

Date: September 2014

Land west of Chesterton

Protected Species Survey Report

Prepared by:
CSa Environmental Planning

On behalf of:
Taylor Wimpey UK Ltd

Report No: CSa/2325/04

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1.0 INTRODUCTION

- 1.1 The following report sets out the findings of ecological survey work undertaken by CSa Environmental Planning on behalf of Taylor Wimpey UK Ltd at land west of Chesterton, Oxfordshire. The surveys have been commissioned to provide an assessment of potential impacts to protected and notable species as a result of proposed residential development of up to 45 dwellings at the site.
- 1.2 The scope of surveys undertaken is in line with the recommendations of an Ecological Appraisal report produced by CSa Environmental Planning in May 2014 (CSa/2325/02) which concluded that the habitats within and immediately adjacent to the site have potential to be used by bats, breeding birds, reptiles, and great crested newt *Triturus cristatus*. This report also makes reference to the results of a data search enquiry made to Thames Valley Environmental Records Centre (TVERC) for records of protected and notable species within 1km of the site boundary.
- 1.3 The site comprises two small fields bounded by native hedgerows. The northern field is predominantly sheep-grazed pasture whilst the southern field is arable land currently holding a crop of oil-seed rape, with narrow long grassland margins. The development site boundary is shown on the Habitats Plan (CSa/2325/105) in Appendix A.

2.0 BATS

Background Information

- 2.1 One bat record was provided by TVERC for the 1km search area. This comprises a field record (i.e. bats recorded in flight) of common pipistrelle *Pipistrellus pipistrellus*. The Ecological Appraisal identified that trees at the site could potentially support bat roosts and that hedgerows and field margins provide opportunities for commuting and foraging bats.

Legislation

- 2.2 All species of British bats are legally protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2010. These Regulations make it an offence to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb bats, impairing their ability to survive, breed, reproduce or rear/nurture their young;
- Damage or destroy a breeding site or resting place used by bats; or
- Be in possession of, transport, sell, exchange or offer to sell/exchange a bat (dead or alive) or any part of a bat.

- 2.3 All bats and their roosts in England, Scotland and Wales were originally protected under Schedule 9 of the Wildlife & Countryside Act 1981. Subsequent amendments to the legislation for England and Wales has removed bats from most of the provisions of the Act, however it remains an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place that a bat uses for shelter or protection.

Survey Methodology

Ground-based Tree Inspections

- 2.4 Hedgerows bounding the site contain a number of semi-mature to mature trees. All trees at the site were formally assessed for their bat roosting potential.
- 2.5 The tree assessments were undertaken on 20 May 2014 by experienced bat surveyors Luke Casey MCIEEM and Kate Kibble ACIEEM, both Natural England licensed bat workers. Trees were individually assessed from the ground using close focusing binoculars. The potential of each tree to support

bats was assessed using a categorisation system based on the protocol for visual inspection of trees provided in the Bat Survey Guidelines¹.

- **Category 1*:** trees with multiple, highly suitable features capable of supporting larger roosts. This may include rot holes, cracks/splits, woodpecker holes and loose bark features which appear to provide cavities suitable for roosting bats.
- **Category 1:** trees with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats.
- **Category 2:** trees with no obvious potential, although the tree is of a size and age that features which may not be visible from ground level may be present; or tree supports features that may have limited potential to support bats.
- **Category 3:** trees with no potential to support bats.

Bat Activity Transect Surveys

- 2.6 Three dusk bat activity transect surveys were carried out at the site on 15 May, 12 June and 17 July 2014. Each survey was led by an experienced Natural England licensed bat worker.
- 2.7 The surveys were undertaken during suitable weather conditions as summarised in Table 1. They commenced 15 minutes before sunset (British Summer Time) and continued for two hours after sunset. A transect route was walked around the site and bat activity was recorded for five-minute periods at several pre-selected transect points along each route. Bat activity between transect points was also recorded and described. The transect route and points are shown on the Bat Activity Survey Transect Plan (CSa/2325/106) in Appendix B.
- 2.8 A qualitative assessment of bat activity at the site is made based on surveyor observations such as direction of flight, numbers of bats or type of activity i.e. foraging/commuting observed during the survey. The qualitative assessment considers bat activity observed at transect points and that observed whilst walking the set route between transect points.
- 2.9 A quantitative analysis of the data recorded during the transect surveys was also undertaken to assess the level of bat activity across the site. Data recorded during the surveys was downloaded and analysed using Anlook software to identify the species present and quantify the number of bat files recorded for each species. Each bat file is considered to represent a 'bat pass' for analysis purposes, and although not synonymous with actual numbers of bats, it provides a useful indicator of relative activity levels. As each transect point was sampled for a known period, the number of bat passes per minute is calculated for each transect point, for each bat species.

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

Static Monitoring of Bat Activity

- 2.10 One Anabat SD1 recorder was positioned within the northern boundary hedgerow H1 (as shown on the Bat Activity Survey Transect Plan) for three recording periods in May, June and July 2014. The length of recording period varied between six and seven nights. The detector was programmed to record from approximately half an hour before sunset through to sunrise.
- 2.11 Weather data for all nights that the Anabat was deployed was obtained to help select the three most suitable nights for bat activity, to be used for analysis. This judgement was based on a combination of temperature, wind speed and precipitation. Data was taken from Met Office on-line records for Benson, the closest weather station to the site. When precipitation data was not available for this station, data from the next closest weather station at Bedford was obtained. A summary of these weather data is provided in Table 3.
- 2.12 Quantitative analysis of the static data was also undertaken following a similar method as for the transect results, i.e. identification of bat calls using Analook and counting the number of bat passes by each species within a given period of time. Bat passes per hour are calculated for static detectors due to their longer term deployment.

Survey Limitations

- 2.13 A bonfire within the northern field F2 during the second survey caused smoke to hang over central parts of the site, which is likely to have affected bat activity levels.

Survey Results

Tree inspections

- 2.14 Twenty semi-mature and mature trees (or groups of similar trees where these are grouped on the Tree Survey) were assessed for their potential to support roosting bats. The full results of the inspection are provided within Appendix C.
- 2.15 No signs to confirm the presence of a bat roost or any significant bat roosting features were observed, i.e. no trees fall within Category 1* or Category 1.
- 2.16 Most of the trees assessed were multi-stemmed ash and occasional sycamore and field maple, within southern and western boundaries. These are all semi-mature to mature trees offering very limited, or no, features with bat roost potential. Many of the trees are covered in ivy to some extent or have sections that are obscured from view by other trees and shrubs, hence they fall within Category 2. The remaining trees which could be fully inspected fall within Category 3.

