



Kingscroft Farm &
adjacent former
allotments, Ranelagh
Road, Havant,
Hampshire, PO9 1NR

Ecological Assessment Report

April 2012

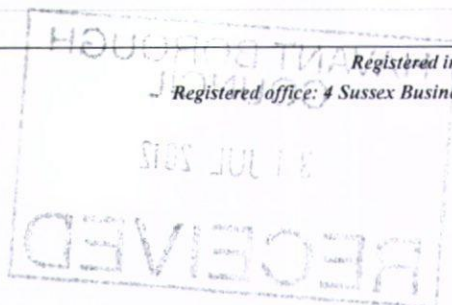
Hampshire Ecological Services Ltd
Consultant Ecologists & Chartered Environmentalists

91 Ethelburt Avenue, Southampton, Hants SO16 3DF

E: enquiries@hantsecology.co.uk

T: 0771 456 8361

F: 0871 266 8127



Registered in England Company No. 7316076.

Registered office: 4 Sussex Business Village, Lake Lane, Barnham, W. Sussex PO22 0AL

Ecological Assessment Report
Kingscroft Farm, Ranelagh Road, Havant, Hampshire, PO9 1NR
for
Orchard Homes

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		VICTORIA RUSSELL Senior Ecologist		JOHN POLAND Principal Ecologist	
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		VICTORIA RUSSELL Senior Ecologist		JOHN POLAND Principal Ecologist	
2	02/04/12		30/03/12		
		VICTORIA RUSSELL Senior Ecologist			

This report represents sound industry practice; reports and recommends correctly, truthfully and objectively; is appropriate given the local site conditions; scope of works proposed and resources allocated to us by the client; and avoids invalid, biased, and exaggerated statements.

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EXECUTIVE SUMMARY

1. This report provides information from ecological surveys for Orchard Homes in connection with a proposal to demolish the existing buildings (stables) and build new dwellings on the site at Kingscroft Farm and adjacent former allotments, Ranelagh Road, Havant, Hampshire, PO9 1NR (approximate Ordnance Survey Grid Reference SU708062). The site includes the stables and horse pastures of the farm and the adjacent former allotments on Ranelagh Road.
2. An initial ecological assessment of the site was carried out on the 9th September 2010 by John Poland CEnv MIEEM CBiol MSB. This identified the need for reptile and bat surveys.
3. Six bat emergence surveys were carried out on the 16th and 28th September 2010 and the 23rd, 24th, 25th and 30th August 2011, using a minimum of four ecologists (the buildings were too numerous to cover in one evening).
4. A single common pipistrelle was observed emerging from Building B on the 16th September 2010. A common pipistrelle was also observed emerging from Building J on the 30th August 2011. In addition, common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), noctule (*Nyctalus noctula*) and a *Myotis* bat (*Myotis* species) were recorded commuting and foraging on site. The raw data is given in *Table 4.3.1.1.* and bat activity maps are given in *Figures 4-9* in *Section 6.*
5. Two of the buildings (Buildings B and J) have evidence of roosting bats (a common pipistrelle was seen emerging from both). Therefore before any works can be undertaken on these buildings a European Protected Species (EPS) licence for bats would need to be obtained (see *Section 5.7*). Although there was eye-witness accounts of a baby bat being rescued on site earlier in the year, the emergence (and internal) surveys showed no evidence of a maternity colony on site.
6. Forty-six reptile refugia (heavy-duty roofing felt) were placed in suitable habitat on the Kingscroft Farm part of the site on the 16th September 2010. Seven visits to determine presence/ absence of reptiles were carried out between the 22nd and 28th September 2010. Subsequently forty two reptile refugia were placed in suitable habitat on the former allotments on the 2nd September 2011. These had to be repositioned following disturbance and removal on the 9th September 2011. There was continuing removal of the artificial refugia over the survey period resulting in only twenty-nine remaining by the end of the survey.
7. A low population of slow-worms was recording using the edges of the farm and allotment (see *Figure 10* in *Section 6*). A suitable receptor site will need to be selected.
8. There are two waterbodies within 500m of the site. One is a lake c.220m to the east of the site. However it is separated from the site by barriers to great crested newt movement including Brockhampton Road. The other is a pond adjacent to an industrial unit c.15m away from the south-east corner of the site.

9. A Habitat Suitability Index and great crested newt survey of the nearest pond (see Photo 8) was completed (insofar as possible – no access permitted) on 21st March 2011 as there was suitable terrestrial habitat (scrub and tall grassland) on site for great crested newt, some of which is close to the pond. In addition, the hedge and scrub dividing the farm from the former allotments is suitable foraging and hibernation habitat for great crested newt.
10. The HSI of the pond was calculated at 0.48 (poor) from public access (and aerial photos/ online Ordnance Survey 1:25,000 maps to assess connectivity and pond density). On balance, it is not thought likely that the pond is occupied by great crested newts. There is also anecdotal evidence of a previous negative survey being completed as part of adjacent Highways Agency works.
11. Hermitage Stream lies to the west of the site. However, it is not sufficiently close for any otters or water voles that may be using it to be directly affected. There were no watercourses on or immediately adjacent to the site.
12. No badger setts or evidence of badger was found.
13. The site is of low value for nature conservation botanically, as it consists of species-poor semi-improved grassland, hardstanding and ruderals. A species list is given in *Appendix A*. No non-native plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* were found.
14. There are three statutory designated sites within 1km of this site, two of which have multiple designations. These are Chichester and Langstone Harbours which are designated as a Ramsar site and a Special Protection Area (SPA). Langstone Harbour is also designated as a Site of Special Scientific Interest (SSSI). In addition, Solent Maritime is a Special Area of Conservation (SAC). All of these areas are on the coast to the south of the site and south of the A27 dual carriageway.
15. The removal of any vegetation with the potential to support nesting birds should be undertaken outside the bird breeding season (late February to August inclusive) to avoid destruction of active bird nests, which is prohibited under the *Wildlife and Countryside Act 1981* (as amended). If this is not possible, and vegetation has to be removed during the nesting season, then it should be inspected (by an ecologist) for nests immediately prior to removal of the vegetation. If there are active nests then they should be retained and work must be delayed until the young have fledged and left the nest.
16. Under Planning Policy Statement 9 (or PPS9) there is a requirement for biodiversity enhancement, the nature of which will depend on the layout of the final scheme.

INTRODUCTION

2.1 Purpose of this report

This report presents the results of ecological surveys carried out by Hampshire Ecological Services Ltd for Orchard Homes in connection with a proposal to demolish the existing buildings (stables) and build new dwellings on the site at Kingscroft Farm and adjacent former allotments, Ranelagh Road, Havant, Hampshire, PO9 1NR (approximate Ordnance Survey Grid Reference SU708062). The site includes the stables and horse pastures of the farm and the adjacent former allotments on Ranelagh Road.

Aerial photographs showing the location of the site are given in *Figure 1*; a map showing the location of the site is given in *Figure 2*; a Phase 1 Habitat map is given in *Figure 3*; maps showing the bat activity during the six emergence surveys are given in *Figures 4-9*; and a map showing the location of the reptile refugia is given in *Figure 10* (see *Section 6*).

A site visit was carried out on the 9th September 2010. In addition, six bat surveys were carried out on the 16th and 28th September 2010 and the 23rd, 24th, 25th and 30th August 2011; and fourteen visits to determine presence/ absence of widespread species of reptile were carried out. The reptile surveys involved seven visits to the farm site between the 22nd and 28th September 2010; and seven visits to the allotment between the 12th and 27th September 2011.

2.2 Ecological context

The site is a broadly rectangular plot consisting of the stables and horse paddocks of Kingscroft Farm and former allotments on Ranelagh Road. It has housing to the north and east, and industrial units to the south. To the west there is Meyrick Road, with fields and Hermitage Stream beyond. Further to the west lies a railway line. It lies on the south-west side edge of Havant to the north of the A27. The surrounding area is principally urban and sub-urban residential housing and industrial units with a small area of farmland to the west and south-west.

2.3 Proposed activities

The surveys were carried out in connection with a proposal to demolish the existing stables and build new dwellings on the site.

2.4 Current planning status

Planning permission is being applied for at this site.

2.5 Structure of this report

This report is structured as follows:

- *Section 1* contains the executive summary;
- *Section 2* contains an introduction;

- *Section 3* describes the survey methods;
- *Section 4* describes the results;
- *Section 5* evaluates the findings;
- *Section 6* contains the figures including:
 - *Figure 1* shows the site location;
 - *Figure 2* gives a map showing the location of the site;
 - *Figure 3* gives a Phase 1 Habitat map;
 - *Figures 4 - 9* are maps showing the bat activity during the emergence surveys; and
 - *Figure 10* shows the location of the reptile refugia.
- *Section 7* gives photographs of the site;
- *Section 8* lists the references;
- *Appendix A* lists the plant species recorded on site;
- *Appendix B* lists key legislation and regulations; and
- *Appendix C* gives information on bat ecology.

3 **METHODS**

3.1 **Desk study**

The *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) was used to search for designated sites on or adjacent to the site (within 1km) including Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites.

The Hampshire Biodiversity Information Centre (HBIC) have not yet been approached for records in relation to this site.

3.2 **Field survey**

3.2.1 *General*

An initial site visit was completed within the site boundary. This type of survey is not designed to prove presence or absence of significant or protected species; it is used to highlight habitat that is suitable and to identify where further work to show presence or absence is required. However, in some circumstances species can be ruled out because there is unsuitable habitat or barriers to inward migration.

Significant species were defined as follows:

- European Protected Species (listed on *Schedules 2 and 5 of the Conservation of Habitats & Species Regulations 2010*;
- nationally protected species under *Schedules 1, 5 and 8 of the Wildlife & Countryside Act 1981*, the *Protection of Badgers Act 1992* (as amended) and the *Deer Act 1991*;
- non-native pest species listed on *Schedule 9 of the Wildlife & Countryside Act 1981* (as amended);
- species listed as Critically Endangered, Endangered or Vulnerable on the *IUCN Red List*
- all species listed on the *RSPB Birds of Conservation Concern 2002-2007* as Red or Amber;
- Nationally Rare or Nationally Scarce species; and
- species that have Action Plans under the UK Biodiversity Action Plan (UKBAP) or are Priority Species under the Local Biodiversity Action Plan.

3.2.2 *Date(s), times and weather*

The initial site visit was carried out during the daytime on the 9th September 2010. Following this six bat surveys were carried out on the 16th and 28th September 2010 and the 23rd, 24th, 25th and 30th August 2011; and fourteen visits to determine presence/ absence of widespread species of reptile were carried out. A Habitat Suitability Index for great crested newts was carried out on the 21st March 2011.

The reptile surveys involved seven visits to the farm site between the 22nd and 28th September 2010; and seven visits to the allotment between the 12th and 27th September 2011.

The weather was warm and sunny during the initial visit. The weather conditions for the subsequent surveys are given in the relevant sections. Personnel for each visit are given below.

3.2.3 Personnel

The initial site visit was carried out on the 9th September 2010 by John Poland CEnv MIEEM CBiol MSB, who is a full member of the Institute of Ecology and Environmental Management (IEEM), a Chartered Environmentalist (CEnv), a Chartered Biologist (CBiol) and has held a Natural England licence allowing the disturbance and handling of bats for the purposes of survey in all counties of England since 2004 (current survey licence number 20102978). He has over 11 years experience in ecological consultancy and is a highly competent botanist trained in Phase 1 Habitat Survey techniques. He is also the senior author of *The Vegetative Key to the British Flora* (Poland & Clement 2009) and has significant botanical expertise in *Schedule 9* species.

The project was led by John Poland CEnv MIEEM CBiol MSB and Victoria Russell MIEEM who is also a full member of IEEM with over 11 years experience in ecological consultancy. Victoria also holds a Natural England licence allowing the disturbance and handling of bats for the purposes of survey in all counties of England (current survey licence number 20113626).

They were accompanied by Louise Fairless BSc (Hons) GradIEEM who is experienced in carrying out bat surveys using detectors as well as undertaking roost surveys with licensed bat ecologists as part of her PhD research work; and Martyn Drabik-Hamshare BSc (Hons) GradIEEM, Joseph Jenkin MSc GradIEEM, Jade Revan, Katie Senson BSc (Hons), Rebecca Spake BSc (Hons) and Peter Jones who are all experienced in carrying out bat surveys using detectors.

Personnel carrying out the emergence surveys are given in *Table 3.2.2.1.* below.

Table 3.2.2.1. Personnel carrying out the bat emergence surveys.

Date	Personnel				
16/09/10	John Poland	Victoria Russell	Louise Fairless	Martyn Drabik-Hamshare	Peter Jones
28/09/10	Victoria Russell	Louise Fairless	Martyn Drabik-Hamshare	Peter Jones	
23/08/11	John Poland	Louise Fairless	Martyn Drabik-Hamshare	Joe Jenkins	Jade Revan
24/08/11	John Poland	Victoria Russell	Katie Senson	Joe Jenkins	
25/08/11	Victoria Russell	Louise Fairless	Martyn Drabik-Hamshare	Joe Jenkins	Rebecca Spake
30/08/11	Victoria Russell	Louise Fairless	Martyn Drabik-Hamshare	Joe Jenkins	

The reptile surveys between the 22nd and 28th September 2010; and 12th and 27th September 2011 were carried out by Martyn Drabik-Hamshare BSc (Hons) GradIEEM and Joseph Jenkins MSc GradIEEM who are experienced in carrying out reptile surveys and collecting biometric data.

All staff adhere to IEEM's *Code of Professional Conduct*.

3.3 **Botanical surveys**

3.3.1 *Botanical surveys*

Phase 1 Habitat Survey

The botanical assessment in this report is based on the Phase 1 Habitat Survey methodology (Joint Nature Conservation Committee 2003) and involves an assessment of the habitats present and any features of possible botanical interest together with habitat mapping using a set of standard colour codes to indicate habitat types on a Phase 1 Habitat Map

Basic Phase 1 Habitat Survey methods are described in detail in Joint Nature Conservation Committee (JNCC, 2003). Limits to the method are discussed in Cherrill & McClean (1999).

Plant species lists were compiled for the various habitat types on the site. Subjective estimates of the relative abundance of species were added to the plant species list using a modified DAFOR scale. The DAFOR scale ranks species according to their relative abundance in a given parcel of land as follows: d – dominant, a – abundant, f – frequent, o – occasional, r – rare. In addition, the following prefix is used: l – locally. The terms 'abundant' and 'rare' are used by convention, and apply only to relative-abundance within the recorded area. It does not mean that species are 'rare' in the general sense.

Plant nomenclature in this report follows Poland & Clement (2009) for native, naturalised and garden species of vascular plant. Plant names in the text are given with scientific names first, followed by the English name in brackets. Uncertain identifications are preceded by 'cf.' placed before the specific epithet where the plant is very probably the species indicated, but it is impossible to distinguish it from similar members of the genus with certainty.

September is an acceptable time of year for general botanical recording, though it is always unrealistic to suppose that surveys can generate exhaustive species lists at any time of year.

Hedgerow survey

The hedge between the farm and the former allotments was surveyed in detail. The aim was to provide information on its nature conservation value and consider whether it would be considered an Important Hedge under the *Hedgerow Regulations*. It was assessed only in respect of wildlife and landscape criteria in the *Regulations - Paragraphs 6 to 8 of Part II of Schedule 1*. A standard schedule of information was collected as follows.

