along the transect. The automated bat detector was not always collected after three nights and therefore a greater amount of data has been collected overall. These were analysed to gain further information on the species present and relative amount of activity through the night. Locations of the transect route and SM2 placements are shown in Figure 1, Appendix A.

2.4 Weather Conditions and Timings for Nocturnal Bat Survey

Table 1 shows the survey dates, times and weather conditions during each of the surveys. All weather conditions taken from the Met Office website (www.metoffice.gov.uk) and temperatures were taken using a thermometer at the start of each survey.

Table 1. Weather conditions during nocturnal bat surveys

Date	Dusk times	Survey Time(s)	Weather
22/08/2013	20.17	20:02 – 22:32	18°C; 0% cloud cover; still; no precipitation
10/09/2013	19.30	19.15 – 21.45	21°C; 40% cloud cover; light breeze; no precipitation
26/09/2013	18.55	18.40 – 21.10	18°C; 20% cloud cover; light breeze; no precipitation

2.5 Value of the on-site protected species population in a wider ecological context

The assessment of the value of the bat population on site is based on the article in the Institute of Ecology and Environmental Management (IEEM) In Practice magazine – *Valuing Bats in Ecological Impact Assessment*, No. 70, December 2010. Where bats (species and number) are found using certain habitats

Portsdown Hill, Havant: Bat Activity Survey

(to roost, commute or forage) their population is assigned a relative ecological value. The value to the species is partly based upon how well used a habitat is and also upon how rare the bat species is. In the case of commuting routes or foraging areas the number of roosts nearby is also a factor. Once the value of the bat population has been calculated, robust mitigation for any impact on the bats can be determined.

British bat species have been subdivided into groups, dependant on how common they are; common, rarer and rarest. These were further subdivided based upon the location surveyed, as shown in the table below. Tables have been adapted from *Valuing Bats in Ecological Impact Assessment* (IEEM).

Table 2. Categorising Bats by Distribution and Rarity in England

Rarity	Country
	England
Rarest	Greater horseshoe Bechstein's Alcathoe Greater mouse-eared Barbastelle Grey long-eared
Rarer	Lesser horseshoe Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' pipistrelle Serotine
Common	Common pipistrelle Soprano pipistrelle Brown long-eared

The value assigned for rarity is combined with the type of roost found to give a value for bats as an ecological receptor, as detailed in the table below.

Table 3. Valuing Bat Roosts

Geographic frame of reference	Roost types
District, Local or Parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small number of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well-used swarming sites Maternity sites (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting Sites of Special Scientific Interest (SSSI) guidelines
International	Special Areas of Conservation (SAC) sites

To calculate the score for either commuting routes or foraging areas the numerical values from each column below are added together. These are detailed in tables below.

Table 4. Valuing Commuting Routes

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

Table 5. Valuing Foraging Areas

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

Finally, for commuting routes and foraging areas the ecological value is based upon the following scoring system.

Table 6. Scoring system for valuing commuting and foraging bats

Geographic frame of reference	Score
International	>50
National	41-50
Regional	31-40
County	21-30
District, local or parish	11-20
Not important	1-10



3.0 Survey results

3.1 Data Search

HBIC returned bat records for the following species within 2km of the site: serotine (*Eptesicus serotinus*), unidentified Myotis bat (*Myotis* sp.), Daubenton's (*Myotis daubentonii*), noctule (*Nyctalus noctula*), unidentified pipistrelle (*Pipistrellus* sp.), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared (*Plecotus auritus*).

The closest record is an unidentified pipistrelle, located approximately 0.57km west of the site. There are no indications within the data set of whether the record is a bat roost or a sighting.

The brown long eared bat is a UKBAP priority species, and serotine and pipistrelle bats are Hampshire BAP species.

See Appendix B for the full data search.

3.2 Activity transects

22nd August 2013

During the dusk activity survey undertaken on 22nd August 2013, three species of bat were recorded foraging and commuting at the site, comprising common pipistrelle, noctule and serotine. The first bat, a common pipistrelle, was recorded at 20.40, 23 minutes after sunset, commuting south from beyond the northern boundary of the horse-grazed paddocks, located within the north-east of the site. A moderate level of bat activity was recorded at the site, with bat passes recorded intermittently for the duration of the survey. Bat activity was recorded within all suitable habitats on the site, comprising the horse-grazed paddocks and hedgerow and grassland arable field boundaries. The highest level of bat activity was recorded within the horse-grazed paddocks, with up to two bats recorded commuting together at any one time. Refer to Figure 2, Appendix A for a plan showing bat activity during this survey.

10th September 2013

During the dusk activity survey completed on 10th September 2013, one species of bat, common pipistrelle was recorded. The first bat recorded during the survey was at 20.00, 45 minutes after sunset, commuting in a westerly direction along the hedgerow along the northern boundary of the site. A relatively low level of

Portsdown Hill, Havant: Bat Activity Survey

bat activity was recorded at the site, with only six bat passes recorded for the duration of the survey, despite optimal weather conditions. Highest levels of bat activity were recorded within the horse-grazed paddock within the north-east of the site but bats were also recorded along the northern boundary of the site. Bats were recorded foraging or commuting individually throughout the survey. Refer to Figure 3, Appendix A for a plan showing bat activity during this survey.

26th September 2013

During the bat activity survey carried out on 26th September 2013, two species of bat were recorded foraging and commuting at the site, comprising common pipistrelle and long-eared bat (likely brown long-eared). The first bat recorded was a soprano pipistrelle at 19.28, 33 minutes after sunset. The bat was recorded echolocating but was not seen, along the northern boundary of the horse-grazed paddocks. A relatively low level of bat activity was recorded at the site, with only thirteen bat passes recorded throughout the survey. Bat activity was recorded within all suitable habitats on the site, comprising the horse-grazed paddocks and grassland arable field boundaries. The highest level of bat activity was recorded within the horse-grazed paddocks. Up to two common pipistrelles were recorded together at any one time throughout the survey. Refer to Figure 4, Appendix A for a plan showing bat activity during this survey.

3.3 Automated bat activity surveys

The automated bat detector (SM2) was placed adjacent to a tree, along the eastern boundary of the site. Up to six species of bat were recorded by the automated bat detectors, comprising common pipistrelle, soprano pipistrelle, serotine, noctule and Myotis (likely whiskered / Brandt's) (*Myotis mystacinus/ brandtii*). The most frequently recorded bat calls were from the common pipistrelle. Table 8 details the species recorded. See Figure 1, Appendix A for the location of the automated bat recorder.