Bat activity transect surveys

2.17 Weather conditions for the bat transect surveys are shown in Table 1.

Table 1: Summary weather data for bat activity transect surveys

Survey date	Sunset time (BST)		Time (hours)	Temp (°C)	Precipitation and cloud cover (oktas)	Wind (Beaufort Scale)
15/05/2014	20.50	Start	20.40	16.0	Dry, cc=0	0
		End	22.50	13.0	Dry, cc=0	0
12/06/2014	21.22	Start	21:12	17.7	Dry, cc=1	1
		End	23:27	14.0	Dry, cc=1	1
17/07/2014	21:15	Start	21:00	24.0	Dry, cc=1	1
		End	23.15	19.5	Dry, cc=0	2

- 2.18 A minimum of five bat species were recorded during the surveys: common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, barbastelle *Barbastella barbastellus*, noctule *Nyctalus noctula* and a *Myotis* species bat (not identified to species level). Bat passes at each transect point are summarised in Table 2, with full survey results presented within Appendix D.
- 2.19 Common pipistrelle was the most frequently detected bat species at the site and was recorded at all locations across the site, except for Transect Point D. A flight line along southern hedgerow H2 was noted on the third survey with nine bats commuting south-east to north-west, most likely from a roost within the adjacent housing estate to the south-east.
- 2.20 Common pipistrelle were recorded on all three surveys, although activity levels were generally low. The most activity recorded at one point during a survey was an average of 0.53 passes per minute in May at Transect Point A adjacent to the road. Most common pipistrelle activity was detected along hedgerows at points A-C along the southern hedgerow, with very infrequent activity at points E-G. On one occasion a common pipistrelle was observed foraging over the open grassland within the northern field.
- 2.21 Soprano pipistrelle bats were also recorded at the site during all three surveys with generally only three or four passes observed of a bat commuting or foraging along the boundary hedgerows (both at and between transect points). The most prolonged activity by this species was a five minute period of foraging activity was recorded at Transect Point E on the July survey.
- 2.22 A low number of passes by noctule bats were recorded during the three surveys with between one and four passes detected per survey of bats commuting over the site.
- 2.23 One brief pass by a barbastelle bat was recorded on 12 June 2014 at 23:12 along the southern site boundary (H2). This was recorded between transect points, hence its lack of inclusion in Table 2.

- 2.24 A brief pass by a *Myotis* sp. bat was recorded on 17 July 2014 at Transect Point D adjacent to the allotments.

Table 2: Summary of bat activity (bat passes/minute) recorded at each transect point.

Transect Point	May			June		July			
	45 Pip	55 Pip	Noctule	45 Pip	55 Pip	45 Pip	55 Pip	Myotis sp.	Noctule
A	0.53	0.13	0.00	0.00	0.10	0.10	0.00	0.00	0.00
B	0.20	0.00	0.00	0.10	0.00	0.50	0.00	0.00	0.10
C	0.10	0.00	0.00	0.07	0.00	0.30	0.10	0.00	0.10
D	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00
E	0.00	0.00	0.10	0.00	0.00	0.07	0.73	0.00	0.00
F	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
G	0.00	0.00	0.20	0.00	0.00	0.10	0.00	0.00	0.00

Static Monitoring of Bat Activity

- 2.25 Weather conditions obtained for the three nights used for analysis are presented within Table 3 below.

Table 3: Summary weather conditions for static bat monitoring 2014

Survey month	Dates sampled	Overnight temperature (°C)		Rain/cloud	Wind (mph)
		Min	Max		
May	16/05/14	8	12	Clear	0-1
	17/05/14	9	12	Clear	0-2
	19/05/14	14	17	Mostly cloudy	3-7
June	12/06/14	9	14	Clear	1-3
	14/06/14	12	13	Mostly cloudy	3-5
	15/06/14	10	14	Mostly cloudy	2-6
July	19/07/2014	15	20	Mostly cloudy, fog	1-6
	20/07/2014	15	19	Clear, some mist	3-5
	21/07/2014	11	16	Partly cloudy	2-3

*Weather data was taken for 1hr after sunset, midnight and 1hr before sunrise on each date deployed. Where these data suggested sub-optimal conditions, full hourly data was taken to allow further consideration of the impact of weather on bat activity on these nights.

- 2.26 The static monitoring data identified that common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared, noctule and *Myotis* sp. occur at the site. In addition, some calls typical of *Nyctalus* and/or *Eptesicus* species (henceforth known collectively as 'big bats') were recorded but could not be identified to species-level.
- 2.27 A total of 246 passes were recorded of which 67.1% (n=109) are attributable to pipistrelle bats as shown in Figure 1. Of total bat passes 44.3% were from common pipistrelle, with 22% of calls attributed to soprano pipistrelle bats (n=54) and 0.41% (n=1) of calls identified to the *Pipistrellus* genus only.
- 2.28 Common pipistrelle bats were the most frequently detected species on the static detectors, although activity levels were low with between five and 25 passes recorded per night. The highest level of bat activity was a mean of

- 2.34 common pipistrelle bat passes per hour in July, which is still considered to be a relatively low level of activity.
- 2.29 During the May monitoring period, marginally higher activity was recorded by soprano pipistrelle bats than common pipistrelle (average 1.78 passes per hour compared to 1.5). Soprano pipistrelle activity was very low in June and July with less than 0.3 passes per hour on average.
- 2.30 A single pass from a Nathusius' pipistrelle bat was recorded on 18 May at 02:00.
- 2.31 Noctule bats were the third most frequently detected species with 53 passes recorded over the entire monitoring period, accounting for 21.54% of all bat activity. Activity was generally low with less than one pass/hour recorded on average, however slightly higher activity was recorded during the night of 16 May where 16 passes were recorded in total (1.93 passes/hour). Noctule activity on this date was consistent through the night with a slight peak (five passes) between 21:00 and 22:00 likely accounting for commuting behaviour over the site which was observed during the transect surveys.
- 2.32 A total of 13 passes by *Myotis* sp. bats were recorded over the nine nights analysed, with an average of 0.18 passes/hour. *Myotis* bats were recorded in all months with no more than three passes recorded per night with intermittent activity throughout the night. Approximately half the total recorded bat activity was detected in July. Due to overlap in the call parameters between different species of this genus, further identification of the recorded calls to species-level was not possible.
- 2.33 Brown long-eared bats were encountered very infrequently during each month surveyed, accounting for 2.44% of bat passes and with only one or two passes recorded per night.
- 2.34 The mean bat passes/hour recorded during each monitoring period is shown within Table 4 below for each species, and for bats overall. Full results for each survey are provided in Appendix E.