- *The mean number of woody species in a 30m stretch of hedge.* Species listed under *Schedule 3* of the *Regulations* were used for the evaluation of hedgerow importance but other woody species (mostly non-native species) were also noted.
- *Hedge-features.* Hedge features specified in the *Regulations* were noted, i.e. the presence of a bank, or wall along 50% of the length of the hedge; the presence of a ditch along 50% of the length; whether gaps total less than 10% of the length; the presence of one or more standard trees per 50 m of hedge; the presence of a parallel hedge within 15m of the hedge; the presence of three or more woodland herbs¹ in the whole hedge; and connections with hedges, woods and ponds scoring four or more points².
- *Factors modifying thresholds for hedgerow evaluation.* Factors that modify thresholds (for numbers of woody species and hedgerow features) that determine whether or not a hedge is an Important Hedge were noted, i.e. the presence of footpaths, bridleways, or byways alongside the hedge; the presence of any of four woody species specified in the *Regulations* (*Populus nigra* ssp. *betulifolia*, *Sorbus torminalis*, *Tilia cordata*, *T. platyphyllos*)³.

A hedge is deemed to end where it meets another hedge, a feature such as a wood or there is a gap of greater than 20m at the end of a hedge. Under the *Hedgerow Regulations 1997*, a hedgerow qualifies as an Important Hedge on ecological grounds if it contains any of the following:

- any species listed in *Part 1* of *Schedule 1*, *Schedule 5* or *Schedule 8* of the *Wildlife and Countryside Act 1981*;
- any birds categorised as a declining breeder (category 3) in *Red Data Birds in Britain 1990* (not determinable from this survey);
- any species categorised as 'endangered', 'extinct', 'rare' or 'vulnerable' in any of the British Red Data Books;
- 7 or more *Schedule 3* woody species in an average 30 m stretch;
- 6 *Schedule 3* woody species in an average 30 m stretch and also has 3 or more hedgerow features, or else 5 *Schedule 3* woody species and 4 or more features;
- 6 or more *Schedule 3* woody species in an average 30 m stretch and also has 1 or more of the 4 significant woody species; or
- if it is adjacent to a footpath, bridleway or byway, contains at least 4 woody species, and has 2 or more hedgerow features.

Hedgerow evaluations can be subject to uncertainty due to ambiguities in the *Hedgerow Regulations 1997* - mostly covered in governmental guidance notes - and difficulties in applying some of the criteria, e.g. it may be doubtful whether a small bank should be scored or not.

¹ Species listed in *Schedule 2* of the *Regulations*.

² According to protocols defined in the *Regulations*.

³ Location in a northern county not relevant here.

3.4 *Animal surveys*

3.4.1 *General*

The habitat was assessed to determine whether or not it is suitable for those protected vertebrates that occur in the region. Initial surveys do not usually confirm species presence or absence, but obvious signs and incidental sightings of protected species would have been noted had they been encountered.

An assessment was made of the likelihood of protected vertebrates using the site. Taking into consideration the geographical region and habitat type, species and groups that might be encountered are:

- bats;
- great crested newt;
- badger;
- nesting birds; and
- reptiles.

According to aerial photographs (GoogleEarth™) and online Ordnance Survey 1:25,000 maps, there are two waterbodies within 500m of the site. The first is a pond adjacent to an industrial unit approximately 15m away from the south-east corner of the site. The second is a lake approximately 220m to the east of the site. However it is separated from the site by barriers to great crested newt movement including Brockhampton Road.

There were no watercourses on or immediately adjacent to the site and therefore otter and water vole were not considered. Although Hermitage Stream lies to the west of the site it is not sufficiently close for any otters or water voles that may be using it to be affected.

Details of initial survey methods for each of the relevant species that might have been encountered are given below and an overview of the legal protection of the species and groups is provided in *Appendix B*.

3.4.2 *Bats*

Assessment of current bat roost potential

Because bats are crevice-dwelling mammals it is often difficult to thoroughly inspect buildings for bats and evidence of bats without a destructive search, which is not generally practical or acceptable. Examples are where bats roost between the roofing felt and tiles, around window frames and behind barge boards. These areas cannot be inspected, but a surveyor would know that bats might roost here because there are places where bats could gain entry. A pipistrelle bat is small enough to fit into a match box and can roost in gaps just 14-20mm wide.

The buildings were assessed for their **bat roost potential** according to the following factors that influence the likelihood of bat roosting:

- Surrounding habitat: whether there are potential flight-lines and bat foraging areas nearby.

- Construction detail: the type and construction of architectural features such as voids, barge boards, soffit boxes, lead flashing, cavity walls and hanging tiles that could be used by roosting bats. Some construction details and materials are more favourable to bat occupation than others.
- Building condition: whether the building has no roof or has a sound roof without any potential bat access points.
- Internal conditions: bats favour sheltered locations with a stable temperature regime, protection from the elements and little wind/light/rain penetration.
- Potential bat access points: whether there is flight and crawl access.
- Potential roosting locations: the presence of bat-accessible voids, cracks and crevices.

The risk of bat roosts being present will be lower where structures have:

- Urban setting with little greenspace.
- Heavy disturbance.
- Small, cluttered roof void (particularly for brown long-eared).
- Modern construction with few gaps or crevices that bats can fly or crawl through (although pipistrelles may still be present).
- Prefabricated of steel or sheet materials.
- Active industrial premises.

The above list provides generic criteria and there are exceptions to consider. For example, pipistrelle roost sites are often found in modern housing estates and therefore the absence of bats from such locations should not always be assumed.

Some information on bat ecology is included in *Appendix C*.

Detailed surveys of individual trees were not required. If any mature trees need to be removed in the future, or if tree surgery (*e.g.* crown-lifting) is required, then a bat survey at an appropriate time of year may be required. However, no bat surveys of the trees are currently necessary.

Systematic inspection for bats or evidence of bats

The buildings were assessed for their suitability to support roosting bats using the following access and inspection equipment: high quality 10x42 binoculars; a 1,000,000 candlepower torch; a ProVision100™ fiberscope with a 45cm optic cable; and a 3.8m surveyors ladder. Binoculars were employed to view higher areas such as potential access points on the outside of the buildings. A description of the buildings was recorded on a survey sheet, and digital photographs were taken as a permanent record.

Visual, systematic examinations were made for bats and evidence of bats, both internally and externally, of the following:

- roof voids;
- roof beams, especially the top of ridge and hip beams;
- cracks, crevices and sheltered voids including mortise joints;
- the floors and stored items;

- external features such as soffits, barge boards, hanging tiles and lead flashing;
- roof slopes and the ridge;
- wall, window and door surfaces;
- window and door frames; and
- wall bases.

Evidence of roosting bats includes droppings, feeding remains and dead bats, but also staining from urine and fur-oils, scratch marks, odour, the presence of bat-fly (Nycteribiid) pupal cases, and in some cases the absence of cobwebs.

Bat droppings can prove beyond doubt that bats use a building and can help to identify roosting locations because piles often accumulate beneath roosting sites or entrance points. The location, size, shape, texture and colour of the droppings can be used to aid species identification. DNA analysis of droppings is also possible and samples will be taken where necessary. The number and condition (age) of droppings can indicate the size of the roost and when it was last used.

Emergence surveys

The surveys followed standard emergence survey protocol in *Bat Surveys – Good Practice Guidelines* (Bat Conservation Trust 2007).

Six evening emergence surveys were carried out by a minimum of four bat ecologists (see *Sections 3.2.2. and 3.2.3.* for dates and personnel). The surveys commenced at least fifteen minutes before sunset and continued for at least an hour and a half after sunset. The weather was suitable for bat emergence and foraging. Due to the size of the site and number of buildings requiring surveys, it was not possible to survey the whole site in one evening. Therefore, the six emergence surveys should be considered as three surveys.

The surveyors were located with good views of potential bat access points identified during the initial site visit on the 9th September 2010. The timing of the visits, from early evening until after dark, was aimed at detecting active bats in the vicinity. When it became too dark for visual observation, electronic bat detectors were used to listen for the ultrasonic sounds produced by bats either flying in the vicinity or emerging from within the building.

The surveyors recorded all bat activity encountered but particular attention was focused on any bats emerging from the buildings. The results were documented by noting the time, bat species and behaviour (*e.g.* commuting, foraging, social interaction *etc.*). Surveyors were in constant contact via hand-held radios so that information could be easily exchanged regarding bat activity. The time on all surveyors watches and mobile phones were synchronised so time data was recorded precisely.

Bat detectors are used so that surveyors can identify most bat species in the field, using the heterodyne output in combination with bat shape, flight pattern and behaviour. In addition, solid-state recorders (Tascam® DR-O7 and Roland™ R-05) were employed to record bat calls for later sonogram analysis using BatSound™ computer software. Frequency-division, whereby the

ultrasound is divided by 10 into an audible range, has a considerable advantage over time-expansion for survey work as it allows recordings to be taken in real time. This ensures that all bat activity is recorded.

The recordings were later replayed in full and analysed through BatSound™ software to ensure that any activity accidentally missed during the survey were recorded and times and location calculated. The species of bat was confirmed at this stage. Bat detector surveys provide one of the most effective methods of identifying bat species and activity patterns. However, it is not always possible to identify bats down to species level even with subsequent sound analysis. The buildings had clear sight lines for bat surveying, so it is unlikely that even quietly echolocating bats, such as long-eared bats, were missed.

3.4.3 *Great crested newt*

All water bodies on the site or within 500m that could be used as breeding locations for this species were identified, and the suitability of terrestrial habitat for this species was considered. Great crested newts can travel up to 500m from pond to pond, and between ponds and terrestrial habitat. Suitability of terrestrial habitat was assessed with this in mind.

Habitat Suitability Index

The pond was assessed to determine its suitability for great crested newt using a Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000). This is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the great crested newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect great crested newts. Each factor is scored, and the ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in Oldham *et al.* (2000) and a HSI result is calculated. Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for great crested newts.

There is a positive correlation between HSI scores and presence and abundance of great crested newts in ponds. Generally, ponds with high HSI scores are likely to support larger populations. However, the relationship is not sufficiently precise to conclude that a pond with a high HSI will definitely have a high newt population, or that a pond with a low HSI score will only have a low newt population or no newts at all.

3.4.4 *Badger*

An initial assessment was carried out to identify areas that might be used by badger (*Meles meles*) for commuting, foraging and sett-building within at least 30m of all areas potentially affected by works (where access was possible).

3.4.5 *Birds*

Habitat that might be used by nesting birds was identified. Different bird species use buildings, trees and shrubs, undergrowth or even open fields to nest. Suitability of the site for use by a range

of bird species was considered giving consideration to factors such as cover, food, disturbance and other habitat requirements.

3.4.6 *Widespread species of reptiles*

The site was assessed for widespread species of reptiles, with particular attention paid to those features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of hardcore) and opportunities for foraging (rough grassland and scrub). The site was assessed for its suitability for each of the four widespread reptile species which have broadly similar habitat requirements. However, more specific requirements include the following (Beebee & Griffiths 2000):

- common lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to walls and pastures, although one of their favoured habitats is rough grassland;
- slow-worms (*Anguis fragilis*) use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land;
- grass snakes (*Natrix natrix*) have broadly similar requirements to common lizards with a greater reliance on ponds and wetlands, where they prey on common frogs;
- adders (*Vipera berus*) use a range of fairly open habitats with some cover, but are most often found in dry heath.

Detailed surveys using heavy-duty roofing felt (100 x 60cm) were undertaken (using artificial refugia is the best practice way to determine whether reptiles are actually present). Such surveys can only be conducted during the active season for reptiles (April to September inclusive) and comprise a series of at least seven visits during suitable weather conditions.

A total of 46 artificial refugia were put in suitable reptile habitat on the Kingscroft Farm part of the site on the 16th September 2010 and left to settle for several days before surveys commenced. The artificial refugia were checked on seven suitable days between the 22nd and 28th September 2010.

A total of 42 artificial refugia were put in suitable reptile habitat on the allotment part of the site on the 2nd September 2011 and left to settle for several days before surveys commenced. It was necessary to put the artificial refugia out again on the 9th September 2011 as they had been removed. The artificial refugia were checked on seven suitable days between the 12th and 27th September 2011.

Days with heavy rain are generally accepted as unsuitable, though sunny periods after rain may be ideal because reptiles may emerge from cover to bask. The surveys were clustered as only a few days were left in the season and the weather was variable.

RESULTS

4.1 Desk study

There are three statutory designated sites within 1km of this site according to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) two of which have multiple designations. These are Chichester and Langstone Harbours which are designated as a Ramsar site and a Special Protection Area (SPA). Langstone Harbour is also designated as a Site of Special Scientific Interest (SSSI). In addition, Solent Maritime is a Special Area of Conservation (SAC).

4.2 Habitats and plant species

The site is a broadly rectangular plot consisting of the stables and horse paddocks of Kingscroft Farm and former allotments on Ranelagh Road. The farm is mainly either species-poor semi-improved grassland or stables with associated hardstanding. There is also some scrub. A track runs through the centre of the site from the access on Meyrick Road to the stables on the eastern side of the farm. The former allotments lie to the north of the farm along Ranelagh Road. They are separated from the farm by a hedge.

A full species list for each of the habitats is given in *Appendix A* and a Phase 1 Habitat map is given in *Figure 3* in *Section 6*.

The grassland is grazed to a short sward by horses. It is dominated by *Lolium perenne* (Perennial Rye-grass) with common forbs such as *Achillea millefolium* (Yarrow), *Plantago lanceolata* (Ribwort Plantain) and *Trifolium repens* (White Clover) together with tall semi-ruderal herbs typical of grazing pasture such as *Rumex obtusifolius* (Broad-leaved Dock). There are also areas of longer grassland around the edges of the site, especially along the hedge separating the farm from the former allotments. However, the species composition remains the same.

There are also areas of nettlebed vegetation *Urtica dioica* (Common Nettle) with occasional *Sambucus nigra* (Elder) bushes. These are particularly associated with the edges of a manure heap and some of the stable buildings.

There is some *Rubus fruticosus* agg. (Bramble) scrub, particularly associated with the edges of the hedge that divides the farm from the former allotments.

The hedge is dominated by *Crataegus monogyna* (Hawthorn) with smaller amounts of *Acer pseudoplatanus* (Sycamore), *Rubus fruticosus* agg. (Bramble), *Salix cinerea* (Grey Willow) and *Sambucus nigra* (Elder). There is also a mature *Quercus robur* (Pedunculate Oak) tree. The field-layer is dominated by *Hedera helix* (Ivy).

Details of the species composition of the hedge dividing the farm from the former allotments are given overleaf. Given it has an average of 4.3 *Schedule 3* woody species and 3 features; it is classed as Not Important under the *Hedgerow Regulations*.

Hedge between the former allotments and the farm.