Table 8. SM2 Records

Month	Date	Weather	Species	No. of passes
August	22/08/2013	18°C; wind speed 7.4km/h; clear	Common pipistrelle	6
			Soprano pipistrelle	5
			Whiskered/ Brandt's	1
	23/08/2013	17°C; wind speed 1.9km/h; clear	Serotine	1
	24/08/2013	15°C; wind speed 11.1km/h; clear	Common pipistrelle	6
			Serotine	1
	25/08/2013	15°C; wind speed	Common pipistrelle	3



Portsdown Hill, Havant: Bat Activity Survey

Month	Date	Weather	Species	No. of passes
September	26/08/2013	1.9km/h; partly cloudy	Soprano pipistrelle	3
			Whiskered/ Brandt's	1
		15°C; wind speed 3.7km/h; partly cloudy	Common pipistrelle	2
			Soprano pipistrelle	6
	10/09/2013	13°C; wind speed 9.3km/h; Partly cloudy	Common pipistrelle	2,784
	11/09/2013	12°C; wind speed 3.7km/h; mostly cloudy	Common pipistrelle	10
			Soprano pipistrelle	2
			Noctule	1
	12/09/2013	17°C; wind speed 5.6km/h; partly cloudy	Common pipistrelle	29
			Soprano pipistrelle	6
	25/09/2013	16°C; wind speed 0km/h; light rain	Common pipistrelle	9
			Soprano pipistrelle	1
	26/09/2013	12°C; wind speed 1.9km/h; partly cloudy	Common pipistrelle	25
	27/09/2013	12°C; wind speed 7.4km/h; clear	Common pipistrelle	13
			Whiskered/ Brandt's	1
	28/09/2013	14°C; wind speed 9.3km/h; clear	Common pipistrelle	24
			Whiskered/ Brandt's	1
	29/09/2013	13°C; wind speed 5.6km/h; mostly cloudy	Common pipistrelle	16
			Soprano pipistrelle	3
	30/09/2013	15°C; wind speed 3.7km/h; mostly cloudy	Common pipistrelle	34
			Soprano pipistrelle	1
			Whiskered/ Brandt's	3

4.0 Interpretation

Up to seven species of bat were recorded using the habitats across the site. The species recorded comprised common pipistrelle, soprano pipistrelle, noctule, serotine, long-eared bat (likely brown long-eared) and Myotis (likely whiskered / Brandt's).

Common pipistrelles were the most frequently encountered bat species during both the manual transects and on the automated bat recorders, with 2,784 passes of common pipistrelle recorded by the automated bat detector on 10th September 2013. However, as visual sightings of bats were not recorded, it is unknown how many different bats this figure represents as it could have been continuous foraging by a bat up and down the hedgerow.

Over the three bat activity survey visits, transects were walked within all areas of suitable bat foraging and commuting habitat. This comprised the arable field margins, which were made up of grassland and scattered trees and the horse-grazed paddocks, comprising improved grassland and scattered trees. Higher levels of bat activity were generally recorded within the horse-grazed paddocks within the north-east of the site. The automated bat detector recorded moderate to high levels of bat activity.

There was a mixture of both foraging and commuting activity on the site throughout the surveys, along field boundaries and grassland areas. Bats recorded during the surveys were mainly 'common' species (refer to Table 2 above), including common pipistrelle, soprano pipistrelle and brown long-eared bat. However, 'rarer' species were also encountered, including noctule, serotine, and whiskered/ Brandt's. Based on the assessment in Table 4, the commuting bat score on site is 18; therefore, the commuting bat value on site is considered to be of district, local or parish level. Based on the assessment in Table 5, the foraging bat score on site is 16; therefore, the foraging bat value on site is considered to be of district, local or parish level.

4.1 Limitations to survey

The bat activity surveys and automated bat surveys were undertaken between August and September. Although a bat activity survey was not undertaken in the spring, additional data was collected during the autumn and therefore this is not considered to represent a significant limitation.



Portsdown Hill, Havant: Bat Activity Survey

Some bat species, such as some *Myotis* species, are more difficult to detect as their calls are quieter than other bats such as *Pipistrelle* species. As such, the louder bats are likely to have been identified more often than quieter species, which may have been under recorded.

The activity survey results will remain valid for approximately two years (i.e. until September 2015). It may be necessary to consider updating the survey after this time, or if either the development impacts or the habitat conditions on site change within two years. This will help to establish if bat activity has changed in the interim period and to inform future mitigation measures, if necessary.

The behaviour of animals can be unpredictable and may not conform to standard patterns recorded in current scientific literature. This report therefore cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.



5.0 Potential Impact of the Development on Bats

5.1 Effects on roosts

The bat activity surveys at the site did not confirm the presence of any bat roosts within the proposed development site. Buildings on site were assessed as offering negligible potential to support roosting bats. No trees on site were assessed as Category 1* or 1 (trees with definite bat potential), although some trees were assessed as Category 2 (trees with no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats). Therefore, there is a low possibility that boundary trees will support a small number of roosting bats. However, measures proposed below will mitigate impacts to roosting bats, in the unlikely event that they are present within the site boundary.

5.2 Effects on foraging / commuting habitat

The development proposals include the construction of residential properties, with associated access, parking and open space. The proposed development will result in the loss of the arable field, horse-grazed pasture and extents of the field boundary habitat, comprising semi-improved grassland. With the exception of the arable field, these habitats have been found to provide habitat for foraging and commuting bats. The site was deemed to be of relatively low value to foraging and commuting bats as it was considered to be only of district value.

The arable field boundaries will be retained along the northern and eastern boundaries. There is the potential for bats foraging and commuting within these areas of retained habitat to be impacted by lighting during the construction and operational phases of the development. Some common bats, such as *Pipistrelle* species, as well as serotine bats, are attracted to certain types of lighting as it attracts their invertebrate prey. However the lighting can illuminate the bats themselves and make them more vulnerable to being predated upon. Where inappropriate lighting occurs close to roost sites, bats may abandon their roost or delay their emergence, which limits their foraging opportunities. A number of the bat species recorded on site, such as *Myotis* species, are more sensitive to lighting impacts and will actively avoid illuminated areas. Therefore, such species may be deterred from using areas of the site, if the lighting is not sensitively designed.

Loud noise and vibrations in the construction phase could potentially disturb roosting bats, where they potentially occur in close proximity to the development footprint. Furthermore noise in the operational



Portsdown Hill, Havant: Bat Activity Survey

phase e.g. from increased public pressure within the area, could further disturb roosting bats and lead to habitat degradation. There is a small possibility that the Category 2 trees identified within the site boundary support roosting bats as such it is possible there may be an impact on roosting bats through noise and vibration during the construction phase if roosts are present, however this is considered unlikely.