Table 4: Monthly summary of mean bat passes/hour for each species recorded by the static detector

Species	Mean bat passes per hour		
	May	June	July
Common pipistrelle	1.5	0.72	2.34
Soprano pipistrelle	1.78	0.14	0.29
Nathusius pipistrelle	0.04	0	0
<i>Pipistrellus</i> sp.	0.04	0	0
Brown long-eared	0.16	0.05	0.08
Noctule	1.21	0.45	0.54
<i>Nyctalus</i> sp.	0.08	0.09	0.13
Unidentified big bat	0.04	0	0
<i>Myotis</i> sp.	0.16	0.09	0.29
ALL BATS	5.02	1.54	3.68

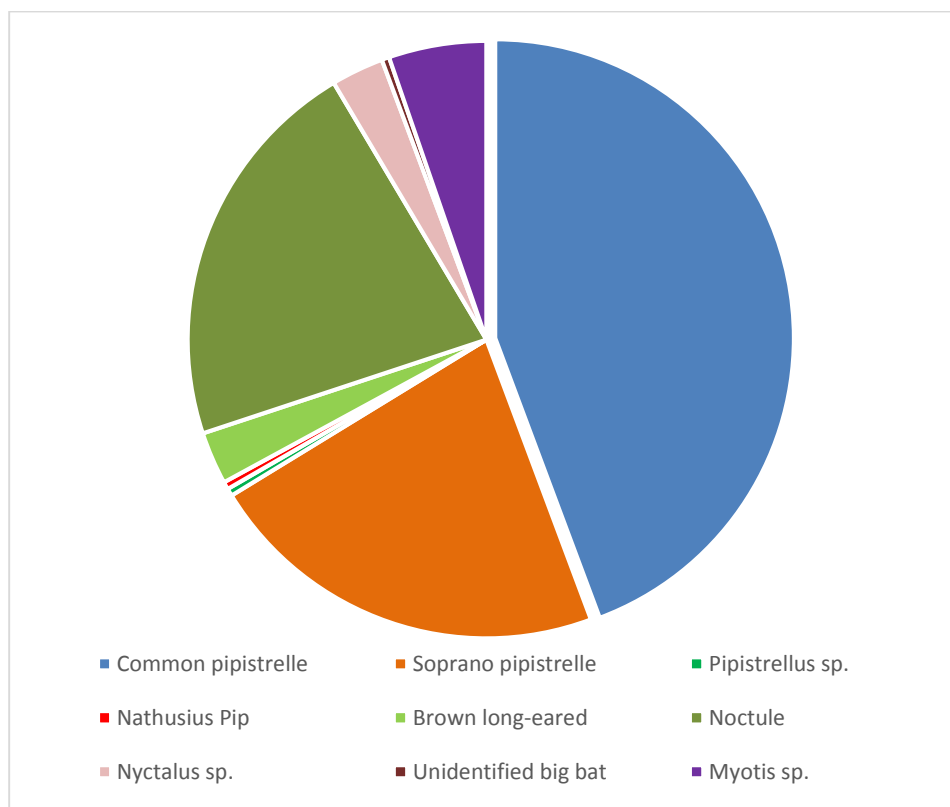


Figure 1: Chart to show the composition of total bat passes by species (%) recorded by the static detector.

Discussion and Recommendations

2.35 No on-site trees exhibit significant bat roosting potential. Some of the hedgerow trees are covered in ivy, which could potentially obscure roost features, although the age and condition of the trees does not suggest that roosts are likely to occur.

- 2.36 The assemblage of bat species recorded at the site comprises at least seven different species, which is considered to represent a moderate diversity.
- 2.37 Activity levels by all bat species on the transect surveys were low. The most frequently recorded species were common and soprano pipistrelle, which forage and commute along site hedgerows. Activity was generally highest along the most mature and tall hedges along the western, southern and eastern site boundaries. The southern boundary hedge is considered to be used as a commuting route by common pipistrelle bats that have a summer roost off-site to the east (location of roost unknown).
- 2.38 One call by the rare and specially protected (Habitats Directive Annex II) barbastelle bat was recorded at the southern boundary of the site. A single call by another rarer species, Nathusius' pipistrelle, was also recorded on the static bat detectors. Both of these species typically feed in riparian habitats, which do not occur within the site. The findings suggest that occasional bats of these species commute past the site, but it is unlikely that the site is of any particular value for these species.
- 2.39 A small number of passes by brown long-eared bat were recorded on the static detector. There is no indication that the site is used heavily by these species, although due to their call characteristics these species can be under represented on recordings and so it should be assumed that they forage and commute along the more mature site boundaries.

Potential development impacts and recommendations

- 2.40 Current development proposals do not require the removal of trees. Should tree felling or reduction become required for any tree recorded as Category 2 (see table in Appendix C), it is recommended that precautionary measures be implemented to check for bat roosts. In particular, ivy should be stripped from the trees prior to felling to check that no cracks, splits, or holes are present that could support bats. If such features are uncovered they should be inspected by a licensed bat ecologist prior to tree works to ensure no bat roosts are present. In the unlikely event that bats or signs of roosting are found, works should cease immediately whilst an appropriate course of action is agreed by the ecologist to minimise harm to bats and their roosts. This could include the requirement to obtain a European Protected Species (EPS) licence from Natural England which could significantly delay completion of the works.
- 2.41 The relatively young hedge that divides the fields (H4) is proposed for removal. Bat activity levels along this hedgerow (Transect points G and F) were very low across all transect surveys. The removal of this hedgerow is unlikely to have any significant impact upon bats.
- 2.42 The widening of the gap within the western boundary hedgerow H1 is proposed to facilitate access to the site. The hedge is used by a moderate

diversity of bat species, albeit at relatively low activity levels. The creation of a new road access and associated illumination will reduce the habitat available for bats and dissuade more light-adverse species from flying along this hedge. However, to the west of the road is an off-site dense hedgerow and wide wooded strip within the golf course that runs parallel with H1 and this feature should allow bats to continue to commute along this corridor. It is recommended that any new lighting for the site entrance is designed to avoid unnecessary light spill onto this off-site vegetation, through careful positioning of lighting columns and use of directional light sources.

- 2.43 Similarly, it is recommended that the lighting design minimises illumination of the remainder of the hedgerows at the site, which are all to be retained alongside development. The proposed lighting scheme should be sensitively designed in line with guidance from the Bat Conservation Trust (BCT)².
- 2.44 The minor losses of bat foraging habitats through removal of sections of hedge and long grassland field margins, should be compensated for by provision of new diverse semi-natural habitats. Such habitats are provided within the Landscape Strategy in the form of new wildflower meadow areas and native shrub and tree planting.
- 2.45 As an ecological enhancement, it is recommended that new roosting opportunities for bats be provided through the provision of integral roost units within new houses and erection of bat boxes on retained trees. Appropriate locations for such features should be advised by a suitably qualified ecologist.

² Bat Conservation Trust (2009). *Bats and Lighting in the UK* [online]. Available at: http://www.bats.org.uk/data/files/bats_and_lighting_in_the_uk__final_version_version_3_may_09.pdf. Accessed: 2012

3.0 BREEDING BIRDS

Background Information

- 3.1 TVERC have provided 19 bird records for the search area, comprising records of six species. Thirteen of these records are of common swift *Apus apus*, scattered around the residential areas of Chesterton to the north and east, between c.100m – 285m away from the site. Notable mallard *Anas platyrhynchos*, mistle thrush *Turdus viscivorus* and linnet *Carduelis cannabina* have all been recorded, at their closest, from the Gagle Brook flood plain c.460m north-east of the site. Two Schedule 1 bird species, barn owl *Tyto alba* and fieldfare *Turdus pilaris* were recorded within 1km.

Legislation

- 3.2 All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981. It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests whilst in use or being built.
- 3.3 In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.
- 3.4 Consideration is also taken of Birds of Conservation Concern (BoCC). These are species which are declining or appear to be in need of concentrated conservation actions (Eaton et al, 2009³). Certain criteria are used to place birds on a Red-list, Amber-list or Green-list and these are outlined in Table 5 below.