Status		Not Important		
Schedule 3 Woody Species	Whole hedge	30 m stretches		
		1	2	3
<i>Corylus avellana</i> (Hazel)	Y	-	-	Y
<i>Crataegus monogyna</i> (Hawthorn)	Y	Y	Y	Y
<i>Fraxinus excelsior</i> (Common Ash)	Y	Y	Y	-
<i>Prunus spinosa</i> (Blackthorn)	Y	-	Y	Y
<i>Quercus robur</i> (Pedunculate Oak)	Y	Y	Y	-
<i>Sambucus nigra</i> (Elder)	Y	Y	Y	Y
Totals for <i>Schedule 3</i> species	6	4	5	4
Other Woody Species				
<i>Acer pseudoplatanus</i>	Y	Y	-	-
<i>Rubus fruticosus</i> agg. (Bramble)	Y	Y	Y	Y
Totals for all woody species	8	6	6	5
Features		Presence	Comments	
Supporting bank or wall	-	-		
Less than 10% gaps	Y	-		
Standard trees	Y	-		
Ditch for > 50% of length	Y	-		
Parallel hedge within 15 m	-	-		
Four or more connection points	-	-		
Three or more <i>Schedule 2</i> species	-	-		
Synopsis				
Mean number species per 30 m stretch	4.3			
Number of features	3			
Special qualifying species	-			
Threshold altering factors	-			
Field-layer Description				
Field layer strongly dominated by <i>Hedera helix</i> (Ivy) and <i>Rubus fruticosus</i> agg. with <i>Hedera helix</i> also growing up and through the hedgerow.				

No plant species of note as defined in *Section 3.2.1* were recorded from the site.

4.3 *Protected vertebrates*

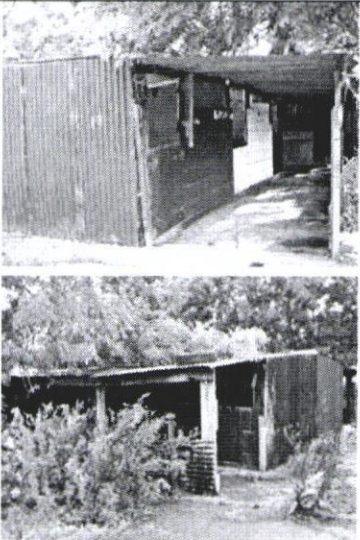
4.3.1 *Bats*

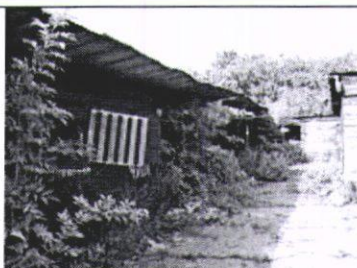
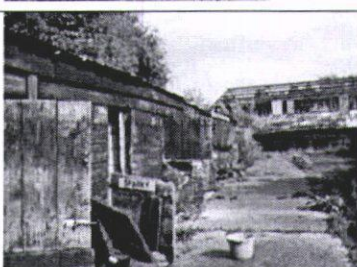
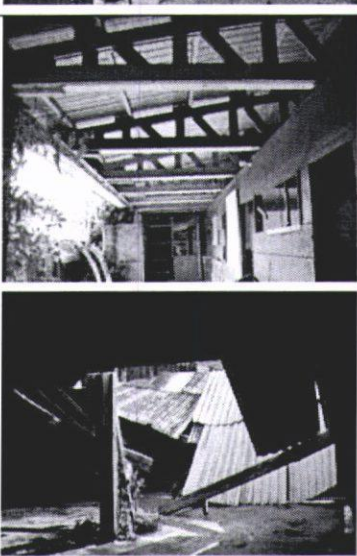
Survey of buildings

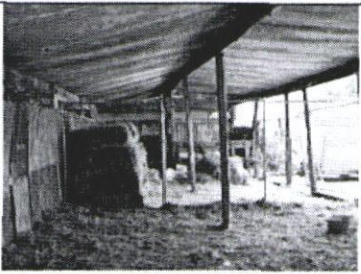
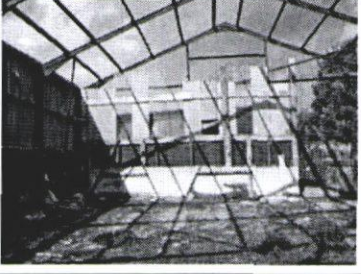
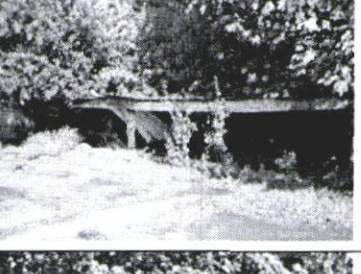
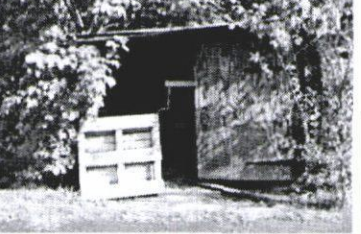
The building construction details and bat roost potential are summarised in *Table 4.3.1.1.* below.

The floors of all the buildings were covered in debris making searching for bat droppings extremely difficult.

Table 4.3.1.1. Summary of building construction details, the bat roost potential of the buildings and any evidence of bats observed.

Building	Photograph	Bat Roost Potential
A		A two-storey oval shaped brick outbuilding with an unlined pitched tile roof on a wooden frame. It has high bat roost potential .
B		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It is double-skinned with wooden cladding on the external wall and bargeboards. It has moderate bat roost potential .
C		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It is double-skinned with wooden cladding on the external wall and bargeboards. It has moderate bat roost potential .

D		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It is double-skinned with wooden cladding on the external wall and bargeboards. It has moderate bat roost potential .
E		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It is double-skinned with wooden cladding on the external wall and bargeboards. It has moderate bat roost potential .
Fa		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It is single-skinned with wooden cladding on the external wall and bargeboards. It has moderate bat roost potential .
Fb		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It is single-skinned with wooden cladding on the external wall and bargeboards. It has moderate bat roost potential .
Ga		A single-storey wooden stable with a pitched corrugated iron roof and a wooden ridge beam. It is double-skinned with wooden cladding on the external wall and bargeboards. It has high bat roost potential .

Gb		A single-storey corrugated iron stable with a shallowly pitched corrugated iron roof and a wooden ridge beam. It has low bat roost potential .
H		A large metal framed barn with no roof. It has some wooden cladding on the sides giving it low bat roost potential .
I		A single-storey wooden shed with an unlined sloping roof of corrugated iron. It has wooden cladding on the external wall. It has moderate bat roost potential .
J		A single-storey wooden stable with an unlined sloping roof of corrugated iron. It has wooden cladding on the external wall. It has moderate bat roost potential .
K		A single-storey wooden shed with an unlined sloping roof of corrugated iron. It has wooden cladding on the external wall. It has low bat roost potential .
L		A single-storey wooden shed with an unlined sloping roof of corrugated iron. It has wooden cladding on the external wall. It has low bat roost potential .

Commuting and foraging bats

The majority of the site is horse-grazed pasture which provides some suitable habitat for foraging bats. In addition, there is good quality foraging habitat along Hermitage Stream to the west of the

site; a small pond immediately to the south-east of the site; and around a lake to the east. The area is a small area of farmland surrounded by urban and sub-urban residential housing and industrial units to the east and west. However, there are good links to habitat to the west, especially along the hedge dividing the farm and the former allotments, the stream and the railway further to the west. Bats follow linear landscape features such as lines of trees, hedges, buildings and waterways in order to commute from their roost sites to their feeding grounds. Likewise they use these features to navigate between feeding areas and alternative roosts.

Emergence surveys

A single common pipistrelle (*Pipistrellus pipistrellus*) was observed emerging from Building B on the 16th September 2010 and a single common pipistrelle was observed emerging from Building J on the 30th August 2011 (see Figure 4).

In addition, bats were observed flying in the vicinity of the buildings and foraging around the buildings and over the horse pastures. Species recorded include common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), noctule (*Nyctalus noctula*) and a *Myotis* bat (*Myotis* species). The raw data is given in Table 4.3.1.2. below and bat activity maps are given in Figures 4-9 in Section 6.

Table 4.3.1.2. Bat activity.

Date	16/09/2010		
Temp	13°C		
Weather	Scattered clouds		
Ecologists	John Poland, Victoria Russell, Louise Fairless, Peter Jones, Martyn Drabik-Hamshare		
Observer	Time	Species	Observation
-	19:00	-	Ecologists commenced observations
-	19:16	-	Sunset
MDH	19:27	Common Pipistrelle	Commuting west
JP	19:30	Common Pipistrelle	Heard but not seen
MDH	19:32	Common Pipistrelle	Commuting west
MDH	19:33	Common Pipistrelle	Commuting north-west
MDH	19:36	Noctule	Seen but not heard. Commuting north-west high overhead
JP	19:37	Noctule	Commuting north-west high overhead
MDH	19:37	Pipistrelle sp.	Commuting west
JP	19:38	Noctule	Commuting west-northwest high overhead
MDH	19:38	Common Pipistrelle	Two bats foraging
PJ	19:39	Common Pipistrelle	Commuting south across barn
PJ	19:41	Common Pipistrelle	Seen but not heard. Commuting south-west
JP	19:41	Common Pipistrelle	Commuting
VR	19:41	Common Pipistrelle	Commuting west over stables
JP	19:42	Common Pipistrelle	Emerging from Building B (stables), commuting east
VR	19:42	Common Pipistrelle	Commuting north-east in open
LF	19:43	Common Pipistrelle	Heard but not seen

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PJ	19:46	Common Pipistrelle	Commuting west
PJ	19:47	Common Pipistrelle	Heard but not seen
MDH	19:48	Pipistrelle sp.	Heard but not seen
VR	19:50	Common Pipistrelle	Commuting, foraging and feeding in front of stables, until 19:52
MDH	19:50	Common Pipistrelle	Commuting west
LF	19:51	Common Pipistrelle	Commuting west across yard
JP	19:52	Common Pipistrelle	Foraging
LF	19:53	Common Pipistrelle	Commuting west across yard
MDH	19:53	Common Pipistrelle	Commuting east
MDH	19:55	Common Pipistrelle	Commuting north-west
VR	19:56	Common Pipistrelle	Heard but not seen
JP	19:57	Common Pipistrelle	Heard but not seen
VR	19:57	Common Pipistrelle	Heard but not seen. Feeding
PJ	19:58	Common Pipistrelle	Heard but not seen
JP	19:58	Common Pipistrelle	Commuting west
LF	19:59	Pipistrelle sp.	Heard but not seen
PJ	20:02	Common Pipistrelle	Heard but not seen
LF	20:04	Pipistrelle sp.	Heard but not seen
JP	20:06	Common Pipistrelle	Commuting north
LF	20:06	Pipistrelle sp.	Heard but not seen
MDH	20:07	Common Pipistrelle	Heard but not seen
PJ	20:07	Common Pipistrelle	Heard but not seen
MDH	20:16	Common Pipistrelle	Heard but not seen
MDH	20:20	Noctule	Heard but not seen
MDH	20:23	Noctule	Heard but not seen
VR	20:25	Soprano Pipistrelle	Heard but not seen. Feeding with social calls
LF	20:25	Common Pipistrelle	Heard but not seen
JP	20:26	Common Pipistrelle	Heard but not seen. Social calls
VR	20:26	Soprano Pipistrelle	Heard but not seen. Foraging and feeding
JP	20:27	Common Pipistrelle	Two bats. Heard but not seen. Social calls
LF	20:28	Pipistrelle sp.	Heard but not seen
JP	20:28	Soprano Pipistrelle	Heard but not seen. Social calls
MDH	20:29	Common Pipistrelle	Heard but not seen
PJ	20:30	Common Pipistrelle	Heard but not seen
LF	20:30	Pipistrelle sp.	Heard but not seen
VR	20:31	Noctule	Heard but not seen
VR	20:32	Common Pipistrelle	Heard but not seen
PJ	20:33	Common Pipistrelle	Heard but not seen
LF	20:33	<i>Myotis</i> sp.	Heard but not seen
LF	20:33	Soprano Pipistrelle	Heard but not seen
JP	20:33	<i>Myotis</i> sp.	Heard but not seen
MDH	20:33	Soprano Pipistrelle	Heard but not seen
MDH	20:34	Common Pipistrelle	Heard but not seen
PJ	20:35	Common Pipistrelle	Heard but not seen
JP	20:36	Common Pipistrelle	Heard but not seen
LF	20:36	Pipistrelle sp.	Heard but not seen
VR	20:36	<i>Myotis</i> sp.	Heard but not seen

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PJ	20:37	Common Pipistrelle	Heard but not seen
PJ	20:38	Common Pipistrelle	Heard but not seen
JP	20:38	Soprano Pipistrelle	Heard but not seen
JP	20:41	Pipistrelle sp.	Heard but not seen. Social calls
PJ	20:42	Pipistrelle sp.	Heard but not seen
PJ	20:46	Pipistrelle sp.	Heard but not seen
PJ	20:50	Pipistrelle sp.	Heard but not seen
-	20:50	-	Ceased observations
Date	28/09/2010		
Temp	15°C		
Weather	Scattered clouds		
Ecologists	Victoria Russell, Peter Jones, Louise Fairless, Martyn Drabik-Hamshare		
Observer	Time	Species	Observation
-	18:35	-	Ecologists commenced observations
-	18:49	-	Sunset
LF	18:54	Pipistrelle sp.	Heard but not seen
MDH	18:58	Pipistrelle sp.	Seen but not heard. Commuting
VR	19:01	Pipistrelle sp.	Heard but not seen
MDH	19:04	Common Pipistrelle	Two bats commuting west
VR	19:05	Common Pipistrelle	Two bats commuting west. One bat commuting east
VR	19:13	Pipistrelle sp.	Heard but not seen
PJ	19:18	Common Pipistrelle	Heard but not seen
PJ	19:22	Common Pipistrelle	Commuting past Building H (roofless barn)
VR	19:22	Common Pipistrelle	Heard but not seen
MDH	19:33	Common Pipistrelle	Commuting
PJ	19:35	Common Pipistrelle	Commuting
LF	19:36	Pipistrelle sp.	Heard but not seen
PJ	19:39	Common Pipistrelle	Commuting past Building H (roofless barn)
MDH	19:45	Common Pipistrelle	Heard but not seen
MDH	19:45	Common Pipistrelle	Heard but not seen
LF	19:47	Common Pipistrelle	Heard but not seen
VR	19:47	Common Pipistrelle	Heard but not seen. Feeding with social calls
MDH	19:49	Common Pipistrelle	Heard but not seen
MDH	19:50	Pipistrelle sp.	Heard but not seen. Foraging and feeding
MDH	19:51	Common Pipistrelle	Commuting
VR	19:51	Common Pipistrelle	Heard but not seen. Foraging
PJ	19:53	Common Pipistrelle	Heard but not seen
LF	19:55	Common Pipistrelle	Heard but not seen
VR	19:55	Common Pipistrelle	Heard but not seen. Foraging
PJ	19:58	Common Pipistrelle	Heard but not seen
MDH	19:59	Pipistrelle sp.	Heard but not seen
PJ	20:07	Common Pipistrelle	Heard but not seen
PJ	20:11	Common Pipistrelle	Heard but not seen
PJ	20:15	Common Pipistrelle	Foraging around Building H (roofless barn)
PJ	20:21	Common Pipistrelle	Heard but not seen
PJ	20:26	Common Pipistrelle	Heard but not seen
-	20:26	-	Ceased observations
Date	23/08/2011		