During the operational phase there is potential for there to be an increase in predation pressure on roosting bats on site and in the locality through an increase in domestic cats.

Mitigation recommendations to offset the potential development impacts are provided in the following section.



6.0 Recommendations and Mitigation

6.1 Survey Recommendations

The results of the bat activity surveys will remain valid for two years. If works have not commenced by that time, it is recommended that the survey data is considered for updating to determine whether there are any changes to bat roosting, foraging and commuting across the site.

6.2 Avoidance

According to the current proposed masterplan (drawing number 1077401.10), a buffer of hedgerow, grassland and trees will be retained around the boundary of the site and only low level bollard lighting will be used within the residential areas of the site and no lighting columns will be used on the site. There will be no lighting adjacent to the boundary features and hence commuting and foraging bats are not considered to be impacted. It is understood that the lighting across the development footprint will be sensitively designed with bats in mind, so that valuable foraging and commuting areas are retained and existing / new roost sites are not impacted by ambient light.

6.3 Mitigation

In order to maintain the current status of the bats using the site to forage and commute, it is recommended that a suitably qualified ecologist continues to be consulted throughout the design stage so as to help avoid impacts to bats, and where this is not possible, to advise as to suitable mitigation measures.

Through attendance at various design team meetings, the ecologists have inputted into the design of the masterplan and the existing grassland boundaries along the northern and eastern boundaries of the site will be retained.

The following mitigation measures are recommended to help offset the predicted impacts of the development proposals:



6.3.1 Hedgerow retention and enhancement

As indicated on the masterplan (drawing number 1077401.10) (Appendix A) all hedgerows will be retained. It is understood that infill planting of native species will undertaken along the eastern boundary and further hedgerow planting, comprising a diverse mix of native species, is carried out along the western boundary of the site.

6.3.2 Landscaping design

A diverse collection of native planting will be incorporated into the landscaping design within the proposed development site (refer to Appendix C for recommended 'bat' plants). Structurally diverse vegetation and inclusion of native evening-blooming plants will attract insects which in turn will help to enhance the site for foraging bats. Areas of long wildflower grassland will be planted around the boundaries of the site, increasing invertebrates and foraging resources for bats.

6.3.3 Lighting

The lighting across the development footprint should be sensitively designed with bats in mind, so that valuable foraging and commuting areas are retained and existing / new roost sites and foraging/ commuting areas are not impacted by ambient light. Permanent lighting on site should be minimised in proximity to any areas of habitat to be retained or created.

Where illumination is unavoidable, the following measures should be considered in order to avoid disrupting bat commuting corridors and foraging areas. Refer to the BCT 'Bats and Lighting' document for further details:

- i) Careful aiming, placement and mounting of luminaires
- ii) Minimising column heights and mounting of multiple luminaires on single columns in order to reduce column numbers
- iii) Post installation light monitoring.

Other possible mitigation measures could include:

- i) illuminated road studs instead of lighting columns;
- ii) glass lantern covers to filter UV light;



Portsdown Hill, Havant: Bat Activity Survey

- iii) flat lantern covers result in less light spill than dished covers;
- iv) reduced brightness of lights;
- v) increased spacing of lanterns;
- vi) timed lighting to provide dark periods;
- vii) directional lighting, using hoods, cowls, louvres and shields;
- viii) avoid using reflective surfaces under lights; and
- ix) use temporary close boarded fencing to shield light until dense vegetation is established for screening.

6.3.4 Construction Recommendations

It is recommended that construction activity in proximity to retained hedgerows ceases at sunset, if not before, to avoid delaying the emergence of locally roosting bats.

6.4 Enhancement

Whilst enhancement is not a legal requirement, it is encouraged on site as it helps to meet the government objectives for planning to protect and enhance biodiversity, in accordance with the *National Planning Policy Framework (NPPF)*.

A number of the measures outlined in the mitigation section, such as the planting of 'bat-friendly' plants have the potential to enhance the site for bats.

6.4.1 Artificial roost provision

Additional measures to enhance the site for bats include the provision of artificial bat roosts, which can be attached to trees that are being retained on the proposed development site. Eight bat boxes will be installed on four mature trees along the northern boundary of the site. At least one bat box on each tree will face in a southerly direction as shown in Figure 5, Appendix A.

Numerous types of artificial bat roost and access provision are available and can be easily installed onto retained trees to benefit local bats. Information regarding commonly used bat boxes is provided in



Portsdown Hill, Havant: Bat Activity Survey

Appendix D. Artificial roosts should face to the south-west or south-east if possible and should not be illuminated. It is recommended that eight bat boxes are installed on four trees within the proposed development site.

Tree bat boxes should be sited as high as possible (no lower than 2m) and clear of any overhanging branches so that the bats have direct and easy access to them. Two boxes will be erected facing in differing directions around the trunk of the tree, so that if one box gets too hot or cold the bats can move to another. Boxes should be attached to the tree using an aluminium nail or tied in position using wire/leather. The following Schwegler bat boxes can be installed on retained trees: General Purpose Bat Box 2F, Bat Box 1FF and Bat Box 1FD, which are suitable for brown long-eared, noctule, common pipistrelle and soprano pipistrelle bats. There are many other alternative suitable bat boxes, of varying price, on the market. Bat box products can be sourced directly from the supplier (e.g. Schwegler) or can be obtained through wildlife equipment websites such as Wildcare: <http://www.wildcareshop.com/index.php>.