Table 5. Criteria for classifying birds of conservation concern

Red listed	<ul style="list-style-type: none">• those that are globally threatened according to The World Conservation Union (IUCN) criteria;• historical decline in breeding population and not shown substantial recent recovery• those that have shown a severe breeding decline over 25 years/longer term;• those that have shown a severe breeding range decline over 25 years/longer term;• species whose non-breeding population has declined over 25 years/longer term.
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³ Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341

Amber listed	<ul style="list-style-type: none"> • species of European Conservation Concern; • those whose population has declined historically but made a substantial recent recovery; • those whose breeding population has declined moderately over 25 years /longer term; • those that have shown a moderate breeding range decline over 25 years/longer term; • those whose non-breeding population has declined moderately over 25 years /longer term; • rare breeders; or non-breeding rarity • species with internationally important or localised populations.
Green listed	<ul style="list-style-type: none"> • species that fulfil none of the criteria above.

Survey Methodology

- 3.5 A Common Birds Census (CBC) was carried out across the site between 30 April and 13 June 2014 encompassing four visits spaced out over the months. This survey effort is considered appropriate to determine the composition of the main breeding community at a small site dominated by grazed pasture, and intensive arable land. The surveys were completed by Kate Kibble ACIEEM, and the conduct of the fieldwork was commensurate with good ornithological practice, with due attention being given to parameters which may affect the activity of birds such as period in the year, time of day and weather conditions.
- 3.6 The purpose of the survey was to assess the composition of the breeding bird community within the site, the population size of each species present and the species distribution within the survey areas. Survey work also focused on determining the presence/absence of any protected or notable species of National, Regional or Local conservation importance, and to determine whether any populations of such species are significant at a local or wider level. Data provided on the distribution of species within the survey area indicates the importance of parts of the site to each bird species and to birds in general.
- 3.7 The survey methodology adopted follows the standard CBC method⁴ and comprises:
- Identification of breeding species within the habitats at the site
 - Identification of all birds seen and heard with locations mapped on a large-scale plan; and
 - Records of the total numbers of birds seen including juveniles.
- 3.8 On each survey the surveyor walked a route across the whole site which ensured that both species of open and boundary habitats would be detected. Alternative versions of the route were taken on each visit so that different parts of the site would be surveyed at different parts of the morning, thus avoiding temporal bias associated with bird activity or other factors such as

⁴ Bibby et al (2000). *Bird Census Techniques*. 2nd Edition. Academic press, London.

increasing traffic noise. Each survey commenced shortly after dawn, when birds are most active, and continued for approximately one hour during suitable weather conditions. Birds were detected by sound or sight, using a pair of 10 x 42 binoculars.

- 3.9 All birds detected at the site were recorded using standardised codes to map their distribution and behaviour, and to differentiate between individuals for the purposes of territory mapping. The criteria used during the 'Atlas' surveys of 1988-1991⁵ were used to ascertain the breeding status of birds at the site (as given in Table 6).

Table 6: Categories of Breeding Bird Evidence

Breeding Categories	Status	Evidence criteria
<i>Confirmed breeding:</i>		<ul style="list-style-type: none"> • Distraction display or injury feigning; • Used nests or eggshells found (occupied or laid within the survey period); • Recently fledged young or downy young; • Adults entering or leaving a nest site in circumstances indicating occupied • Nest or an adult sitting on nest; • Adults carrying food for young or faecal sacs; • Nest containing eggs; • Nest with young seen or heard.
<i>Probable breeding:</i>		<ul style="list-style-type: none"> • Pairs observed in suitable nesting habitat in breeding season; • Permanent territory presumed through registration or territorial behaviour • (song etc.) on at least two different days, a week apart, at the same place; • Display and courtship; • Visiting probable nest site; • Agitated behaviour or anxiety calls from adults; • Building nest or excavating nest hole.
<i>Possible breeding:</i>		<ul style="list-style-type: none"> • Species observed in breeding season in possible nesting habitat. • Singing male(s) present or breeding calls heard in breeding season

Survey Results

- 3.10 A total of 31 species were recorded on or adjacent to the survey area during the surveys, with typically around 22 species recorded on each survey. Full results of the surveys are provided within Appendix F. The weather conditions were mostly suitable for bird activity as summarised in Table 7 below although there was light mist for parts of the first and second surveys.

⁵ European Ornithology Atlas Committee, 1979. *Categories of Breeding Bird Evidence*

Table 7: Bird survey weather conditions

Date of Survey	Weather conditions
30/04/2014	07.00-08.45 cc=1/8, wind=1, dry, some high mist
16/05/2014	05.30-06.45 cc=0/8, wind=1-1, dry, some mist
30/05/2014	05.45-06.50 cc=8/8, wind=2, warm
13/06/2014	07.45-08.40 cc=1/8, wind=2, dry and warm

- 3.11 Fifteen species of conservation importance were observed at the site comprising six Red-listed species and nine Amber-listed species, although not all of these are likely to breed at the site (see Table 8). One species protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), red kite *Milvus milvus*, was recorded though there is not considered to be any suitable nesting habitat on or close to the site.
- 3.12 Five species were confirmed breeding at the site (blackbird *Turdus merula*, dunnock *Prunella modularis*, great tit *Parus major*, blue tit *Caeruleus cyanistes* and linnet) with six 'probable breeders' and eight 'possible breeders'. These mostly comprise common, generalist species though yellowhammer *Emberiza citrinella*, skylark *Alauda arvensis* and linnet are declining farmland bird species.
- 3.13 Bird activity was almost entirely limited to the hedgerows and trees bounding the site though blackbird, skylark, dunnock, red kite and starling were seen to utilise the open field habitats. Very few birds were associated with hedgerow H5. Bird populations on-site are considered to be supported by the adjacent allotment gardens, particularly linnet, common whitethroat *Sylvia communis* and starling.

Table 8: Bird species of conservation interest recorded at the site, and their breeding status

Common Name	Latin Name	Conservation Status	Breeding status
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber, LBAP, S41	Possible
Common whitethroat	<i>Sylvia communis</i>	Amber	Possible
Dunnock	<i>Prunella modularis</i>	Amber, LBAP, S41	Confirmed
Green woodpecker	<i>Pica viridis</i>	Amber	-
House martin	<i>Delichon urbica</i>	Amber, LBAP	-
House sparrow	<i>Passer domesticus</i>	Red, S41, LBAP	Probable
Lesser black-backed gull	<i>Larus fuscus</i>	Amber	-
Linnet	<i>Carduelis cannabina</i>	Red, S41, LBAP	Confirmed
Mistle thrush	<i>Turdus viscivorus</i>	Amber	Possible
Red kite	<i>Milvus milvus</i>	Sch 1, Amber	-
Skylark	<i>Alauda arvensis</i>	Red, S41, LBAP	-
Song thrush	<i>Turdus philomelos</i>	Red, LBAP, S41	Probable

Starling	<i>Sturnus vulgaris</i>	Red, S41, LBAP	-
Swift	<i>Apus apus</i>	Amber, LBAP	-
Yellowhammer	<i>Emberiza citrinella</i>	Red, S41, LBAP	Possible

* LBAP refers to Local Biodiversity Action Plan (which covers plans for Oxfordshire), S41 of the NERC Act 2006 and Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)

Discussion and Recommendations

- 3.14 The site was found to support a range of common and widespread species typical of the habitats present. In addition, three declining bird species associated with farmland habitats were encountered at the site. Based on assessment criteria from Fuller (1980)⁶ the bird assemblage at the site is of less than local value with 18 breeding species recorded.
- 3.15 The bird assemblage includes multiple species of conservation concern. However, these are predominantly common and widespread species which were recorded in low numbers.
- 3.16 The hedgerows form key foraging and nesting habitat for birds at the site. Those bounding the allotments and adjacent housing to the south supported the highest diversity of birds. The grassland and crop habitats were utilised to a lesser degree, and whilst they have potential for ground-nesting birds such as skylark, none were found to be breeding. The hard standing and buildings are of low value to birds.