Temp	14°C		
Weather	Scattered clouds		
Ecologists	John Poland, Louise Fairless, Martyn Drabik-Hamshare, Joseph Jenkins, Jade Revan		
Observer	Time	Species	Observation
-	19:56	-	Ecologists commenced observations
-	20:11	-	Sunset
LF	20:06	Pipistrelle sp.	Commuting west over building D
MDH	20:07	Pipistrelle sp.	Heard but not seen
JJ	20:12	Pipistrelle sp.	Seen but not heard, commuting north-west over building I
LF	20:14	Pipistrelle sp.	Commuting west over building D
JJ	20:17	Pipistrelle sp.	Seen but not heard, commuting north-west over building I
LF	20:18	Pipistrelle sp.	Commuting west over building D
LF	20:22	Pipistrelle sp.	Commuting west over building D
LF	20:23	Soprano pipistrelle	Foraging between buildings D and E
JJ	20:25	Pipistrelle sp.	Seen but not heard, commuting north-west over building I
LF	20:26	Soprano pipistrelle	Foraging above building D, travelling south
JJ	20:32	Soprano pipistrelle	Commuting south-east, to the south of buildings B and H
LF	20:34	Soprano pipistrelle	Foraging above building D, travelling north
MDH	20:34	Soprano pipistrelle	Commuting north-east towards east of building B
LF	20:38	Soprano pipistrelle	Foraging above building E, travelling east
JJ	20:38	Soprano pipistrelle	Commuting south-east, to the south of buildings B and H
MDH	20:39	Soprano pipistrelle	Commuting north above building B, and then south-east
LF	20:40	Soprano pipistrelle	Foraging above building D, travelling north
JJ	20:41	Soprano pipistrelle	Foraging, travelling south-east, to the south of buildings B and H
MDH	20:41	Soprano pipistrelle	Commuting north-east towards east of building B
JJ	20:42	Soprano pipistrelle	Seen but not heard, foraging above the north of building I
LF	20:43	Soprano pipistrelle	Foraging above building D, travelling south
JP	20:49	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	20:50	Common pipistrelle	Heard but not seen
LF	20:51	Pipistrelle sp.	Heard but not seen
JP	20:53	Common pipistrelle	Commuting west between buildings B and Fb
MDH	20:53	Common pipistrelle	Heard but not seen
LF	20:54	Common pipistrelle	Heard but not seen
MDH	20:58	Soprano pipistrelle	Commuting west between buildings A and B, and then east
LF	20:59	Pipistrelle sp.	Heard but not seen, feeding buzzes
JJ	20:59	Common pipistrelle	Heard but not seen, feeding buzzes and social calls
LF	21:05	Soprano pipistrelle	Heard but not seen
LF	21:06	Noctule	Heard but not seen
JP	21:07	Pipistrelle sp.	Heard but not seen
JJ	21:08	Common pipistrelle	Heard but not seen

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JJ	21:09	Pipistrelle sp.	Heard but not seen
JJ	21:09	Soprano pipistrelle	Heard but not seen
LF	21:10	Pipistrelle sp.	Heard but not seen
LF	21:12	Noctule	Heard but not seen
LF	21:13	Pipistrelle sp.	Heard but not seen
MDH	21:14	Common pipistrelle	Heard but not seen
LF	21:19	Soprano pipistrelle	Heard but not seen
LF	21:20	Soprano pipistrelle	Heard but not seen
JJ	21:21	Pipistrelle sp.	Heard but not seen, feeding buzzes
MDH	21:21	Soprano pipistrelle	Heard but not seen
LF	21:22	Soprano pipistrelle	Heard but not seen
MDH	21:23	Soprano pipistrelle	Heard but not seen
LF	21:24	Soprano pipistrelle	Heard but not seen
JJ	21:25	Soprano pipistrelle	Heard but not seen, feeding buzzes
MDH	21:25	Soprano pipistrelle	Heard but not seen, feeding buzzes
LF	21:26	Common pipistrelle	Heard but not seen
JR	21:26	Pipistrelle sp.	Heard but not seen
JP	21:27	Pipistrelle sp.	Heard but not seen
JJ	21:27	Common pipistrelle	Heard but not seen feeding buzzes
LF	21:28	Pipistrelle sp.	Heard but not seen
MDH	21:28	Common pipistrelle	Commuting south-east from between buildings A and B
JJ	21:29	Soprano pipistrelle	Heard but not seen, feeding buzzes
MDH	21:29	Common pipistrelle	Heard but not seen
JJ	21:34	Pipistrelle sp.	Heard but not seen feeding buzzes
LF	21:35	Common pipistrelle	Foraging above building D, travelling south
JP	21:35	Pipistrelle sp.	Heard but not seen
JJ	21:35	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	21:35	Pipistrelle sp.	Heard but not seen
LF	21:36	Two Pipistrelle sp.	Foraging, travelling west
JJ	21:36	Common pipistrelle	Heard feeding but not seen
MDH	21:36	Common pipistrelle	Heard but not seen
LF	21:37	Pipistrelle sp.	Foraging, travelling west
MDH	21:37	Pipistrelle sp.	Heard but not seen
JP	21:38	Common pipistrelle	Heard but not seen, feeding buzzes
JP	21:38	Soprano pipistrelle	Heard but not seen, feeding buzzes
MDH	21:39	Common pipistrelle	Heard but not seen
LF	21:40	Soprano pipistrelle	Heard but not seen
LF	21:40	Common pipistrelle	Heard but not seen
JJ	21:40	Common pipistrelle	Heard but not seen, feeding buzzes
JJ	21:40	Soprano pipistrelle	Heard but not seen, feeding buzzes
MDH	21:40	Common pipistrelle	Commuting south-east from between buildings A and B
JR	21:41	Pipistrelle sp.	Heard but not seen
-	21:41	-	Ceased observations
Date	24/08/2011		
Temp	15°C		
Weather	Scattered clouds		

Ecologists	John Poland, Victoria Russell, Joseph Jenkins, Katie Stenson		
Observer	Time	Species	Observation
-	19:54	-	Ecologists commenced observations
VR	20:05	Pipistrelle sp.	Commuting west past ash tree
KS	20:07	Pipistrelle sp.	Heard but not seen
-	20:09	-	Sunset
VR	20:14	Pipistrelle sp.	Heard but not seen
KS	20:15	Two common pipistrelles	Commuting north-east over building E
VR	20:17	Pipistrelle sp.	Heard but not seen
KS	20:18	Common pipistrelle	Commuting north-east over building E
JP	20:20	Noctule	Heard but not seen
VR	20:20	Noctule	Seen but not heard over horse pasture
VR	20:20	Common pipistrelle	Heard but not seen
KS	20:23	Common pipistrelle	Commuting north-east over building E
JP	20:25	Noctule	Heard but not seen
VR	20:25	Common pipistrelle	Commuting west past ash tree
VR	20:25	Noctule	Heard but not seen
KS	20:25	Noctule	Heard but not seen
VR	20:26	Common pipistrelle	Heard but not seen
KS	20:26	Common pipistrelle	Commuting north and then south-west between buildings D and E
VR	20:27	Common pipistrelle	Commuting north-west past building A
KS	20:27	Common pipistrelle	Commuting north-east over building E
VR	20:28	Noctule	Heard but not seen
VR	20:29	Two common pipistrelles	Commuting north over building C and then west
KS	20:29	Common pipistrelle	Heard but not seen
KS	20:30	Common pipistrelle	Commuting north-east over building E
JP	20:34	Noctule	Heard but not seen
KS	20:34	Noctule	Heard but not seen
VR	20:35	Common pipistrelle	Foraging south-west past building I
VR	20:35	Noctule	Heard but not seen
KS	20:35	Pipistrelle sp.	Commuting north and then south-west over building E
VR	20:37	Common pipistrelle	Foraging south-east past building B
KS	20:37	Common pipistrelle	Commuting east towards building B
VR	20:40	Pipistrelle sp.	Heard but not seen
KS	20:41	Common pipistrelle	Heard but not seen
KS	20:42	Common pipistrelle	Commuting south-east towards building C
KS	20:44	Common pipistrelle	Commuting south-east towards building C
JJ	20:45	Soprano pipistrelle	Foraging to the west of building Fa
JP	20:45	Common pipistrelle	Heard but not seen
VR	20:45	Common pipistrelle	Heard but not seen
JJ	20:47	Pipistrelle sp.	Heard but not seen, feeding buzzes
KS	20:47	Pipistrelle sp.	Commuting south-east over buildings E and D
JP	20:50	Common pipistrelle	Heard but not seen
JJ	20:51	Common pipistrelle	Heard but not seen, feeding buzzes

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KS	20:55	Common pipistrelle	Heard but not seen
JJ	20:56	Common pipistrelle	Heard but not seen, feeding buzzes
JP	20:56	Common pipistrelle	Heard but not seen
VR	20:56	Common pipistrelle	Heard but not seen
VR	20:58	Common pipistrelle	Heard but not seen, feeding buzzes
KS	20:58	Common pipistrelle	Heard but not seen
KS	20:58	Common pipistrelle	Heard but not seen
KS	20:59	Common pipistrelle	Heard but not seen
KS	21:00	Common pipistrelle	Heard but not seen
KS	21:01	Pipistrelle sp.	Heard but not seen
JJ	21:02	Common pipistrelle	Heard but not seen, feeding buzzes
JJ	21:07	Soprano pipistrelle	Heard but not seen, feeding buzzes
VR	21:09	Common pipistrelle	Foraging and feeding with social calls, travelling south west
KS	21:09	Common pipistrelle	Commuting south over buildings B and C
KS	21:09	Common pipistrelle	Heard but not seen
VR	21:10	Common pipistrelle	Heard but not seen
JP	21:13	Pipistrelle sp.	Heard but not seen
KS	21:13	Common pipistrelle	Heard but not seen
JJ	21:14	Soprano pipistrelle	Heard but not seen, feeding buzzes
VR	21:14	Soprano pipistrelle	Heard but not seen
KS	21:14	Pipistrelle sp.	Heard but not seen
VR	21:15	Soprano pipistrelle	Heard but not seen
KS	21:15	Common pipistrelle	Heard but not seen
JJ	21:19	Pipistrelle sp.	Heard but not seen, feeding buzzes
KS	21:19	Pipistrelle sp.	Heard but not seen
JP	21:20	Common pipistrelle	Heard but not seen
VR	21:20	Pipistrelle sp.	Heard but not seen
KS	21:20	Soprano pipistrelle	Heard but not seen
KS	21:22	Common pipistrelle	Heard but not seen
JJ	21:25	Common pipistrelle	Heard but not seen, feeding buzzes
KS	21:25	Common pipistrelle	Commuting and social calling, travelling east over buildings D and C.
VR	21:26	Common pipistrelle	Heard but not seen, social calling
JJ	21:27	Common pipistrelle	Heard but not seen, feeding buzzes
KS	21:28	Common pipistrelle	Heard but not seen
JJ	21:29	Soprano pipistrelle	Heard but not seen, feeding buzzes
KS	21:30	Pipistrelle sp.	Heard but not seen
JJ	21:31	Common pipistrelle	Heard but not seen, feeding buzzes
VR	21:31	Common pipistrelle	Heard but not seen
KS	21:31	Common pipistrelle	Heard but not seen
VR	21:32	Pipistrelle sp.	Heard but not seen
VR	21:32	Common pipistrelle	Heard but not seen
KS	21:32	Common pipistrelle	Heard but not seen
KS	21:33	Pipistrelle sp.	Heard but not seen
VR	21:34	Soprano pipistrelle	Heard but not seen
KS	21:35	Common pipistrelle	Heard but not seen
KS	21:37	Common pipistrelle	Heard but not seen

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-	21:39	-	Ecologists ceased observations
Date	25/08/2011		
Temp	15°C		
Weather	Partly cloudy		
Ecologists	Victoria Russell, Louise Fairless, Martyn Drabik-Hamshare, Joseph Jenkins, Rebecca Spake		
Observer	Time	Species	Observation
-	19:51	-	Ecologists commenced observations
-	20:06	-	Sunset
JJ	20:05	Pipistrelle sp.	Heard but not seen
LF	20:06	Soprano pipistrelle	Commuting south-west from building H. Believed to have emerged from nearby due to timing
RS	20:08	Soprano pipistrelle	Heard but not seen
MDH	20:08	Soprano pipistrelle	Commuting west over building C
VR	20:09	Soprano pipistrelle	Commuting south-west from building H
JJ	20:11	Pipistrelle sp.	Heard but not seen
LF	20:11	Pipistrelle sp.	Heard but not seen
LF	20:13	Soprano pipistrelle	Heard but not seen
VR	20:13	Soprano pipistrelle	Heard but not seen, social calls
VR	20:14	Soprano pipistrelle	Commuting west over building I
JJ	20:16	Soprano pipistrelle	Heard but not seen
LF	20:16	Pipistrelle sp.	Heard but not seen
RS	20:16	Soprano pipistrelle	Heard but not seen
MDH	20:17	Soprano pipistrelle	Commuting south-east over building I
VR	20:17	Soprano pipistrelle	Commuting east to the south of building H
JJ	20:18	Noctule	Heard but not seen
LF	20:19	Noctule	Heard but not seen
RS	20:19	Noctule	Heard but not seen
MDH	20:19	Noctule	Seen but not heard, commuting south
VR	20:19	Noctule	Foraging to the east of building I and south of building H
LF	20:20	Pipistrelle sp.	Heard but not seen
LF	20:22	Pipistrelle sp.	Heard but not seen
VR	20:23	Soprano pipistrelle	Heard but not seen
VR	20:25	Soprano pipistrelle	Heard but not seen
LF	20:26	Noctule	Heard but not seen
VR	20:26	Noctule	Heard but not seen
JJ	20:29	Soprano pipistrelle	Heard but not seen
JJ	20:29	Common pipistrelle	Heard but not seen
LF	20:29	Pipistrelle sp.	Heard but not seen
RS	20:29	Soprano pipistrelle	Heard but not seen
LF	20:30	Soprano pipistrelle	Commuting south through building C
MDH	20:30	Soprano pipistrelle	Commuting between buildings I and C
MDH	20:30	Common pipistrelle	Commuting east over south side of building E
VR	20:30	Common pipistrelle	Foraging to the east of building I
LF	20:31	Pipistrelle sp.	Heard but not seen
JJ	20:33	Pipistrelle sp.	Heard but not seen
RS	20:33	Pipistrelle sp.	Heard but not seen