7.0 References

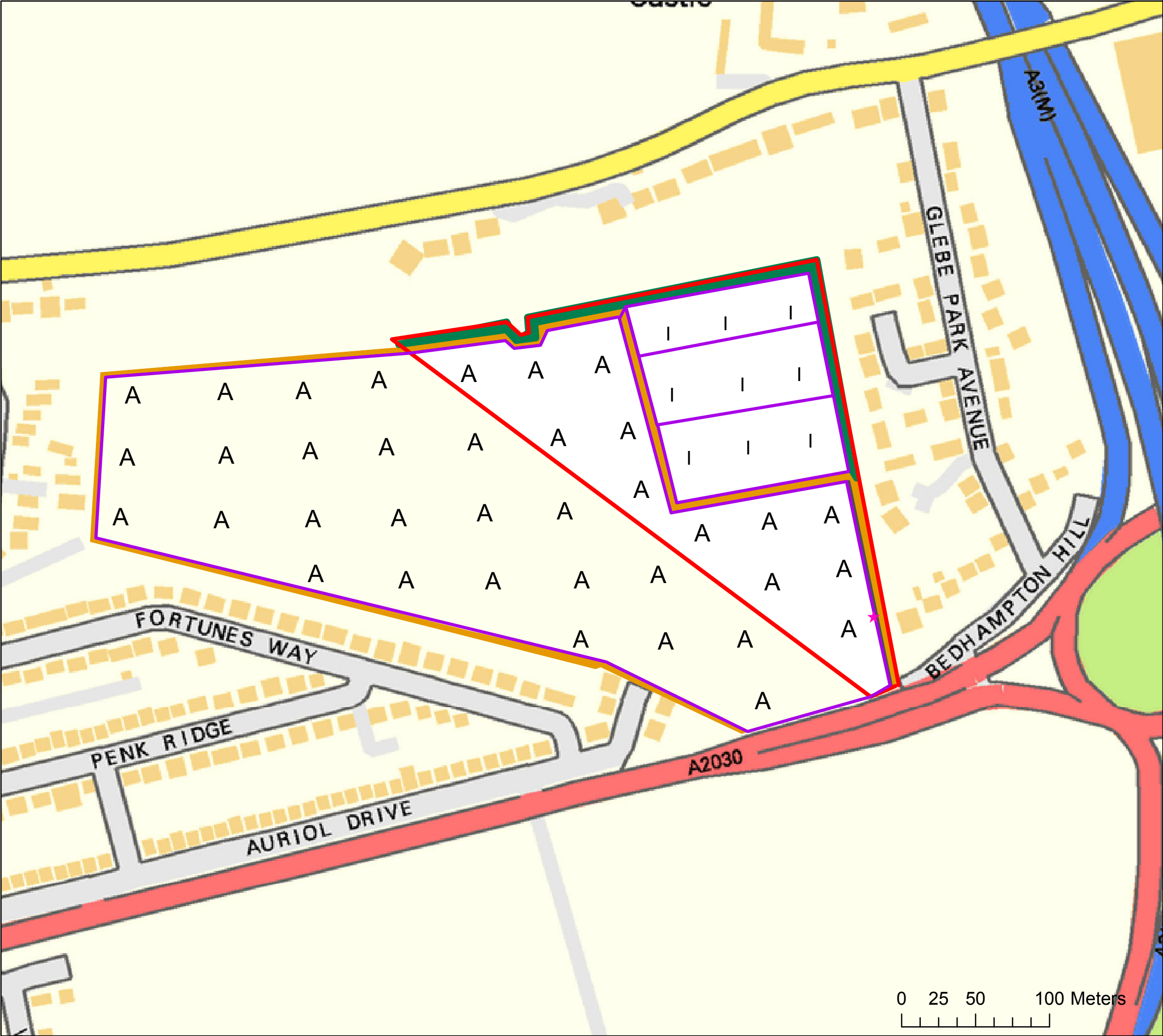
- A. J. Mitchell-Jones (2004). *Bat Mitigation Guidelines*. English Nature
- Bat Conservation Trust (2012). *Bat Surveys: Good Practice Guidelines 2nd edition*. London
- Bat Conservation Trust (2008). *Bats and Lighting in the UK*. Bats and the Built Environment Series
- Department for Communities and Local Government (2012). *National Planning Policy Framework (NPPF)*
- Wray, S *et al.* (2010). *Valuing Bats in Ecological Impact Assessment*. IEEM - In Practice.
- WYG (2014) Portsdown Hill, Havant: Extended Phase 1 Habitat Survey