Potential development impacts and recommendations

- 3.17 The proposed development will require loss of crop and grazed grassland habitats as well as removal of the central hedgerow H4 and impacts to the hedgerow along the road frontage. This will inevitably reduce foraging and nesting opportunities for certain bird species that currently use the site.
- 3.18 With reference the Landscape Strategy, compensation for loss of existing habitats used by birds would be provided through new native tree and shrub planting and enhancement of the existing boundaries through introduction of low intensity wildlife-friendly management. New opportunities for species which utilise open habitats, such as thrushes and starling, will be created within gardens and areas of public open space. Establishment of species-rich grassland areas is proposed within areas of open space and drainage attenuation basins within the development, which would provide enhanced foraging opportunities for a wide range of bird species.
- 3.19 All wild birds are protected from killing and injury, and their nests and eggs are protected from damage and destruction, under the Wildlife and

⁶ Fuller, R.J., (1980), A method for assessing the ornithological interest of sites for conservation. *Biological Conservation* 17: 229-239

Countryside Act 1981 (as amended). Therefore, any clearance of vegetation should be avoided between March and August (inclusive) when nesting birds are most likely to be present. Clearance late within this period, or clearance of small areas of habitat may be possible, subject to a pre-commencement check for nesting birds by an ecologist that confirms that no nesting birds are present.

- 3.20 It is recommended that a range of bird nest boxes be installed within new buildings at the site as well as on retained trees as an ecological enhancement. These boxes should be chosen to provide opportunities for a range of species such as house sparrow, swift *Apus apus* and house martin *Delichon urbica* which have been recorded on-site or locally.

4.0 REPTILES

Background Information

- 4.1 One record of slow-worm *Anguis fragilis* and three records of grass snake *Natrix natrix* were provided by TVERC/ORAG (Oxford Reptile and Amphibian Group). Both species were recorded during 2003 within allotments adjacent to the site. The Ecological Appraisal of the site identified that narrow grassland margins of the arable field have potential to be used by reptile species, particularly if a population occurs within the adjacent allotments.

Legislation

- 4.2 All British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded protection against intentional killing and injury under part of sub-section 9(1) of the Act. In addition all British reptile species are species of principal importance for conservation under Section 41 of the Natural Environment and Rural Communities Act 2006.

Survey Methodology

- 4.3 A reptile survey was set-up on 30 April 2014 to assess the current presence/absence of reptile species at the site. Reptile refugia, comprised of squares of roofing felt (minimum 0.5m x 0.5m) were set out in areas of suitable habitat, i.e. the margins of the southern field, with a total of 30 refugia used.
- 4.4 Seven subsequent survey visits were undertaken in suitable weather conditions to check for the presence/ absence of reptiles between 15 May and 17 June 2014. On each survey visit, refugia were checked for reptiles basking beneath or on-top of the mats, in combination with visual searches of open areas that could be used for basking by species such as grass snake and common lizard.

Survey Results

- 4.5 A single male slow-worm was observed on one occasion along the central hedgerow. No other reptile species were observed at the site. Full results and weather conditions are shown below in Table 9.

Table 9: Reptile survey weather conditions and results

Date	Start Time	Temp (°C)	Weather conditions	Notes
15/05/2014	19.00	17	cc=0/8, bright and sunny.	No reptiles found
20/05/2014	07.15	17	cc=8/8, still, dry, warming up	No reptiles found
23/05/2014	09:00	13	cc=8/8, wind=2, cloudy, dry spell between light showers.	No reptiles found
30/05/2014	09:30	14.8	cc=8/8, wind=3, bad weather during the week but now dry. Mats warm	No reptiles found
06/06/2014	09:15	17	cc=3/8, wind=3, dry and sunny	1 male slow-worm
13/06/2013	09.15	16	cc=1/8, w=2, dry, sunny	No reptiles found.
17/06/2013	10:30	18	cc= 3/8, wind= 3, dry and sunny.	No reptiles found

Discussion and Recommendations

- 4.6 A single slow-worm was found along the central hedgerow of the site. From local records, it is likely that a population of slow-worm occurs within the neighbouring allotments, and that individual slow-worms may disperse into suitable on-site habitats when they are available. Similarly, whilst grass snakes were not found during the survey, it is reasonably likely that individual grass snake use the margins of the site on occasion, as part of a much wider home range. The extent of on-site reptile habitat is small and is likely to be regularly disturbed by farming operations which probably explains why larger numbers of reptiles are not present.

Potential development impacts and recommendations

- 4.7 Suitable reptile habitat, in the form of rough grassland margins along the central hedgerow H4 and within the southern field will be lost to facilitate the development.
- 4.8 The landscape proposals allow for the creation of new long grass and native shrub habitats within informal open space in the north of the site that will provide a net increase in suitable reptile habitat at the site. It is recommended that any wood/ brash generated from management or clearance works are used to create log piles within retained hedge bases to provide additional cover for reptiles. The provision of these new habitats should encourage more extensive colonisation of the site by reptile species.
- 4.9 Given the legal protection of individual reptiles, it is recommended that a translocation exercise for reptiles be undertaken in conjunction with the great crested newt mitigation that will be required for the site. The great crested newt mitigation will require the erection of temporary exclusion fencing at the site boundaries and the daily capture of great crested newts over several months across the spring and summer. It is recommended that reptile capture and translocation be combined with the newt clearance exercise. This would involve the laying of artificial refugia within habitats to be lost, to be checked daily for reptiles for the duration of the great crested newt capture period. Any

reptiles found could be relocated to the retained northern boundary hedgerow with the allotments.

5.0 GREAT CRESTED NEWT

Background Information

- 5.1 No existing local records of great crested newt were provided by TVERC. As part of a desktop search within the Ecological Appraisal report, three waterbodies were identified within 500m of the site that could contain great crested newt populations that could be of relevance to the development site. These occur within the adjacent golf course to the west between c.90m and 425m from the site, as shown and numbered P1 - P3 on the Pond Location Plan in Appendix G.