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MDH	20:34	Pipistrelle sp.	Heard but not seen
LF	20:35	Soprano pipistrelle	Heard but not seen
LF	20:37	Soprano pipistrelle	Flying inside building C
RS	20:37	Pipistrelle sp.	Heard but not seen
JJ	20:38	Common pipistrelle	Heard but not seen
MDH	20:38	Pipistrelle sp.	Heard but not seen
VR	20:38	Pipistrelle sp.	Foraging to the east of building I
JJ	20:41	Pipistrelle sp.	Heard but not seen
RS	20:41	Soprano pipistrelle	Heard but not seen
MDH	20:41	Soprano pipistrelle	Foraging over building I
JJ	20:42	Soprano pipistrelle	Heard but not seen
VR	20:43	Soprano pipistrelle	Foraging to the south of building H
JJ	20:44	Pipistrelle sp.	Heard but not seen
MDH	20:45	Soprano pipistrelle	Foraging over building I
VR	20:46	Common pipistrelle	Heard feeding but not seen until 20:58
LF	20:47	Common pipistrelle	Heard but not seen
RS	20:47	Soprano pipistrelle	Heard but not seen
MDH	20:47	Soprano pipistrelle	Commuting east from trees between buildings I and C
VR	20:55	Soprano pipistrelle	Heard but not seen
LF	20:58	Soprano pipistrelle	Heard but not seen
VR	21:01	Common pipistrelle	Heard but not seen
JJ	21:03	Pipistrelle sp.	Heard but not seen
LF	21:03	Pipistrelle sp.	Heard but not seen
VR	21:03	Noctule	Heard but not seen
RS	21:04	Soprano pipistrelle	Heard but not seen
MDH	21:04	Soprano pipistrelle	Heard but not seen
LF	21:05	Pipistrelle sp.	Heard but not seen
VR	21:05	Common pipistrelle	Heard but not seen, social calls
LF	21:06	Common pipistrelle	Heard but not seen
VR	21:06	Soprano pipistrelle	Heard but not seen, social calls
LF	21:07	Pipistrelle sp.	Commuting north through building C
MDH	21:07	Pipistrelle sp.	Heard but not seen
RS	21:08	Soprano pipistrelle	Heard but not seen
MDH	21:09	Common pipistrelle	Heard but not seen
RS	21:11	Soprano pipistrelle	Heard but not seen
MDH	21:11	Soprano pipistrelle	Heard but not seen
LF	21:12	Pipistrelle sp.	Heard but not seen
VR	21:12	Common pipistrelle	Heard but not seen, social calls
LF	21:13	Pipistrelle sp.	Heard but not seen
RS	21:13	Pipistrelle sp.	Heard but not seen
JJ	21:14	Soprano pipistrelle	Heard but not seen
MDH	21:14	Pipistrelle sp.	Heard but not seen
VR	21:14	Soprano pipistrelle	Heard but not seen
RS	21:15	Soprano pipistrelle	Heard but not seen
RS	21:15	Soprano pipistrelle	Heard but not seen
MDH	21:15	Soprano pipistrelle	Heard but not seen
LF	21:16	Soprano pipistrelle	Heard but not seen

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RS	21:16	Pipistrelle sp.	Heard but not seen
MDH	21:16	Soprano pipistrelle	Heard but not seen
VR	21:16	Soprano pipistrelle	Heard but not seen
LF	21:19	Pipistrelle sp.	Heard but not seen
JJ	21:20	Soprano pipistrelle	Heard but not seen
MDH	21:20	Pipistrelle sp.	Heard but not seen
LF	21:21	Common pipistrelle	Heard but not seen
LF	21:21	Soprano pipistrelle	Heard but not seen
RS	21:22	Soprano pipistrelle	Heard but not seen
MDH	21:22	Soprano pipistrelle	Heard but not seen
MDH	21:22	Soprano pipistrelle	Commuting south-east over building I
VR	21:22	Soprano pipistrelle	Heard but not seen, social calls
JJ	21:23	Pipistrelle sp.	Heard but not seen
RS	21:23	Pipistrelle sp.	Heard but not seen
MDH	21:23	Pipistrelle sp.	Heard but not seen
VR	21:27	Common pipistrelle	Heard but not seen, social calls
JJ	21:28	Common pipistrelle	Heard but not seen
LF	21:28	Pipistrelle sp.	Heard but not seen
RS	21:28	Common pipistrelle	Heard but not seen
MDH	21:28	Two common pipistrelles	Commuting north-east towards building H
JJ	21:29	Soprano pipistrelle	Heard but not seen
MDH	21:29	Soprano pipistrelle	Heard but not seen
LF	21:31	Soprano pipistrelle	Heard but not seen
MDH	21:32	Soprano pipistrelle	Heard but not seen
VR	21:32	Soprano pipistrelle	Heard but not seen
JJ	21:35	Pipistrelle sp.	Heard but not seen
-	21:36	-	Ecologists ceased observations
Date	30/08/2011		
Temp	14°C		
Weather	Partly cloudy		
Ecologists	Victoria Russell, Louise Fairless, Martyn Drabik-Hamshare, Joseph Jenkins		
Observer	Time	Species	Observation
-	19:41	-	Ecologists commenced observations
-	19:56	-	Sunset
LF	19:46	Noctule	Commuting west high above the site
JJ	20:00	Noctule	Heard but not seen
MDH	20:00	Noctule	Heard but not seen
LF	20:01	Noctule	Commuting west high above the site
VR	20:01	Noctule	Heard but not seen
MDH	20:01	Noctule	Heard but not seen
LF	20:06	Pipistrelle sp.	Commuting south over buildings J and Ga
LF	20:06	Noctule	Commuting west high above the site
VR	20:06	Noctule	Heard but not seen
JJ	20:06	Noctule	Heard but not seen
MDH	20:06	Pipistrelle sp.	Commuting south over building J
MDH	20:07	Noctule	Commuting west high above the site
MDH	20:07	Pipistrelle sp.	Commuting south-east to the east of building J

LF	20:08	Pipistrelle sp.	Heard but not seen
JJ	20:08	Pipistrelle sp.	Heard but not seen
MDH	20:09	Pipistrelle sp.	Commuting west and then north above building J
MDH	20:15	Pipistrelle sp.	Heard but not seen
LF	20:16	Noctule	Commuting west high above the site
JJ	20:16	Noctule	Heard but not seen
VR	20:17	Noctule	Heard but not seen
MDH	20:17	Noctule	Commuting west high above the site
MDH	20:17	Common pipistrelle	Commuting north to the east of building J
VR	20:19	Common pipistrelle	Emerging from south-west corner of building J
JJ	20:19	Common pipistrelle	Foraging to the west of building A
JJ	20:22	Soprano pipistrelle	Heard but not seen
JJ	20:25	Pipistrelle sp.	Heard but not seen
LF	20:29	Common pipistrelle	Heard but not seen
MDH	20:30	Soprano pipistrelle	Heard but not seen, feeding buzzes
VR	20:33	Common pipistrelle	Heard but not seen
JJ	20:33	Common pipistrelle	Heard but not seen, feeding buzzes
JJ	20:39	Common pipistrelle	Heard but not seen, feeding buzzes
JJ	20:40	Common pipistrelle	Heard but not seen, feeding buzzes
LF	20:45	Pipistrelle sp.	Heard but not seen
VR	20:45	Soprano pipistrelle	Heard but not seen
JJ	20:46	Pipistrelle sp.	Heard but not seen, feeding buzzes
MDH	20:46	Soprano pipistrelle	Foraging to the east of building J, travelling north
JJ	20:47	Common pipistrelle	Heard but not seen, feeding buzzes
VR	20:48	Soprano pipistrelle	Heard but not seen
MDH	20:48	Pipistrelle sp.	Heard but not seen
JJ	20:50	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	20:50	Pipistrelle sp.	Heard but not seen
VR	20:51	Common pipistrelle	Heard but not seen
LF	20:52	Common pipistrelle	Heard but not seen
MDH	20:52	Common pipistrelle	Heard but not seen
JJ	20:53	Pipistrelle sp.	Heard but not seen, feeding buzzes
JJ	20:54	Common pipistrelle	Heard but not seen, social calls
MDH	20:55	Soprano pipistrelle	Commuting east to the north of building J
LF	20:56	Pipistrelle sp.	Heard but not seen
MDH	20:57	Common pipistrelle	Heard but not seen
JJ	20:58	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	20:59	Common pipistrelle	Heard but not seen
LF	21:00	Pipistrelle sp.	Heard but not seen, social calls
MDH	21:00	Common pipistrelle	Heard but not seen
MDH	21:03	Pipistrelle sp.	Heard but not seen
JJ	21:05	Pipistrelle sp.	Heard but not seen, feeding buzzes
JJ	21:06	Common pipistrelle	Foraging and social calling to the west of building A
LF	21:08	Pipistrelle sp.	Foraging east between buildings Ga and J
VR	21:09	Soprano pipistrelle	Heard but not seen
MDH	21:09	Common pipistrelle	Heard but not seen
JJ	21:10	Soprano pipistrelle	Heard but not seen, feeding buzzes

LF	21:11	Pipistrelle sp.	Foraging south over buildings J and Ga
JJ	21:11	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	21:11	Pipistrelle sp.	Heard but not seen
LF	21:12	Common pipistrelle	Heard but not seen
JJ	21:12	Common pipistrelle	Heard but not seen, feeding buzzes
VR	21:13	Common pipistrelle	Heard but not seen, social calls
MDH	21:13	Pipistrelle sp.	Heard but not seen
LF	21:14	Common pipistrelle	Heard but not seen, social calls
JJ	21:14	Common pipistrelle	Heard but not seen, feeding buzzes and social calls
JJ	21:15	Common pipistrelle	Foraging and social calling travelling south-east between buildings A and B
MDH	21:15	Soprano pipistrelle	Heard but not seen
MDH	21:15	Soprano pipistrelle	Heard but not seen
LF	21:16	Common pipistrelle	Heard but not seen
JJ	21:17	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	21:17	Common pipistrelle	Heard but not seen
MDH	21:17	Common pipistrelle	Heard but not seen
JJ	21:18	Common pipistrelle	Heard but not seen, feeding buzzes
MDH	21:18	Common pipistrelle	Foraging to the east of building J
LF	21:20	Common pipistrelle	Heard but not seen, social calls
MDH	21:20	Common pipistrelle	Heard but not seen
MDH	21:21	Common pipistrelle	Heard but not seen
LF	21:23	Common pipistrelle	Heard but not seen, social calls
MDH	21:24	Common pipistrelle	Heard but not seen
LF	21:25	Common pipistrelle	Heard but not seen
JJ	21:25	Common pipistrelle	Foraging and social calling to the west of building A
MDH	21:25	Pipistrelle sp.	Heard but not seen
LF	21:26	Common pipistrelle	Heard but not seen, social calls
JJ	21:26	Common pipistrelle	Heard but not seen
MDH	21:26	Common pipistrelle	Heard but not seen, social calls
-	21:26	-	Ecologists ceased observations

4.3.2 Great crested newt

According to aerial photographs (GoogleEarth™) and Ordnance Survey 1:25,000 maps, there are two waterbodies within 500m of the site. The first is a pond adjacent to an industrial unit approximately 15m away from the south-east corner of the site. The second is a lake approximately 220m to the east of the site. However it is separated from the site by barriers to great crested newt movement including Brockhampton Road.

The hedge and scrub dividing the farm from the former allotments is suitable foraging and hibernation habitat for great crested newt. The longer grassland is also suitable foraging habitat for great crested newts.

It was not possible to access the pond adjacent to the nearby industrial unit. The landowner was contacted. We were informed that the pond had been surveyed a couple of years previously on several occasions to check for the presence of great crested newts as a result of nearby road

improvements (presumably by agents of the Highways Agency). He informed us that he was not given a copy of the report but he understands that no great crested newts were found.

A Habitat Suitability Index (HSI) was calculated (using best judgement from public highway) as 0.48 (poor). The calculations are tabulated below:

SI1 - Location	A/B/C	A	1.00
SI2 - Pond area	Area in m ²	109.9	0.22
SI3 - Pond drying	Never/rarely/occasionally/often	Never	0.9
SI4 - Water quality	Good/moderate/poor/bad	Poor	0.33
SI4 - Shade	% shaded 1m from the bank	30	1.00
SI6 - Fowl	Absent/minor/major	Minor	0.67
SI7 - Fish	Absent/minor/possible/major	Possible	0.67
SI8 - Ponds	Number of non-isolated ponds within 1km	0	0.10
SI9 - Terrestrial habitat	Good/moderate/poor/isolated	Moderate	0.67
SI10 - Macrophytes	% cover	0	0.31
HSI			0.48

4.3.3 *Badger*

There was no evidence of badger found during the survey.

4.3.4 *Birds*

The scrub and buildings have the potential to support nesting birds during the breeding season. There are many bird species on the UK and Local BAP (or in the RSPB *Birds of Conservation Concern*) that could be using this area of the site for nesting and foraging. These could include song thrush (*Turdus philomelos*) and house sparrow (*Passer domesticus*). None were recorded during the survey.

4.3.5 *Widespread species of reptiles*

The longer grassland and *Rubus fruticosus* agg. (Bramble) scrub along the base of the hedge dividing the farm from the former allotments was suitable habitat for slow-worm (*Anguis fragilis*). The longer grassland provides suitable foraging habitat while the hedge and scrub provides suitable foraging and hibernating habitat.

Four slow-worms were recorded during the artificial refugia survey of the farm. They were observed on the northern edge of the farm and in the south-east corner (see *Figure 10* for the locations). However, three of these records appear to be the same individual (an adult female) based on the snout-to-vent and vent-to-tail measurements.

Three slow-worms were recorded during the artificial refugia survey of the former allotments. They were observed on the northern edge of the former allotments (see *Figure 10* for the locations).

Table 4.3.5.1. overleaf presents the results of the artificial refugia surveys on both the farm and former allotments and *Figure 10* in *Section 6* for the location of slow-worms recorded.

Table 4.3.5.1. Results of artificial refugia survey.

Site:	Kingscroft Farm, Ranelagh Road, Havant								
Surveyor:	Martyn Drabik-Hamshare								
Date	Time of check	Temp (°C)	Species	No.	Sex & Age	SV length (mm)	VT length (mm)	Refugia no.	General weather
22/09/10	11:45	24.3	S-w	1	Ad female	173	144	4	Sunny, 30% cloud cover
23/09/10	10:30	16.0	-	-	-	-	-	-	Overcast, light rain
24/09/10	11:00	14.8	-	-	-	-	-	-	Overcast
25/09/10	10:00	16.3	-	-	-	-	-	-	Sunny, no clouds
26/09/10	11:30	15.0	-	-	-	-	-	-	Sunny, 50% cloud cover
27/09/10	10:30	14.0	S-w	1	Ad female	173	144	5	Overcast
27/09/10	10:45	15.0	S-w	1	Ad female	126	148	36	Overcast
28/09/10	10:15	20.6	S-w	1	Ad female	173	144	2	Overcast, warm
Site:	Former allotments, Ranelagh Road, Havant								
Surveyors:	Martyn Drabik-Hamshare, Joseph Jenkins								
Date	Time of check	Temp (°C)	Species	No.	Sex & Age	SV length (mm)	VT length (mm)	Refugia no.	General weather
12/09/11	13:40	20	S-w	1	Ad female	Escaped		85	Scattered cloud, windy, showers earlier
14/09/11	14:55	16	-	-	-	-	-	-	Slight breeze, 75% cloud cover
16/09/11	11:30	18	S-w	1	Ad male	140	70	47	Slight breeze, cool, 50% cloud cover
19/09/11	10:30	14	-	-	-	-	-	-	Slight breeze, cool, 50% cloud cover
21/09/11	14:15	16	-	-	-	-	-	-	Sunny, clear, windy
23/09/11	11:00	14	-	-	-	-	-	-	Sunny, slight breeze, cool, 50% cloud cover
27/09/11	12:10	18	S-w	1	Juvenile	35	40	47	Sunny, slight breeze, warm, 25% cloud cover

5 ***INTERPRETATION AND EVALUATION***

5.1 ***Constraints on survey***

Detailed searches often result in the discovery of evidence of bats. However, although such surveys can identify the presence of bats it is more difficult to prove absence due to the crevice-dwelling nature of these elusive mammals. It was particularly difficult to search the interiors of the stables for bat droppings due to the amount of debris on the floor.