APPENDICES



Appendix A - Figures



N

Legend

Site boundary

Transect route

Location_of_SM2

A

Arable field

I

Improved grassland

Semi-improved grassland

Species poor hedgerow

Track

The Loft,
St Clair's Farm,
Wickham Road,
Droxford, Hants,
SO32 3PW

Tel: 01489 872929
Fax: 01489 872939
email: ecology@wyg.com

creative minds safe hands

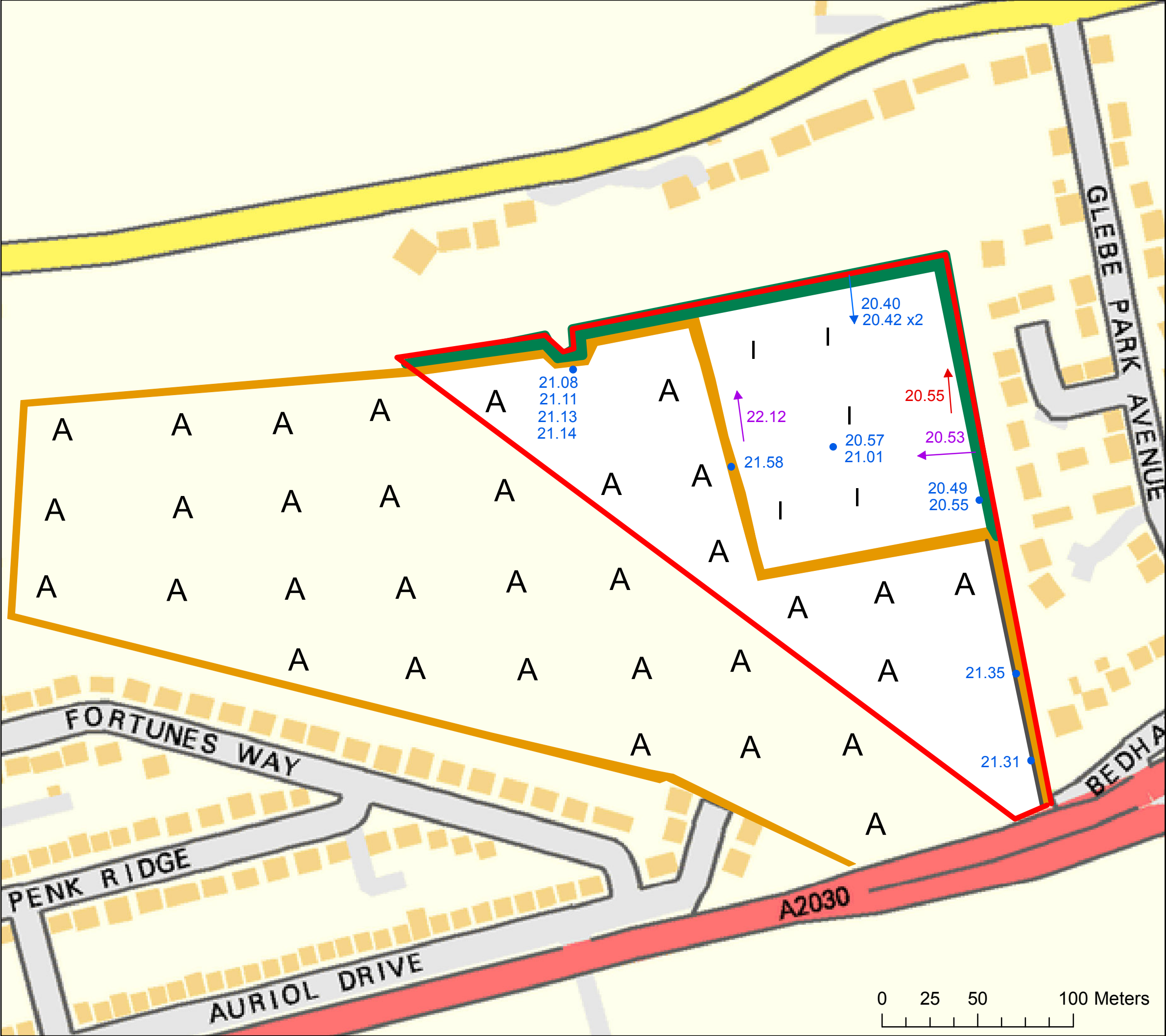
WYG Environment

Portsmouth Hill, Havant

Bat Activity Transect Route
and Location of SM2

Project No:		Drawn by:	Date:	Checked By:	Date:	Approved By:	Date:
A083733		VC	29/10/13	CM	29/10/13	CM	29/10/13
Office		Type	Revision				
45		94	Figure 1				

This map is produced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of HMSO. Crown Copyright



Legend

- Site boundary
- Common pipistrelle
- Common pipistrelle heard and not seen
- Noctule
- Serotine
- A Arable field
- I Improved grassland
- Semi-improved grassland
- Species poor hedgerow
- Track

The Loft,
St Clair's Farm,
Wickham Road,
Droxford, Hants,
SO32 3PW

Tel: 01489 872929
Fax: 01489 872939
email: ecology@wyg.com



WYG Environment

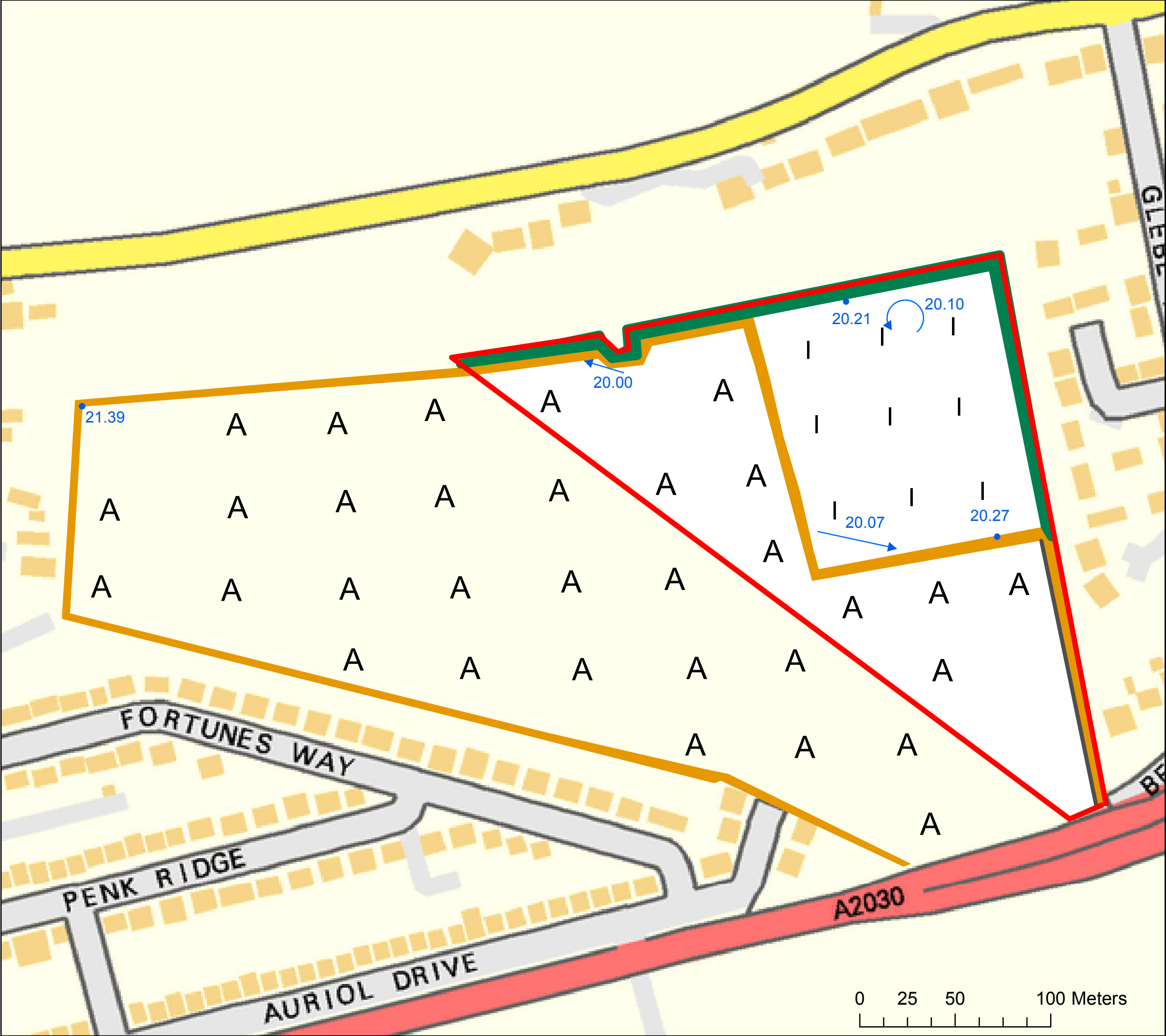
creative minds safe hands

Portsmouth Hill, Havant

Dusk Bat Activity Survey 22nd August 2013

Project No: A083733	Drawn by: Date: VC 29/10/13	Checked By: Date: CM 29/10/13	Approved By: Date: CM 29/10/13
	Office 45	Type 94	Revision Figure 2

This map is produced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of HMSO. Crown Copyright