Legislation

- 5.2 Great crested newts and their habitat are legally protected under the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to capture, injure, kill or disturb great crested newts and also to damage or destroy a breeding site or resting place used by great crested newts.
- 5.3 Where development is proposed that would result in an offence under the Habitats Regulations a European Protected Species (EPS) licence would need to be granted by the appropriate authority (Natural England in England) to permit an act that would otherwise be unlawful. In terms of development, the following three tests must be met before an EPS licence will be granted:
- Regulation 53(2)(e) - “preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment”.
 - Regulation 53(9)(a) – “that there is no satisfactory alternative”; and
 - Regulation 53(9)(b) – “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”

Survey Methodology

Habitat Suitability Index calculations (HSIs)

- 5.4 Ponds P1 – P3 were formally assessed against a set of standardised criteria considered to influence the use of ponds by great crested newt. A Habitat Suitability Index (HSI) calculation was undertaken for each pond, as set out by Oldham *et al*⁷.

⁷ Oldham *et al*, 2000. Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*, 10, pp 143-155.

Great Crested Newt Population Size Class Estimate Survey

- 5.5 Ponds P1-P3 were subject to six overnight surveys between 29 April and 05 June 2014, in order to make an estimate of great crested newt population size class. All surveys were led by a Natural England licenced great crested newt surveyor.
- 5.6 Torchlight searching and egg-searching methods were used to detect great crested newts as recommended and described within the Great Crested Newt Mitigation Guidelines⁸ and the Great Crested Newt Conservation Handbook⁹.
- 5.7 Bottle-trapping was not possible due to a restriction on accessing ponds during daylight, because the ponds are located within an operating golf course.
- 5.8 Nocturnal netting was due to be undertaken following the egg-search and torchlight survey, as a third survey technique to determine presence/absence of great crested newts. However, great crested newt were confirmed within all three ponds during the first torchlight survey, and as a result the third proposed method of netting was not required.

Survey Results

Habitat Suitability Index calculations (HSIs)

- 5.9 A summary of the HSI assessment results is provided within Table 10.

Table 10. HSI scores for Ponds 1-3

Waterbody number	Approximate distance and bearing from site	Comment/ HSI score
1	295m south-west	0.46 Poor
2	426m west	0.84 Excellent
3	90m north west	0.78 Good

Great Crested Newt Population Size Class Estimate Survey

- 5.10 Great crested newts were found in all three ponds surveyed. Table 11 below provides a summary of the survey results with full results of the survey surveys are provided in Appendix I.
- 5.11 Large numbers of breeding great crested newt were recorded in Ponds 2 and 3 with eggs, gravid females, courting adults and newly hatched larvae recorded. A single male newt was identified within Pond 1 during the first survey with no subsequent observations.
- 5.12 Given the close proximity of the ponds and the suitable habitat connecting them, it is considered likely that the great crested newts found within the three

⁸ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. Version: August 2001. English Nature, Peterborough

⁹ Langton, T.E.S. Beckett, C.L. & Foster, J.P. (2001). *Great Crested Newt Conservation Handbook*. Froglife, Halesworth.

ponds are part of the same population. A peak count of all adult newts found during a single survey was 158, representing a large population under Natural England guidelines⁸.

Table 11: Summary of great crested newt survey results

Survey Date	Pond 1	Pond 2	Pond 3	Total
29/04/14	1	49	36	86
08/05/14	0	22	35	47
16/05/14	0	92	37	129
19/05/14	0	36	27	63
29/05/14	0	49	109	158
05/06/14	0	3	27	30
Peak Adult Count	1	92	109	

- 5.13 Smooth newt *Lissotriton vulgaris* were recorded breeding in all of the ponds, as confirmed through the presence of eggs and gravid females. Common frog *Rana temporaria* and common toad *Bufo Bufo* were also recorded in and around Pond 1.

Discussion and Recommendations

- 5.14 The great crested newt surveys identified a large population of great crested newt breeding within two ponds on the golf course to the west, at distances of c.90m and c.425m from the site. The terrestrial habitat surrounding these ponds is moderate, with areas of dense scrub, wooded strips and rough grassland at the margins of the golf holes, and large areas of lower quality short grassland habitat that make up the majority of the golf course.
- 5.15 A minor road separates the closest pond from the proposed development site, which is flanked by hedgerows and a wide wooded strip on the golf course side offering good quality habitat. The width and traffic levels on the road are not considered sufficient to make the road a significant barrier to great crested newt movement. This is supported by the anecdotal records of great crested newts being found within the allotments adjacent to the northern boundary of the site.
- 5.16 With reference to the Habitats Plan in Appendix A, the majority of the development site comprises arable land and grazed pasture that is considered to be of low quality for great crested newts, i.e. it provides dispersal and limited foraging opportunities. Denser ground cover is provided by on-site hedgerows and long grassland margins of the arable field and these habitats offer good quality habitat that could be used for foraging and shelter.
- 5.17 Natural England guidelines¹⁰ state that suitable terrestrial habitats within 250m of a breeding pond are most likely to be used by great crested newts. A

¹⁰ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough

substantial area of the development site falls within this radius of the closest breeding pond. Whilst this habitat is predominantly of low quality, the population of great crested newts is large and as a result is considered reasonably likely that these animals will use the habitats to be lost to development.

- 5.18 Given the legal protection afforded to great crested newts and their habitats (see Section 5.2), the production of a mitigation strategy is recommended to demonstrate that favourable conservation status of great crested newts would be maintained alongside development. This should include identification of habitats to be retained and enhanced for great crested newts within the new site.
- 5.19 Once a planning application for the site is approved, the great crested newt mitigation strategy would form the basis of an application to Natural England for an EPS licence. This licence would need to be granted and implemented in advance of site clearance, in order to authorise impacts to great crested newts that would otherwise be illegal.

¹¹ Natural England (2013) *Template for Method Statement to support application for licence under Regulation 53(2)e in respect of great crested newts Triturus cristatus. Form WML-A14-2 (Version April 13).*

6.0 SUMMARY AND CONCLUSIONS


















- 6.1 No bat roosts are likely to occur on site. Should tree felling or reduction become required for any tree recorded as Category 2 (i.e. low bat potential), it is recommended that precautionary measures be implemented to check for bat roosts prior to felling.
- 6.2 A moderate diversity of bat species have been recorded foraging and commuting at the site, all at low or very low levels of activity. The more mature and dense hedgerows along the eastern, southern and western site boundaries were used the most, and the majority of this habitat is retained alongside development. The loss of a section of the western hedgerow is required for access and recommendations are made regarding lighting and new on-site planting to minimise the impact of this loss.
- 6.3 The development proposals will impact nesting and foraging habitat used by several bird species, including some declining species, through the loss of arable land and field margins and impacts to some hedgerows. The Landscape Strategy includes new native shrub and tree planting and wildflower meadow areas that should provide compensatory nesting and foraging habitat for many of the bird species found at the site. All bird species are protected whilst nesting and the clearance of vegetation at the site should therefore only occur outside of March to August (inclusive), unless it can be confirmed by an ecologist that no nesting birds are present immediately prior to clearance works.
- 6.4 A single slow-worm was found on one occasion using the central hedgerow of the site. The site is likely to be used by individual slow-worm, and potentially grass snake, that have colonised the site from source populations in the adjacent allotments. It is recommended that the very small number of reptiles likely to be present are caught and moved beyond the development footprint, in conjunction with the great crested newt translocation exercise. The landscape proposals allow for the creation of new long grass and native shrub habitats that will provide a net increase in suitable reptile habitat at the site.
- 6.5 A large population of legally protected great crested newt breeds within the golf course ponds to the north-west of the site, with the closest breeding pond at approximately 90m. Terrestrial habitats on-site are reasonably likely to be used by great crested newt. Production of an appropriate mitigation strategy is recommended to demonstrate that the favourable conservation status of the great crested newt population would be maintained alongside development. An EPS licence from Natural England will ultimately be required once planning permission was granted.