The artificial reptile refugia on the former allotments had to be repositioned following disturbance and removal on the 9th September 2011. There was continuing removal of the refugia over the survey period resulting in only twenty-nine remaining by the end of the survey.

It was not possible to access the pond on adjacent land despite contacting the landowner.

5.2 ***Survey report expiry***

If more than 12 months elapses after completion of all surveys, it may be advisable to conduct further survey work to obtain up-to-date information prior to commencement of the development thereby ensuring protected species compliance.

5.3 ***Legal context***

Habitat has been identified on site that is suitable for protected species. Different species are afforded different levels of protection; as detailed in *Appendix B*.

The site is not designated for its wildlife interest at an international, national or local scale.

5.4 ***Potential impacts of proposed development***

5.4.1 ***Desk study***

There are three statutory designated sites within 1km of this site according to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk). All of these areas are on the coast to the south of the site and south of the A27.

5.4.2 ***Habitats and plants***

The habitats present at this site are widespread and common and also contain common and widespread species. The habitats found on site are easily re-creatable and are of negligible nature conservation value from a botanical perspective. The exceptions are the mature trees and the hedgerow dividing the farm from the former allotments. It would take many decades for trees to grow to the size of the *Quercus robur* (Pedunculate Oak) present. In addition, although the hedgerow dividing the farm from the former allotments would be deemed as Not Important under

the *Hedgerow Regulations* it is a mature hedge that will provide food and shelter for numerous species of birds and insects.

No non-native plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* were recorded.

5.4.3 *Bats*

Roosting

Buildings B and J have evidence of roosting bats (one common pipistrelle emerging from both), therefore before any works can be undertaken on this building a European Protected Species (EPS) licence for bats would need to be obtained (see *Section 5.7*).

Although there were eye-witness accounts of a baby bat being rescued on site earlier in the year, the emergence surveys showed no evidence of a maternity colony on site.

Foraging and commuting

The grassland and hedge is suitable foraging habitat for bats and the emergence surveys showed that bats were using the site for foraging and commuting. Retaining connectivity *e.g.* hedges would ensure that habitat links are maintained.

Changes in lighting can also affect foraging and roosting bats. Therefore, in the new development there should be no lighting directed onto any retained trees, hedges or scrub.

5.4.4 *Great crested newt*

It is not thought that great crested newts are likely to use the small pond within the industrial estate and therefore no impacts are anticipated.

5.4.5 *Badger*

Areas within 30m of development activities are usually searched for setts (where access is possible) as former guidelines suggest badgers and their setts could be disturbed by work using heavy machinery within 30m of a badger sett, light machinery within 20m, and light work (such as digging) within 10m.

As no badger setts were found on site, development works are free to proceed without further regard to this species, although if a badger sett is subsequently discovered within 30m of the proposed works then it may require a licence from Natural England to proceed. Guidance to what may be classed as disturbance to a badger (when occupying a sett) can be found at:

http://www.naturalengland.org.uk/Images/WMLG16_tcm6-11814.pdf.

5.4.6 *Birds*

All trees and bushes on site could be used by nesting birds. Any affected vegetation with the potential to support nesting birds should be cut to near ground level (approximately 30cm) outside

the bird breeding season (late February to August inclusive). The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). If this is not possible, and vegetation has to be removed during the nesting season, then it should be inspected (by an ecologist) for nests immediately prior to removal of the vegetation. If there are active nests then they should be retained and work must be delayed until the young have fledged and left the nest.

5.4.7 *Widespread species of reptiles*

The site has suitable habitat for reptiles and surveys using artificial refugia found a low population of slow-worms using the site (along the northern edge and south-east corner of the farm and the northern edge of the former allotments). The mitigation measures described in *Section 5.6.2* should be undertaken to ensure protected species compliance.

5.5 *Further survey*

No further surveys are currently proposed.

5.6 *Outline mitigation & enhancement measures*

5.6.1 *Bats*

Some suggested mitigation is given below.

- A total of three woodcrete Schwegler bat boxes (1FD, 1 FF and 1FS bat boxes) should be erected in varying elevations and aspects between 2.5m and 5m (facing south and south-east) in a large tree on the boundary of the site prior to the commencement of the building construction and demolition works.
- The roofs, wooden cladding and other areas that could be used by bats should be removed carefully by hand under strict ecological supervision.
- Bat bricks (Terca/EcoSurv Bat Box) and wooden cladding should be installed on the new buildings closest to those of Buildings B and J. Where possible the wooden cladding should be on the same elevation as where the bats emerged.
- Simple, low cost bat features could be designed into the new buildings close to retained vegetation or areas of green space. Examples of bat features include access into soffit boxes (via 50x50mm gaps), or using hanging tiles or timber cladding offset with 30mm gaps for bats to roost behind. Other options include the provision of bat tiles or slates on the roofs of new buildings to allow bats to access the roof voids; and the provision of bat bricks to enhance the buildings as a potential bat roosts.
- The use of high intensity lighting should be avoided, particularly near retained vegetation and any bat enhancement measures.
- Following construction, areas of public open space and gardens should be planted with species that attract insects that bats feed on. Examples of commercially available night-scented species to attract moths are listed below.

Climbers

Hedera helix (Ivy)

Jasminum officinale (Common (White) Jasmine)

Lonicera etrusca (Italian Honeysuckle)

Lonicera caprifolium (Perfoliate Honeysuckle)

Lonicera japonica (Japanese Honeysuckle)

Lonicera periclymenum (Honeysuckle)

Rosa species (Rose species)

Herbs

Hesperis matronalis (Dame's-violet, often sold as Sweet Rocket)

Matthiola bicornis (Night-scented Stock)

Nicotiana species (Tobacco-plant)

Oenothera species (Evening-primroses)

Saponaria officinalis (Soapwort)

Silene noctiflora (Night-scented Catchfly)

Silene vulgaris (Bladder Campion)

5.6.2 *Widespread species of reptiles*

A low population of slow-worms has been identified on the farm and former allotments. Therefore, to allow the site to be cleared for development without harm to reptiles (so as to comply with the law – the *Wildlife and Countryside Act 1981* (as amended)), a mitigation strategy for the slow-worms should be developed.

This would involve creating a reptile conservation area where the slow-worms on site can be translocated to. This area should be protected with reptile fencing. The rest of the site should have a destructive search of areas of suitable habitat such as the dividing hedge, scrub and tall-herb vegetation. This involves vegetation clearance and topsoil stripping to render the cleared areas unsuitable for reptiles. Any individuals captured should be moved to the reptile conservation area. These works should be supervised by an ecologist.

The reptile fencing should be erected to prevent them returning to the area of works, but allow them to move into adjacent, unaffected vegetation. The reptile fencing should be maintained for the duration of the development to prevent any reptiles being injured or killed in the event they enter the development *e.g.* to utilise piles of soil or rubble created during the construction process. Once works have finished the fencing should be removed. This follows slightly modified best practice guidelines issued by the former Herpetofauna Groups of Britain and Ireland (HGBI) in 1998 and *Reptile Mitigation Guidelines* (Natural England, 2011).

It is necessary to carry out vegetation clearance and topsoil stripping at times of year when reptiles are active, *i.e.* between March/ April and October.

5.7 *Requirement for Habitats Regulations licence – European Protected Species (EPS) licence*

A bat roost was found to be present on site in buildings B and J. Therefore, an EPS licence for bats from Natural England is required prior to any works commencing on these buildings. The licence would permit activities that may otherwise be offences under the *Conservation Habitats & Species*

Regulations 2010, such as destruction of bat roost sites. Should bats be found during works on any other buildings then work must stop on the relevant building and an EPS licence or an amendment to an existing EPS licence should be applied for.

Natural England takes 30 working days to process licence applications following receipt of all the relevant documentation. This includes a Reasoned Statement and a Method Statement in two sections: Background and Supporting Information (Part 1); and Delivery Information (Part 2). The latter includes a detailed mitigation strategy to eliminate or reduce impacts on bats.

It is not possible to apply for an EPS licence until full planning permission has been granted and any conditions relating to wildlife fulfilled, although Local Planning Authorities may request the information prior to determining a planning application request. Additional time will be required where any revisions to a proposed mitigation strategy are necessary to obtain the licence.

Figure 1. Aerial photographs showing the location of the site.

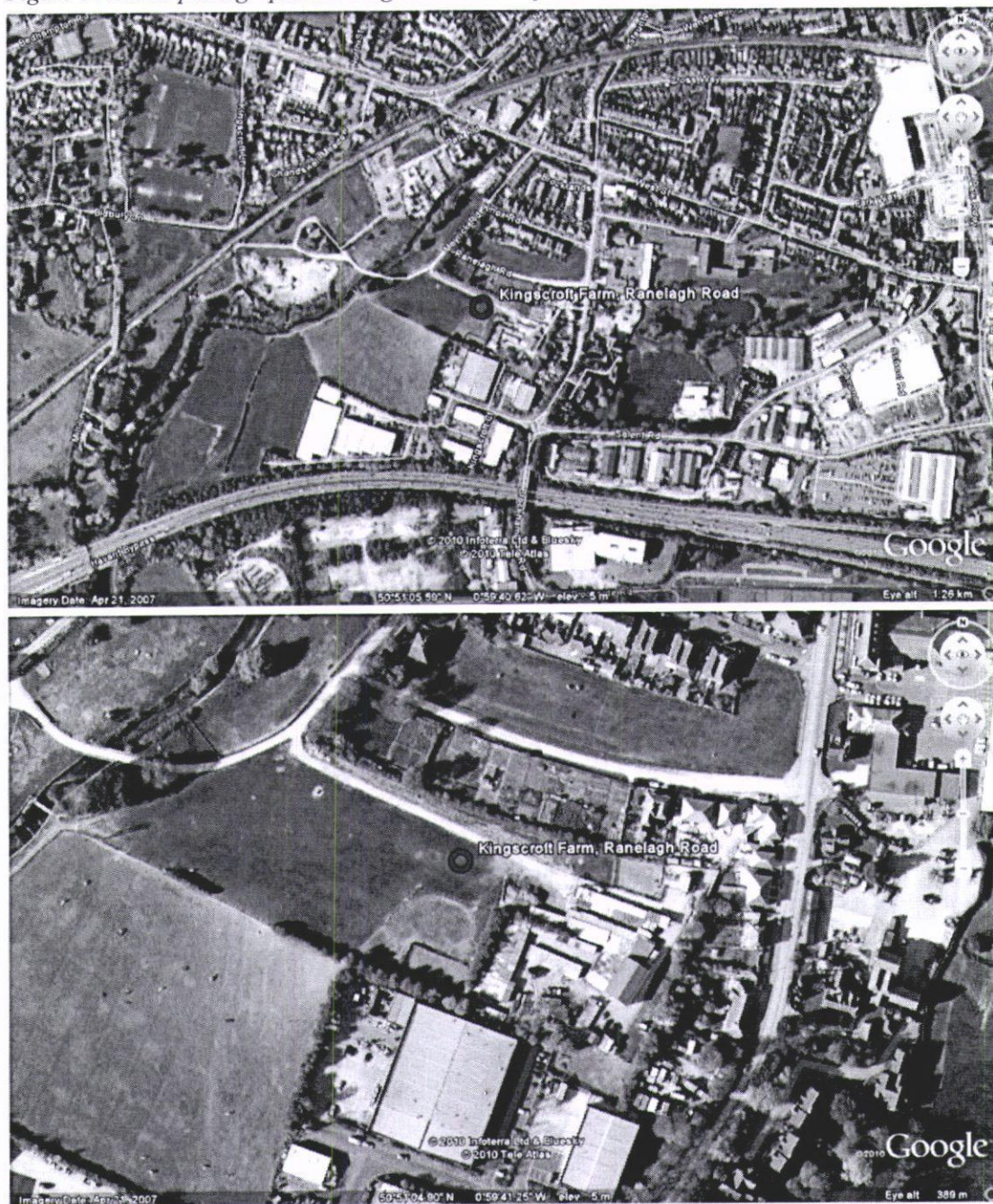


Figure 2. Site plan.