N

Legend

•

Common pipistrelle heard and not seen

→

Common pipistrelle

—

Site boundary

A

Arable field

|

Improved grassland

Semi-improved grassland

—

Species poor hedgerow

—

Track

The Loft,
St Clair's Farm,
Wickham Road,
Droxford, Hants,
SO32 3PW

Tel: 01489 872929

Fax: 01489 872939

email: ecology@wyg.com

WYG Environment

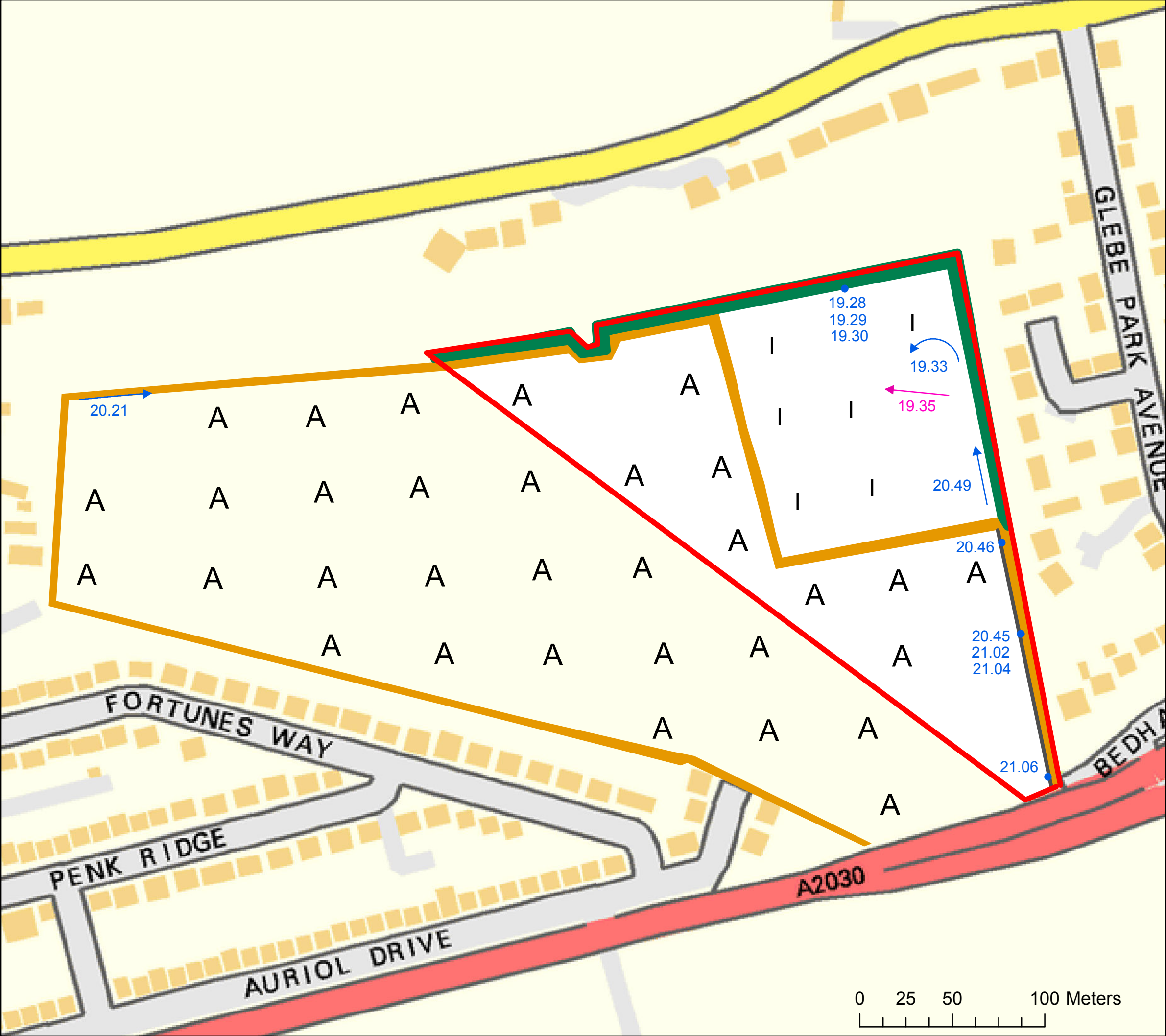
Portsmouth Hill, Havant

Dusk Bat Activity Survey

10th September 2013

Project No:	Drawn by:	Date:	Checked By:	Date:	Approved By:	Date:
A083733	VC	29/10/13	CM	29/10/13	CM	29/10/13
	Office	Type	Figure 3			Revision
	45	94				

This map is produced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of HMSO. Crown Copyright



N

Legend

- Site boundary
- Common pipistrelle
- Common pipistrelle heard and not seen
- Brown long eared bat
- A Arable field
- I Improved grassland
- Semi-improved grassland
- Species poor hedgerow
- Track

The Loft,
St Clair's Farm,
Wickham Road,
Droxford, Hants,
SO32 3PW

Tel: 01489 872929
Fax: 01489 872939
email: ecology@wyg.com

WYG Environment
Portsmouth Hill, Havant

Dusk Bat Activity Survey
26th September 2013

Project No:	Drawn by:	Date:	Checked By:	Date:	Approved By:	Date:
A083733	VC	29/10/13	CM	29/10/13	CM	29/10/13
	Office		Type			Revision
	45		94	Figure 4		

This map is produced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of HMSO. Crown Copyright



Legend

■ Bat box

0 25 50 100 Metres

The Loft, St Clair's Farm
Wickham Road
Droxford
Hants
SO32 3PW

Tel: 01489 872929
 Fax: 01489 872939
 email: ecology@wyg.com



WYG Planning & Environment

creative minds safe hands

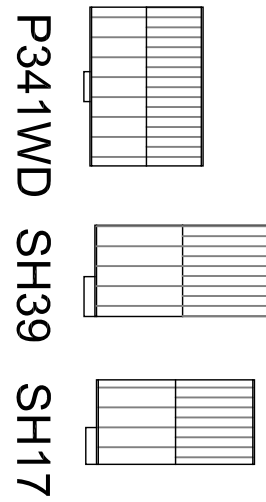
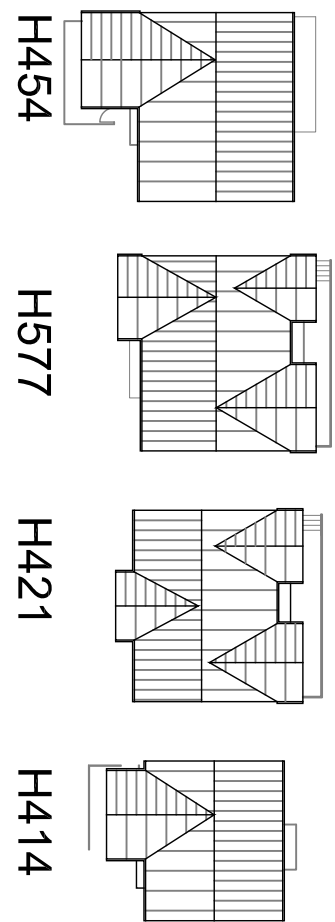
Portsmouth Hill, Havant