Appendix A

Habitats Plan
CSa/2325/105



Legend

-  Site boundary
-  Arable
-  Improved grassland
-  Species-poor, semi-improved grassland
-  Species-poor, intact hedgerow
-  Species-poor, defunct hedgerow
-  Species-poor hedgerow with trees
-  Species-rich hedgerow with trees
-  Individual tree
-  Introduced shrub
-  Dry ditch
-  Fence
-  Hard-standing
-  Building
-  Field number
-  Hedgerow number
-  Target Note
 1. Spoil/debris heap
 2. Log pile






0m 100m

Appendix B

Bat Activity Survey Transect Plan
CSa/2325/106



Legend

-  Bat transect route
-  Transect stop-points
-  Static-detector location



Project	Land west of Chesterton
Title	Bat Activity Transect Plan
Client	Taylor Wimpey UK Ltd

Date	July 2014
Scale	Scale bar indicative at A4
Drawn	CT
Checked	LC

Drawing Number	CSa/2325/106
Revision	-

Appendix C

Tree Assessment for Bat Roost Potential Results

Project No.	2325	Project Name	Chesterton	Sheet No.	1
Date	20/05/2014	Surveyor	LC/KK		

Category	Description
Roost	A known or confirmed tree roost present.
Category 1*	Tree with multiple, highly suitable features capable of supporting larger roosts
Category 1	Tree with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats
Category 2	Trees with no obvious potential, although the tree is of a size and age that features which may not be visible from ground level are present; or tree supports features that may have limited potential to support bats
Category 3	Trees with no potential to support bats

Tree ID No.	Species	D.B.H.	Ivy Cover	Description of features (including aspect of feature)	Bat Roost Potential
37	Ash	30 (Multi-stem (MS) from 2m)	+	Some branches broken from flailing. No obvious features. Ivy and bramble prevents thorough inspection.	2
5	Ash group	MS (<25cm)	++	Some dead wood + rot. Small fissure on underside of N facing limb - limited potential, view partly obscured	2
6	Ash	MS (<25cm)		Feature at 4m = damage at crosspoint - small crevice associated but unlikely to be used by bats.	2
8	Ash group	MS <20cm	++	MS (multi-stem), narrow branches, some dead branch stubs	2
9	Ash	MS (mean 15cm)	++	Hedge trees - narrow diameter. Unlikely to have features but obscured.	2
10	Ash pair	Mean 15cm		Neg potential - no feature seen, obscured by blackthorn hedge - stems visible	3
11	Ash	Mean 15cm		Small diameter, dead branches, back obscured by hawthorn.	3
12	Ash	MS (<20cm)		West most tree (12a) = 3. 12(b) = 2 - small pockets of decay in limb, limited potential for individual bat	3 + 2
13	Syc	MS (20cm)		Fair sized tree, no features seen but views partly obscured by privet	2
14	Ash	MS (mean <25cm)		Small diameter stems, 1 crossing point but no potential	3
15	Ash	28-30cm	+	Mature ash, some small diameter dead branches. Rot hole does not go anywhere	3

Tree ID No.	Species	D.B.H. (cm)	Ivy Cover	Description of features (including aspect of feature)	Bat Roost Potential
16	Field maple	MS (mean <30cm)	++	Mature, dense ivy cover	2
17	Field maple	MS (18-30cm)		Old coppice stump - no potential. Good condition	3
18	Hedge	<30cm	++	Several outgrown trees with limited potential to support bats. Some larger stems obstructed by ivy growth and other trees/shrubs.	2
19	Field maple pair	<35cm	+	Some small pockets of decay with limited bat potential on lateral branches of south tree	2
20	Field maple pair	<30cm	++	Size and age could support features, mostly obscured - some areas of damage	2
21	Syc	23-38cm	+++	Obscured, suitable age and size but poor visibility	2
22	Lime	MS (25cm)		MS on edge of hedge, good condition	3
23	Field maple pair	25cm	+++	No potential roost features identified - dense ivy	2
40	Ash	43cm		Mature tree - no potential roost features identified, good condition	3

Appendix D

Full Bat Survey Results - Transect Surveys

Bat Transect Survey Summaries

Summary for 15 May dusk transect

Transect Point	Survey minutes	45 Pip	45 Pip/ min	55 Pip	55 Pip/ min	<i>Myotis</i> sp.	<i>Myotis</i> / min	Noctule	Noctule/ min	ALL BATS	ALL BATS/ MIN
A	15	8	0.53	2	0.13	0	0.00	0	0.00	10	0.67
B	10	2	0.20	0	0.00	0	0.00	0	0.00	2	0.20
C	10	1	0.10	0	0.00	0	0.00	0	0.00	1	0.10
D	10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
E	10	0	0.00	0	0.00	0	0.00	1	0.10	1	0.10
F	10	1	0.10	0	0.00	0	0.00	1	0.10	2	0.20
G	10	0	0.00	0	0.00	0	0.00	2	0.20	2	0.20
Grand Total		12		2		0		4		18	

*45pip=common pipistrelle; 55pip=soprano pipistrelle; *Myotis* sp. = unidentified *myotis* sp.

Summary for 16 June dusk transect

Transect Point	Survey minutes	45 Pip	45 Pip/ min	55 Pip	55 Pip/ min	<i>Myotis</i> sp.	<i>Myotis</i> / min	Noctule	Noctule/ min	ALL BATS	ALL BATS/ MIN
A	10	0	0.00	1	0.10	0	0.00	0	0.00	1	0.10
B	10	1	0.10	0	0.00	0	0.00	0	0.00	1	0.10
C	15	1	0.07	0	0.00	0	0.00	0	0.00	1	0.07
D	10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
E	10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
F	10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
G	10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Grand Total		2		1		0		0		3	

Summary for 17 July dusk transect

Transect Stop	Survey minutes	45 Pip	45 Pip/ min	55 Pip	55 Pip/ min	<i>Myotis</i> sp.	<i>Myotis</i> / min	Noctule	Noctule/ min	ALL BATS	ALL BATS/ MIN
A	10	1	0.10	0	0.00	0	0.00	0	0.00	1	0.10
B	10	5	0.50	0	0.00	0	0.00	1	0.10	6	0.60
C	10	3	0.30	1	0.10	0	0.00	1	0.10	5	0.50
D	15	0	0.00	1	0.07	1	0.07	0	0.00	2	0.13
E	15	1	0.07	11	0.73	0	0.00	0	0.00	12	0.80
F	15	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
G	10	1	0.10	0	0.00	0	0.00	0	0.00	1	0.10
Grand Total		11		13		1		2		27	