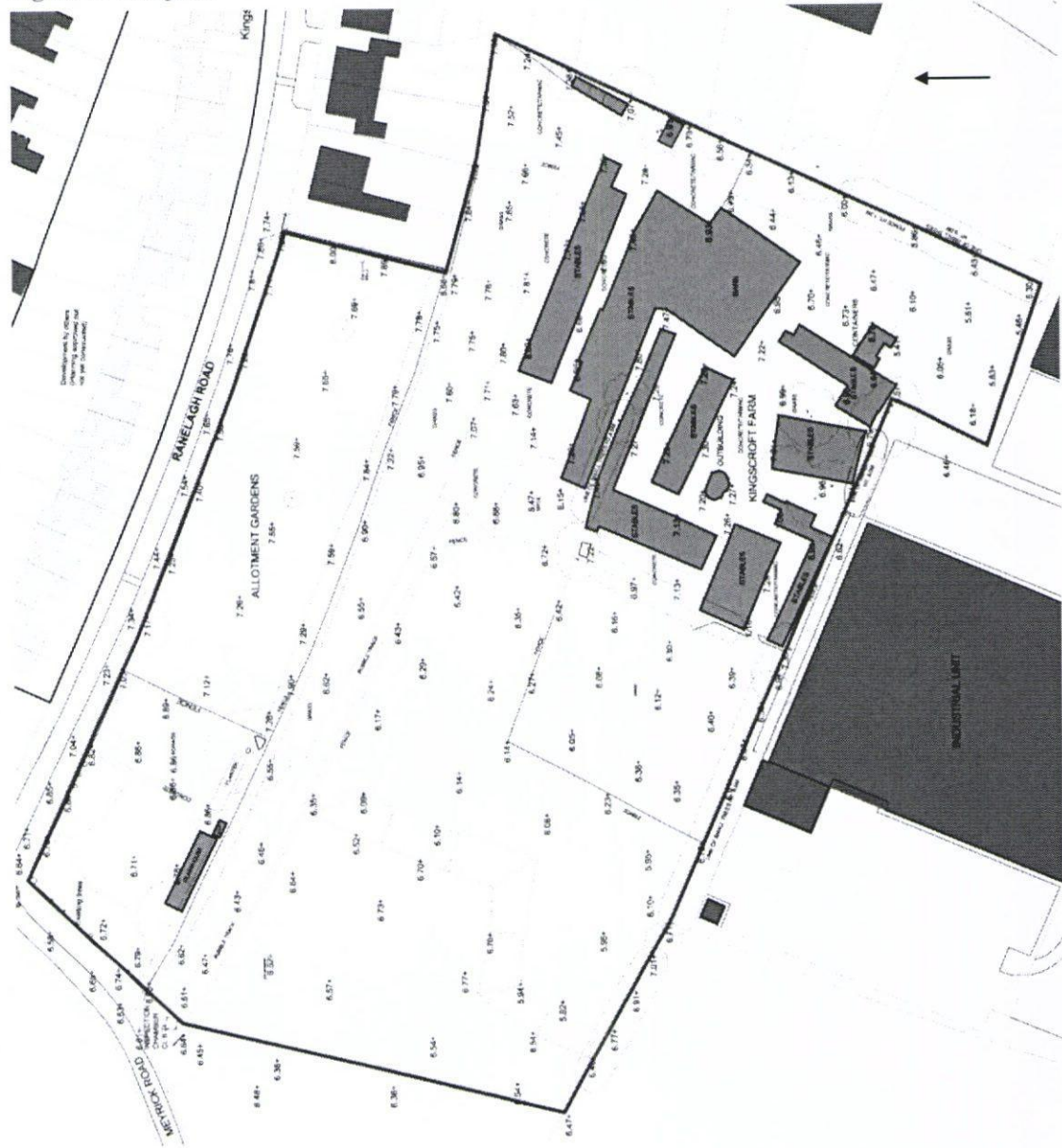
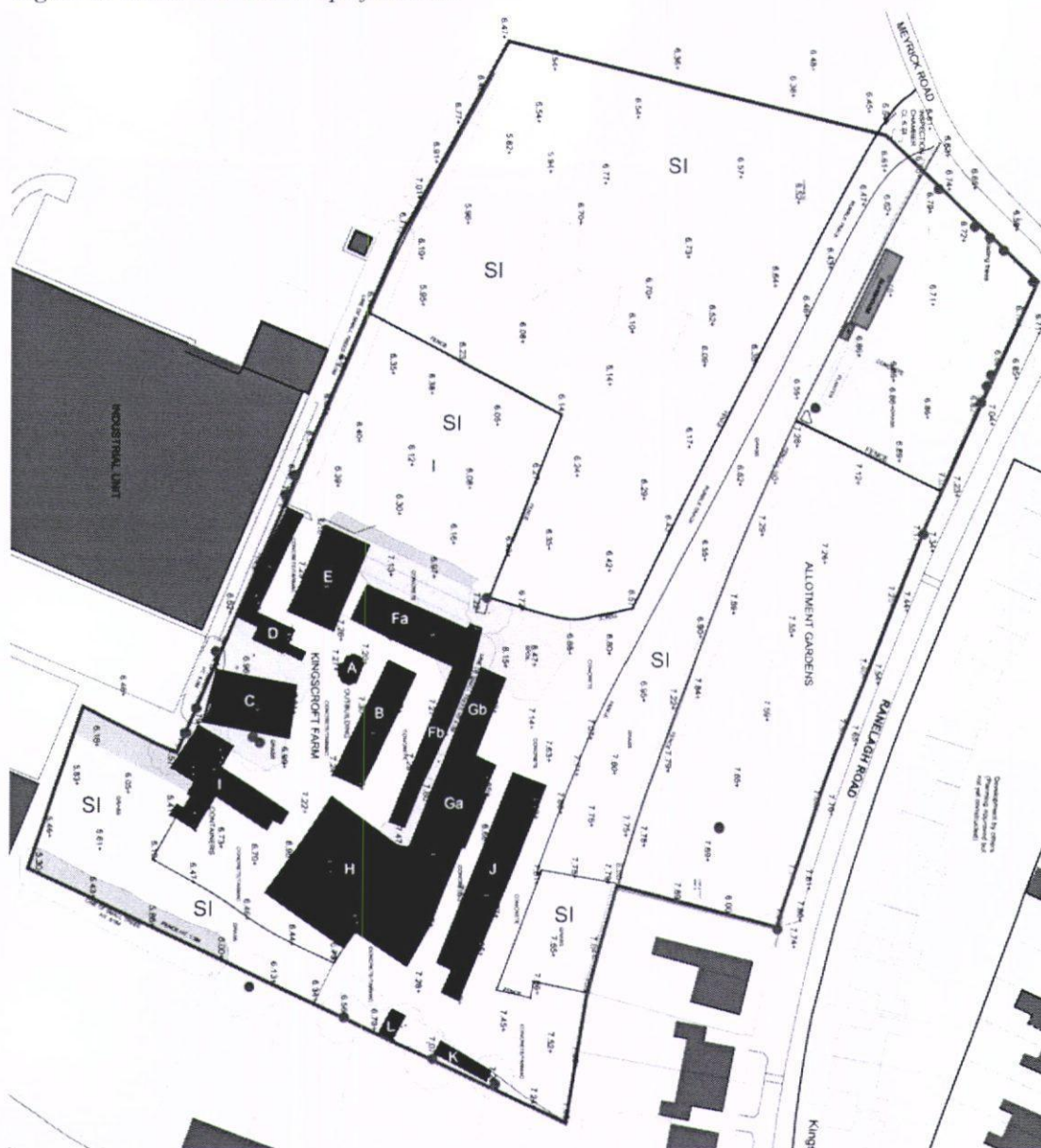


Figure 3. Phase 1 Habitat map of the site.



Key

-  Dense scrub
-  Tall ruderal vegetation
-  Amenity grassland
-  Building
-  Bare ground
- SI Improved grassland

-  Scattered trees
-  Hedgerow
-  Fence

Figure 4. Plan showing bat activity, including emerging bat (red line) and foraging and commuting bats (solid blue lines – approximate due to erratic flight paths), for the emergence survey carried out on the 16th September 2010. Arrows show direction of flight (where known).

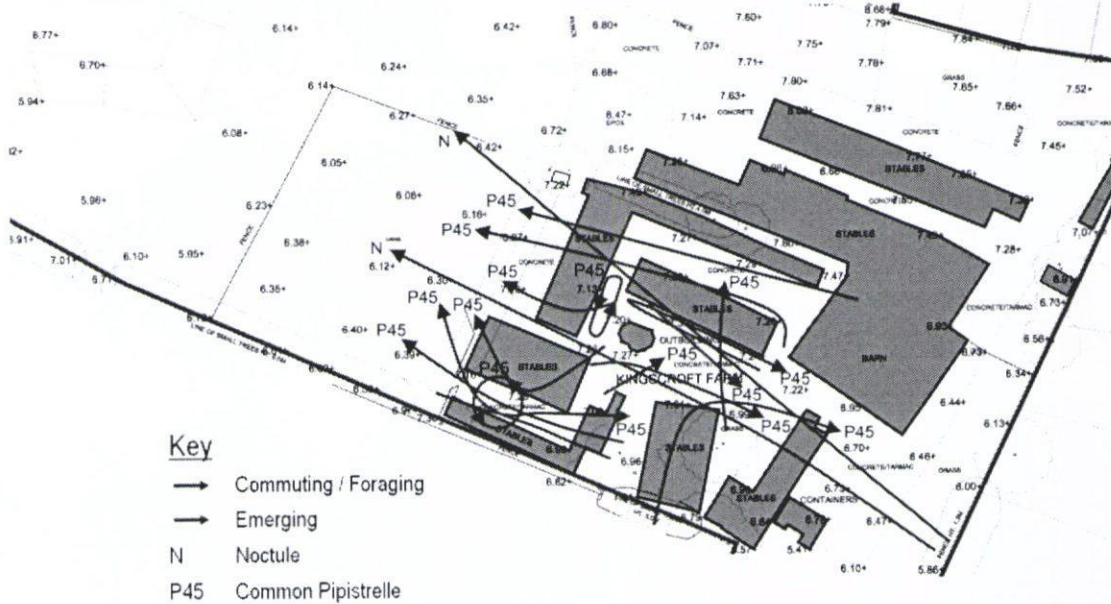


Figure 5. Plan showing bat activity, including foraging and commuting bats (solid blue lines – approximate due to erratic flight paths), for the emergence survey carried out on the 28th September 2010. Arrows show direction of flight (where known).

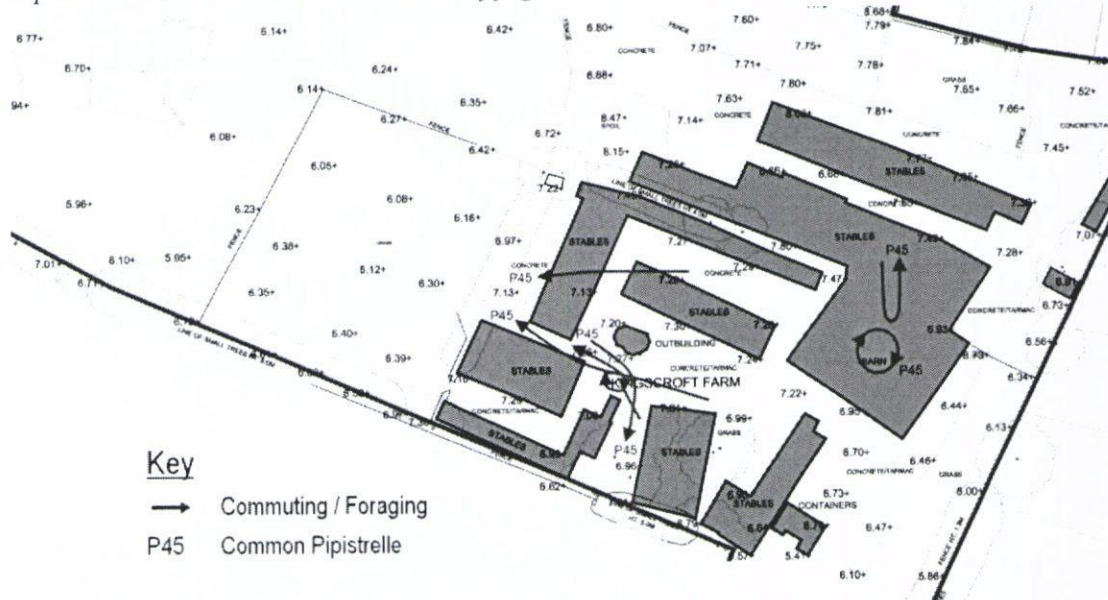


Figure 6. Plan showing bat activity, including foraging and commuting bats (solid blue lines – approximate due to erratic flight paths), for the emergence survey carried out on the 23rd August 2011. Arrows show direction of flight (where known).

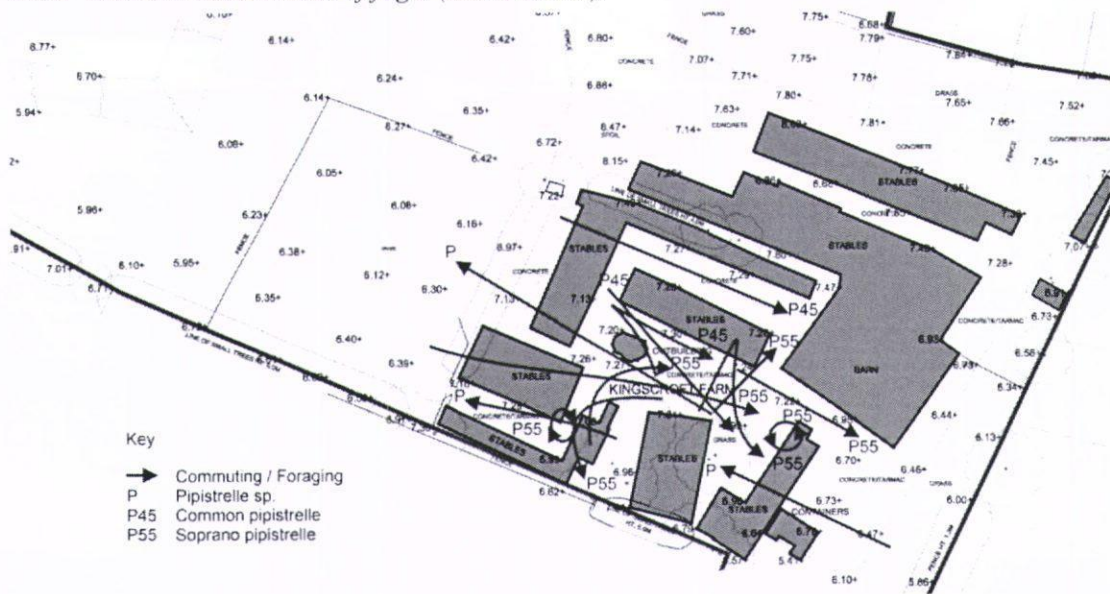
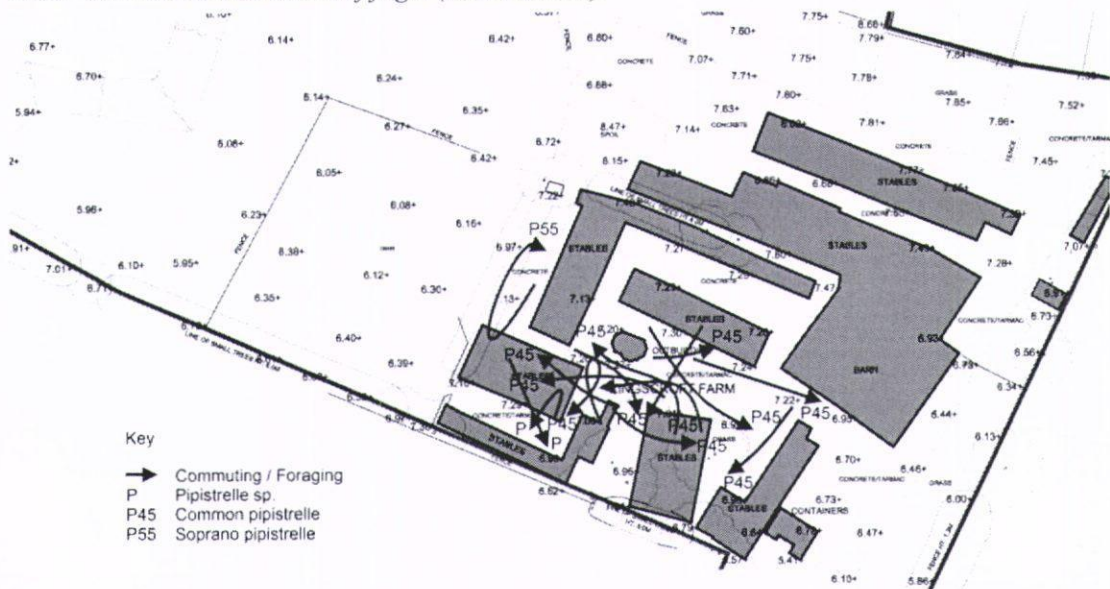


Figure 7. Plan showing bat activity, including foraging and commuting bats (solid blue lines – approximate due to erratic flight paths), for the emergence survey carried out on the 24th August 2011. Arrows show direction of flight (where known).