Proposed bat box locations

		Drawn by: Date:	Checked By: Date:	Approved By: Date:
		EH 18/02/14	CM 18/02/14	CM 18/02/14
Project No:	Office	Type	Drawing No.	Revision
A083733	45	94	Figure 5	

Base map provided by David Wilson Homes

HOUSE TYPES



Electricity sub station



SCHEDULE OF ACCOMMODATION

TOTAL FLOORSPACE =69,868sqft / 6,430sqm					
NAME	BEDS	SIZE (sqft)	STOREYS	NO.	TOTAL (sqft)
H454 Por.	4	2085	2	5	10,425
H577 Por.	5	1972	2	10	19,720
H421 por.	4	1771	2	9	15,939
H414 por.	4	1406	2	7	9,842
P341WD Por.	3	1001	2	2	2,002
PRIVATE				33	57,928
SH39 Por.	3	930	2	8	7,440
SH17 Por.	2	750	2	6	4,500
AFF.				14	11940
TOTAL				47	69,868



REVISION	DATE	COMMENTS	AUTHOR	CHECKED
----------	------	----------	--------	---------

TITLE
PORTDOWN HILL
HAVANT

DEFINITION
MASTER PLAN

DATE
FEB 2014

SCALE
1:300 @A1

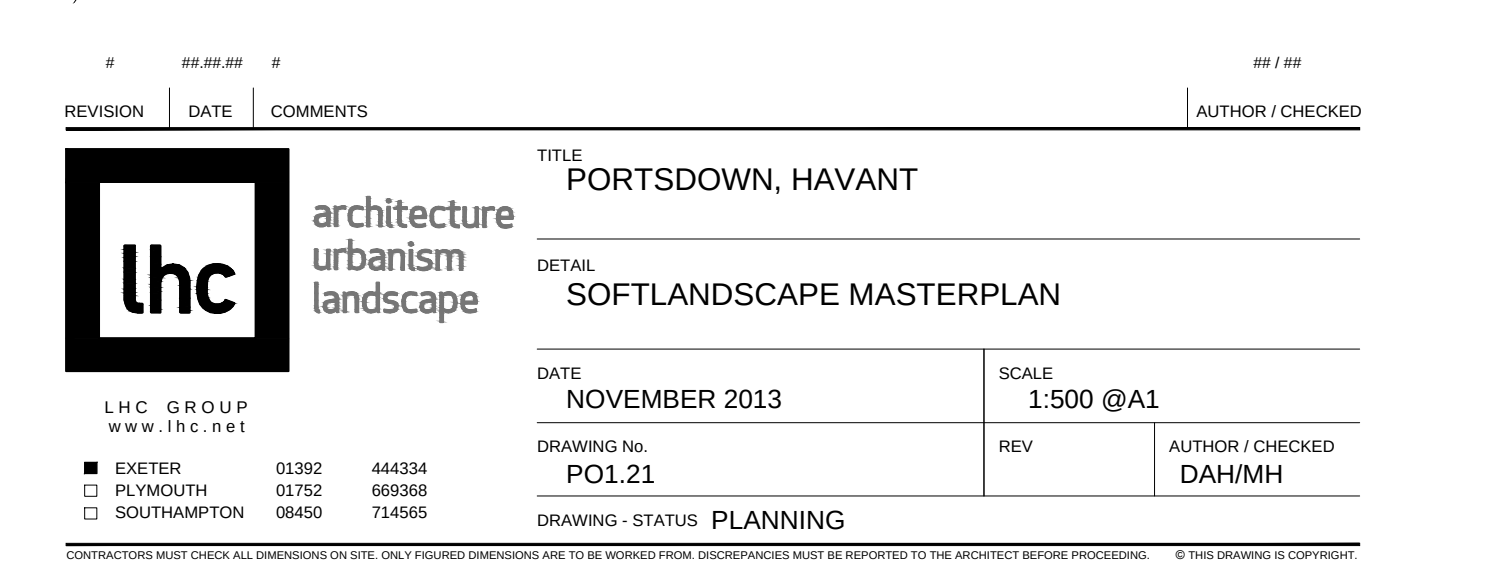
AUTHOR
MH / DMH

REVISION
DATE
COMMENTS
AUTHOR
CHECKED

lhc
architecture
urbanism
landscape

LHC GROUP
WWW.LHC.NET
01922 444334
01703 444334
01703 714665
SOUTHAMPTON 08400 714665

DATE
FEB 2014
DRAWING NO.
10774 01-10
DRAWING - STATUS
PLANNING





Appendix B – Data search results



Portsdown Hill, Havant: Bat Activity Survey

Taxon Name	Common Name	Status	Grid ref.	First Year	Last Year	No. of records	Max Count
<i>Eptesicus serotinus</i>	Serotine	Sensitive EU_Hab_4	SU6804	2005	2005	1	3
		HBAP WCA_s5s94b WCA_s5s94c HabReg_s2	SU7006	2008	2008	1	0
<i>Myotis</i>	Unidentified Bat	Sensitive WCA_s5s94b WCA_s5s94c HabReg_s2	SU7006	2008	2008	1	1
<i>Myotis daubentonii</i>	Daubenton's Bat	Sensitive EU_Hab_4 WCA_s5s94b WCA_s5s94c HabReg_s2	SU6805	2012	2012	1	1
<i>Nyctalus noctula</i>	Noctule Bat	Sensitive EU_Hab_4 NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU6804	2004	2005	2	10
			SU6804	2005	2005	1	10
			SU6805	2012	2012	1	1
			SU7006	2008	2008	1	1
			SU7006	2011	2011	4	1
<i>Pipistrellus</i>	Pipistrelle Bat species	Sensitive WCA_s5s94b WCA_s5s94c HabReg_s2	SU675058	1998	1998	1	1
			SU685055	1999	1999	2	0
			SU685071	1998	1998	1	3
			SU688062	1999	2000	2	2
			SU703072	2002	2002	1	1
			SU704072	2002	2002	1	0



Portsdown Hill, Havant: Bat Activity Survey

			SU704077	2003	2003	1	1
			SU708062	2011	2011	4	2
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	Sensitive EU_Hab_4 HBAP WCA_s5s94b WCA_s5s94c HabReg_s2	SU685042	2005	2005	1	5
			SU685042	2005	2005	1	5
			SU685045	1963	1999	2	0
			SU685045	1963	1999	2	0
			SU686051	2012	2012	1	1
			SU686051	2012	2012	1	1
			SU701058	2008	2009	2	1
			SU701058	2008	2009	2	1
			SU707060	2008	2009	3	1
			SU707060	2008	2009	3	1
			SU708062	2011	2011	3	2
			SU708062	2011	2011	3	2
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	Sensitive EU_Hab_4 HBAP NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU685042	2005	2005	1	10
			SU686051	2012	2012	1	1
			SU701058	2008	2008	2	1
			SU707060	2008	2009	3	1
			SU708062	2011	2011	4	1
<i>Plecotus auritus</i>	Brown Long-eared Bat	Sensitive EU_Hab_4 NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU686051	2012	2012	1	1



Appendix C – Native/Wildlife Friendly Plant Species

Portsdown Hill, Havant: Bat Activity Survey

Gardening for bats

Aim at having flowers in bloom through the year, including both annuals and herbaceous perennials. Below are some suggestions, but this is by no means an exhaustive list. See what grows well in YOUR garden, and what seems most attractive to insects. Flowering times are approximate, varying in different areas. Regular dead-heading extends flowering period in many flowers. A=annual, HA=hardy annual, HHA=half-hardy annual, P=perennial, W=wild flower.