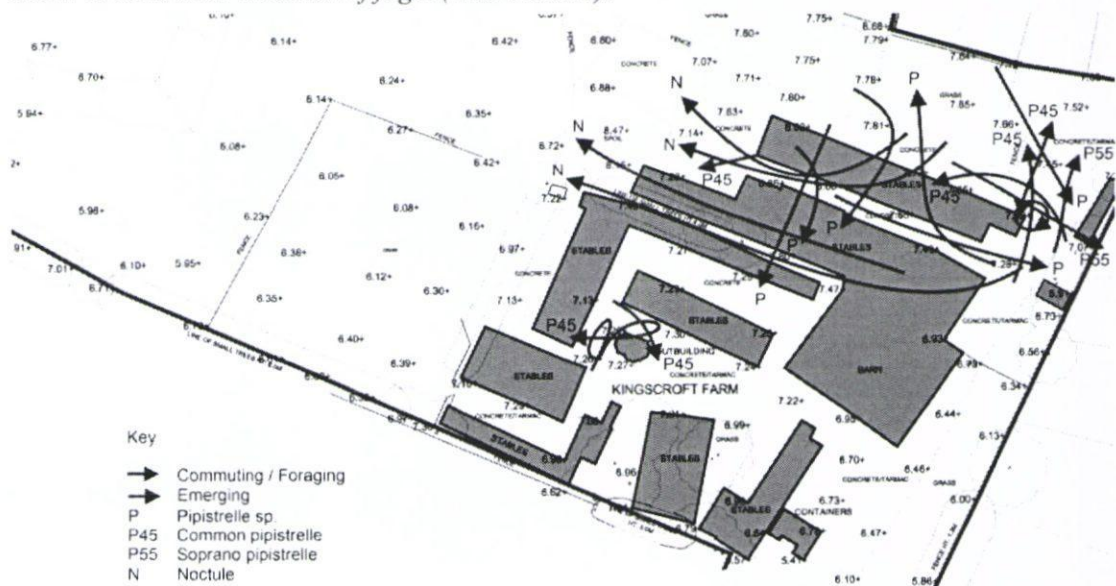
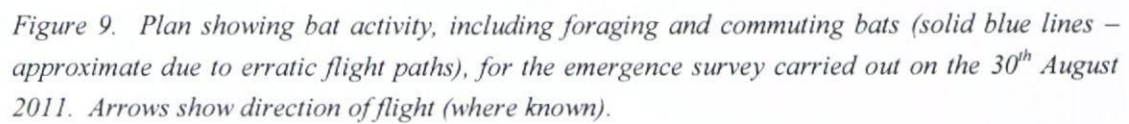
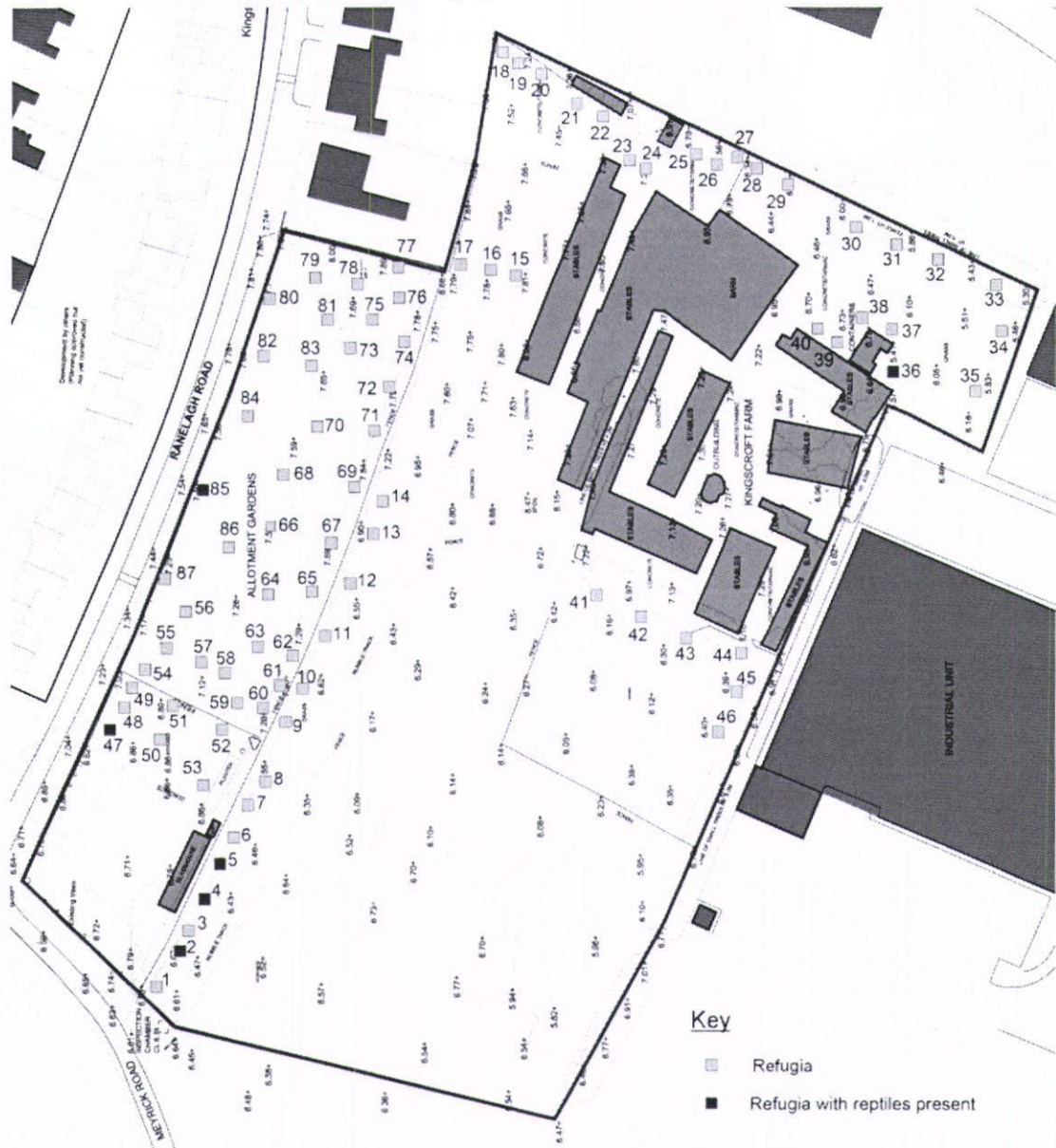


Figure 10. Location of artificial reptile refugia.



PHOTOGRAPHS

Photo 1. View down Ranelagh Road.



Photo 2. View of former allotments.



Photo 3. View down the entrance track to the farm.



Photo 4. View of the stables from the entrance track.



Photo 5. View of horse-grazed fields.



Photo 6. View of horse-grazed fields.



Photo 7. View of rough grassland and scrub providing suitable habitat for reptiles.



Photo 8. View of nearby pond (from public access).



REFERENCES

- Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.
- Beebee, T. and Griffiths, R. (2000). *Amphibians and Reptiles*. New Naturalist Series 87. Harper Collins, London.
- HMSO (1981). *Wildlife and Countryside Act 1981*. HMSO, London.
- HMSO (2010). *Conservation of Habitats and Species Regulations 2010*. HMSO, London.
- HMSO (2000). *Countryside and Rights of Way Act*. HMSO, London.
- HMSO (2006). *Natural Environment and Rural Communities Act*. HMSO, London.
- Institute of Environmental Assessment (1995). *Guidelines for Baseline Ecological Assessment*. London.
- Joint Nature Conservation Committee (2003). *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit* (revised reprint). Joint Nature Conservation Committee, Peterborough.
- Natural England (in prep). *Reptile Mitigation Guidelines*. Natural England, Peterborough.
- Office of the Deputy Prime Minister (2005). *ODPM Circular 06/2005. Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. ODPM, London.
- Poland, J. and Clement, E. J. (2009). *The Vegetative Key to the British Flora*. John Poland, Southampton.
- Ratcliffe, D.A. (1977). *A Nature Conservation Review*. Cambridge University Press, Cambridge.
- UK Biodiversity Action Plan. www.ukbap.org.uk.
- Usher, M.B. (1986). *Nature Conservation Evaluation*. Chapman & Hall, London.

APPENDIX A – PLANT SPECIES LIST

Species	Hedge	Grassland	Ruderal	Hardstanding
a) Woody species				
<i>Acer pseudoplatanus</i> (Sycamore)	r	-	-	-
<i>Buddleja davidii</i> (Butterfly-bush)	-	-	-	vr
<i>Crataegus monogyna</i> (Hawthorn)	a	-	-	-
<i>Hedera helix</i> (Ivy)	lf	-	-	-
<i>Rubus fruticosus</i> agg. (Bramble)	lf	-	o	-
<i>Salix cinerea</i> (Grey Willow)	o	-	-	-
<i>Sambucus nigra</i> (Elder)	o	-	o	-
b) Herbs				
<i>Achillea millefolium</i> (Yarrow)	-	o	-	-
<i>Arctium minus</i> (Lesser Burdock)	-	-	r	-
<i>Atriplex patula</i> (Common Orache)	-	-	-	r
<i>Centaurea nigra</i> (Common Knapweed)	-	o	-	-
<i>Cerastium glomeratum</i> (Sticky Mouse-ear)	-	-	-	r
<i>Cirsium arvense</i> (Creeping Thistle)	-	-	vr	-
<i>Conyza bilbaoana</i> (Bilbao Fleabane)	-	-	-	vr
<i>Conyza sumatrensis</i> (Guernsey Fleabane)	-	-	-	o
<i>Dactylis glomerata</i> (Cock's-foot)	-	r	-	-
<i>Lamium album</i> (White Dead-nettle)	-	-	lf	-
<i>Lolium perenne</i> (Perennial Rye-grass)	-	d	-	-
<i>Malva sylvestris</i> (Common Mallow)	-	-	r	-
<i>Plantago lanceolata</i> (Ribwort Plantain)	-	o	f	-
<i>Plantago major</i> (Greater Plantain)	-	-	-	o
<i>Poa annua</i> (Annual Meadow-grass)	-	-	-	r
<i>Polygonum aviculare</i> (Knotgrass)	-	-	-	o
<i>Potentilla reptans</i> (Creeping Cinquefoil)	-	-	-	la
<i>Ranunculus repens</i> (Creeping Buttercup)	-	-	-	o
<i>Rumex obtusifolius</i> (Broad-leaved Dock)	-	vr	-	-
<i>Senecio jacobaea</i> (Common Ragwort)	-	vr	vr	-
<i>Sonchus oleraceus</i> (Smooth Sow-thistle)	-	-	-	o
<i>Trifolium repens</i> (White Clover)	-	f	-	-
<i>Tripleurospermum inodorum</i> (Scentless Mayweed)	-	-	-	r
<i>Urtica dioica</i> (Common Nettle)	-	-	-	-

10 APPENDIX B - PROTECTED SPECIES LEGISLATION

10.1 General

This section briefly describes the legal protection afforded to the protected species identified in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

10.2 Bats

All species of British bat are listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act). This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European protected species listed on *Schedule 2* of the *Conservation Habitats & Species Regulations 2010* which gives them full protection under *Regulation 39*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat (in such a way as to be likely to significantly affect: (i) the ability of a significant group of bats to survive, breed or rear/nurture their young; or (ii) the local distribution or abundance of the species concerned);
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present (bats tend to reuse the same roost).

Several species of bat are included as a Priority Species in the UK Biodiversity Action Plan (UKBAP - JNCC (2003) and also as species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRoW Act.

All species of British bat are also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

10.3 Great crested newt

Great crested newt (*Triturus cristatus*) is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receives full protection under *Section 9*. This species is also listed as a

European Protected Species on *Schedule 2* of the *Conservation Habitats & Species Regulations 2010* which gives it full protection under *Regulation 39*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CROW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The great crested newt is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under *Section 74* of the CROW Act.

10.4 Badger

Meles meles (badger) is protected in Britain under the *Protection of Badgers Act 1992* (as amended) and *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended).

The legislation affords protection to badgers and badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

Guidance to what may be classed as disturbance to a badger (when occupying a sett) can be found at: http://www.naturalengland.org.uk/Images/WMLG16_tcm6-11814.pdf

10.5 Birds

10.5.1 Birds - general protection

All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the CROW Act.

The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

10.5.2 *Birds - specially protected species*

Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4) and 1(5)* of the Act. The protection was extended by the CRow Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

10.6 *Widespread species of reptiles*

Zootoca vivipara (common lizard), *Natrix natrix* (grass snake), *Anguis fragilis* (slow-worm), and *Vipera berus* (adder) are listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1)*. This protection was extended by the CRow Act.

Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

10.7 *European Protected Species Licences*

Where it is necessary to carry out an action that could result in an offence under the *Conservation Habitats & Species Regulations 2010* it is possible to apply for a European Protected Species (EPS) licence from Natural England. Licences are only issued where Natural England are satisfied that three derogation tests are met. These are that the activity is for **imperative reasons of overriding public interest**, that there must be **no satisfactory alternative** and that **favourable conservation status of the species must be maintained**.

Consideration of these three derogation tests was previously left to Natural England as part of their deliberations on whether to grant a licence for the development activity after a planning consent has been issued. However, the regulations now require that **all** public bodies, i.e. **Local Planning Authorities** (LPAs), have regard to the requirements of the European Habitats Directive when carrying out their functions. As a result, LPAs **must** address the three derogation tests when considering a planning application that that could impact upon any European Protected Species (EPS).

10.8 *National planning context*

10.8.1 *General*

Surveys should be completed in line with Natural England's South-east Region *Standing Advice for Local Authorities* (http://www.naturalengland.org.uk/regions/south_east/ourwork/standingadvice/), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys (see flowchart) if there are no other issues (i.e. in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

Planning Policy Statement 9 (or PPS9 - ODPM 2005) states that *'the re-use of previously developed land for new development makes a major contribution to sustainable development'*, but that: *'where such sites have significant biodiversity...interest...local planning authorities, together with developers, should aim to retain this interest or incorporate it into any development'*.

The key principles outlined in PPS9 are that sound and up-to-date evidence should be available with regards the biodiversity interests of a site; impacts should ideally be avoided by careful design; but where this is not possible, mitigation or compensation measure should be implemented to minimize impacts (ODPM, 2005).

"Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests...." Key Principle 1 (ii), vr. 3

"Plan policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development" Key Principle 1 (iv), vr. 3

"The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. 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" Key Principle 1 (vi), vr. 3

PPS9 recognises that many wildlife species receive statutory protection but that other species have been identified as being of *'principal importance for the conservation of biodiversity in England'*. The document states that *'planning authorities should ensure that these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations'*. These UK Biodiversity Action Plan (UK BAP) species include hedgehog, barbastelle, Bechstein's bat, brown long-eared bat, greater horseshoe bat, greater mouse-eared bat, lesser horseshoe bat, noctule, soprano pipistrelle, slow-worm, common lizard, grass snake and toad.

In addition to the above, *Section 40 of the Natural Environment and Rural Communities Act (2006)* imposes a new duty on all public authorities to have regard for biodiversity.

11 APPENDIX C – BAT ECOLOGY

Bats use different roosting sites throughout the year according to their life cycle requirements.

Hibernation during the winter months requires roosting sites that are cool and humid. As conditions improve through the spring, bats become increasingly active and tend to use transitional roosting sites. During the summer months, females give birth in maternity roosts. Maternity roosts tend to be warm and temperature-stable, which aids rapid development of the young, which are weaned in late summer. In the autumn, adult bats congregate in mating roosts and also use transitional roosting sites. Autumn is the time when both adults and juveniles have to build up fat reserves in preparation for hibernation through the winter months.

Bats also use roosts during the night as feeding perches. Species that catch large prey items such as moths (*e.g.* brown long-eared bat) often enter buildings to hang up and eat the prey before emerging again to forage. Such feeding perches tend to be obvious from scatterings of bat droppings with moth wings, which the bats discard.

Bats are at their most vulnerable during the summer in their maternity roosts, when disturbance can jeopardise their breeding success. Bats give birth to only one pup per year and young do not breed until the second or third year after birth. This means that if maternity colonies are disturbed there can be serious implications for the conservation status of populations.

Bats are also vulnerable during the winter hibernation period, when disturbance can reduce the chance of survival through the winter at a time when food is in short supply.

This is why there are often only narrow timeframes for bat survey and mitigation work.