Flowers for borders			
St John's Wort	<i>Hypericum</i>	P	March- March - Oct.
marigolds	<i>Calendula</i>	H/A	P
aubretia	<i>a. deltoidea</i>	P	March-June
honesty	<i>Lunaria rediva</i>	HB	March
forget-me-not	<i>Myosotis sp.</i>	A/P	March - May
elephant ears	<i>Belgeria</i>	P	April
Wallflowers	<i>Erysimum</i>	B	April - June
Cranesbills	<i>Geranium sp</i>	P	May - Sept.
Yarrow	<i>Achillea</i>	P	May -
Poppies	<i>Papaver sp.</i>	A	May - July
Dames violet	<i>Hesperis matronalis</i>	P	May - August
Red Valerian	<i>Centranthus ruber</i>	P	May - Sept.
Poached egg plant	<i>Limnathes</i>	HA	June - Aug.
Knapweed	<i>Centaurea nigra</i>	P	June- Sept.
Phacelia		HA	June - Sept.
Ox-eye daisy	<i>Leucanthemum vulgare</i>	P	June - Aug.
Evening primrose	<i>Oenothera biennis</i>	B	June-Sept.
Candytuft	<i>Iberis umbellata</i>	HA	June - Sept.
Sweet William	<i>Dianthus barbatus</i>	B	June - July
Blanket flowers	<i>Gaillardia</i>	P	June -
Verbena	<i>V. bonariensis</i>	HHA	June - Oct.
Scabious	<i>knausia arvensis</i>	P	July-Aug.
Night-scented stock	<i>matthiola bicornia</i>	HA	July-Aug.
Pincushion flower	<i>Scabious sp.</i>	A/P	July - Sept.
Cherry pie	<i>heliotrope</i>	HHA	July - Oct.
Mexican aster	<i>Cosmos sp.</i>	A/P	July - Oct.
Cone flower	<i>Rudbeckia sp.</i>	A/P	August-Nov.
Mallow	<i>lavatera sp.</i>	P	August-Oct.
Michaelmas daisy	<i>Aster sp.</i>	P	August-Sept.
Ice plant 'Pink lady'	<i>Sedum spectabile</i>	P	Sept.
Herbs - both leaves and flowers are fragrant			
Fennel	<i>Foeniculum vulgare</i>		July - Sept.
Bergamot	<i>Monarda didyma</i>		June - Sept
Sweet Cicely	<i>Myrrhis odorata</i>		April - June
Hyssop	<i>Hyssopus officinalis</i>		July - Sept
Feverfew	<i>Tanacetum parthenium</i>		June - Sept.
Borage	<i>Borago officinalis</i>		May - Sept.

Rosemary	<i>Rosemary officinalis</i>		March - May
Lemon balm	<i>Melissa officinalis</i>		
Coriander	<i>Copriatum sativum</i>		June - August
Lavenders	<i>Lavendula sp.</i>		
Marjoram	<i>Origanum sp</i>		
Trees, shrubs and climbers important to insects			
Oak	<i>Quercus sp.</i>	large gardens only	
Silver birch	<i>Betula pendula</i>		
Common alder	<i>Alnus glutinosa</i>	Suitable for coppicing	
Hazel	<i>Corylus avellana</i>	Suitable for coppicing	
Elder	<i>Sambucus nigra</i>	Small	
Pussy willow	<i>Salix caprea</i>	Suitable for coppicing	
Hawthorn	<i>Crataegus monogyna</i>	Suitable for coppicing	
Honeysuckle	<i>Lonicera sp.</i>	grow a variety for succession.	
Dog rose	<i>Rosa canina</i>	Climber	
Bramble	<i>Rubus fruticosus</i>	Climber	
Ivy	<i>hedera helix</i>	Climber	
Buddleia	<i>Buddleia davidii</i>	shrub	
Guelder rose	<i>Viburnum opulus</i>	shrub	
Gorse	<i>Ulex sp.</i>	shrub	
Plants for pond edges and marshy areas			
Purple loosestrife	<i>Lythrum salicaria</i>	W	June - Aug.
Meadow sweet	<i>Filipendula ulmaria</i>	W	June - Sept.
Lady's smock	<i>Cardamine pratensis</i>	W	April - June
Water mint	<i>mentha aquatica</i>	W	July - Sept.
Angelica	<i>Angelica sylvestris</i>	W	July - Sept.
Hemp agrimony	<i>Eupatorium cannabinum</i>	W	July - Sept.
Marsh marigold	<i>Caltha palustris</i>	W	March - May
Creeping Jenny	<i>Lysimachia nummularia</i>	W	May - August
Fringed water lily	<i>Nymphoides peltata</i>	W	June - Sept.
Water forget-me-not	<i>Myosotis scorpioides</i>	W	June - Sept.

Allow part of your lawn to grow long in summer and cut in autumn, removing the clippings. Avoid using fertilizers. Compost heaps are good producers of insects too.

Add a seat to watch your garden come to life!



Appendix D – Bat Boxes, Bricks and Tubes

BAT BOXES FOR TREES



Woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability. They are long lasting (approx. 25 years) and are rot- and predator-proof. Hang from a tree branch near the trunk, or fix to a trunk with the supplied 'tree-friendly' aluminium nail. This box is attractive to the smaller British bats.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture)

Diameter: 16cm

Height: 33cm

Weight: 4kg

HIBERNATION BOX FOR CREVICE DWELLING SPECIES



This box is designed to provide a protected environment, particularly through the cold winter months when bats hibernate. It has three internal wooden panels imitating crevices.

Schwegler woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability. They are extremely long lasting and rot- and predator-proof.

This very heavy box (30kg) is supplied complete with special fixing brackets. It is important to fit it very securely if mounting above the ground, and to site it well away from public areas.