Appendix E

Full Bat Survey Results - Static Monitoring

Static analysis period 'May 2014'

45Pip: common pipistrelle; 55Pip: soprano pipistrelle; Pip sp: unidentified Pipistrellus sp.; Nath Pip: Nathusius pip;
 BLE: brown long-eared; Nyctalus: unidentified Nyctalus sp. (noctule or Leisler's);
 Big Bat: unidentified Nyctalus or Eptesicus species; Myotis sp: unidentified Myotis species

Date	Time	45 Pip	55 Pip	Pip sp.	Nath Pip	Myotis	BLE	Noctule	Nyctalus	Big Bat	
16/05/2014	21:00	0	1	1	0	1	0	5	0	0	
16/05/2014	22:00	3	2	0	0	0	0	3	0	0	
16/05/2014	23:00	1	0	0	0	0	0	2	0	0	
17/05/2014	00:00	2	0	0	0	0	0	1	0	0	
17/05/2014	01:00	0	0	0	0	0	0	1	0	0	
17/05/2014	02:00	1	0	0	0	0	0	1	0	0	
17/05/2014	03:00	2	0	0	0	0	0	2	0	0	
17/05/2014	04:00	1	0	0	0	1	1	1	0	0	
17/05/2014	05:00	0	0	0	0	0	0	0	0	0	
Total passes		10	3	1	0	2	1	16	0	0	
Hours		8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	
Passes per hour		1.20	0.36	0.12	0.00	0.24	0.12	1.93	0.00	0.00	
Date	Time	45 Pip	55 Pip	Pip sp.	Nath Pip	Myotis sp.	BLE	Noctule	Nyctalus	Big Bat	
17/05/2014	21:00	3	1	0	0	0	0	2	0	1	
17/05/2014	22:00	0	0	0	0	0	1	0	0	0	
17/05/2014	23:00	2	12	0	0	0	0	0	0	0	
18/05/2014	00:00	1	0	0	0	0	0	0	0	0	
18/05/2014	01:00	1	1	0	0	1	0	1	0	0	
18/05/2014	02:00	0	0	0	1	0	0	0	0	0	
18/05/2014	03:00	4	1	0	0	1	1	0	0	0	
18/05/2014	04:00	1	0	0	0	0	0	3	0	0	
18/05/2014	05:00	0	0	0	0	0	0	0	0	0	
Total passes		12	15	0	1	2	2	6	0	1	
Hours		8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	
Passes per hour		1.45	1.82	0.00	0.12	0.24	0.24	0.73	0.00	0.12	
Date	Time	45 Pip	55 Pip	Pip sp.	Nath Pip	Myotis sp.	BLE	Noctule	Nyctalus	Big Bat	
19/05/2014	21:00	0	3	0	0	0	0	2	0	0	
19/05/2014	22:00	2	3	0	0	0	0	1	0	0	
19/05/2014	23:00	1	11	0	0	0	0	0	0	0	
20/05/2014	00:00	2	5	0	0	0	1	0	0	0	
20/05/2014	01:00	2	1	0	0	0	0	0	1	0	
20/05/2014	02:00	2	0	0	0	0	0	0	1	0	
20/05/2014	03:00	3	0	0	0	0	0	0	0	0	
20/05/2014	04:00	3	3	0	0	0	0	5	0	0	
20/05/2014	05:00	0	0	0	0	0	0	0	0	0	
Total passes		15	26	0	0	0	1	8	2	0	
Hours		8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16	
Passes per hour		1.84	3.19	0.00	0.00	0.00	0.12	0.98	0.25	0.00	
Combined total passes		37	44	1	1	4	4	30	2	1	124
Total hours		24.71	24.71	24.71	24.71	24.71	24.71	24.71	24.71	24.71	24.71
Mean passes per hour		1.50	1.78	0.04	0.04	0.16	0.16	1.21	0.08	0.04	5.02

Static analysis period 'June 2014'

45Pip: common pipistrelle; 55Pip: soprano pipistrelle; BLE: brown long-eared;

Nyctalus: unidentified Nyctalus sp. (noctule or Leisler's); Myotis sp: unidentified Myotis species

Date	Time	45 Pip	55 Pip	Myotis	BLE	Noctule	Nyctalus	
12/06/2014	20:00	0	0	0	0	0	0	
12/06/2014	21:00	0	0	0	0	0	0	
12/06/2014	22:00	1	0	0	0	2	0	
12/06/2014	23:00	1	0	0	0	1	0	
13/06/2014	00:00	0	0	0	0	0	1	
13/06/2014	01:00	1	0	0	0	0	1	
13/06/2014	02:00	1	0	0	0	0	0	
13/06/2014	03:00	2	0	0	0	2	0	
13/06/2014	04:00	0	0	0	0	0	0	
13/06/2014	05:00	0	0	0	0	0	0	
Total passes		6	0	0	0	5	2	
Hours		7.38	7.38	7.38	7.38	7.38	7.38	
Passes per hour		0.81	0.00	0.00	0.00	0.68	0.27	
Date	Time	45 Pip	55 Pip	Myotis sp.	BLE	Noctule	Nyctalus	
14/06/2014	20:00	0	0	0	0	0	0	
14/06/2014	21:00	0	0	0	0	0	0	
14/06/2014	22:00	0	0	0	0	1	0	
14/06/2014	23:00	1	2	0	0	1	0	
15/06/2014	00:00	2	0	0	0	0	0	
15/06/2014	01:00	0	0	0	0	0	0	
15/06/2014	02:00	0	0	0	0	0	0	
15/06/2014	03:00	2	0	0	0	0	0	
15/06/2014	04:00	0	0	0	0	0	0	
15/06/2014	05:00	0	0	0	0	0	0	
Total passes		5	2	0	0	2	0	
Hours		7.36	7.36	7.36	7.36	7.36	7.36	
Passes per hour		0.68	0.27	0.00	0.00	0.27	0.00	
Date	Time	45 Pip	55 Pip	Myotis sp.	BLE	Noctule	Nyctalus	
15/06/2014	20:00	0	0	0	0	0	0	
15/06/2014	21:00	0	0	0	0	0	0	
15/06/2014	22:00	0	0	0	0	2	0	
15/06/2014	23:00	1	0	0	0	0	0	
16/06/2014	00:00	1	0	0	0	0	0	
16/06/2014	01:00	0	0	1	0	0	0	
16/06/2014	02:00	2	0	1	0	0	0	
16/06/2014	03:00	1	1	0	1	1	0	
16/06/2014	04:00	0	0	0	0	0	0	
16/06/2014	05:00	0	0	0	0	0	0	
Total passes		5	1	2	1	3	0	
Hours		7.34	7.34	7.34	7.34	7.34	7.34	
Passes per hour		0.68	0.14	0.27	0.14	0.41	0.00	
Combined total passes		16	3	2	1	10	2	34
Total hours		22.08	22.08	22.08	22.08	22.08	22.08	22.08
Mean passes per hour		0.72	0.14	0.09	0.05	0.45	0.09	1.54

Static analysis period 'July 2014'

45Pip: common pipistrelle; 55Pip: soprano pipistrelle; BLE: brown long-eared;

Nyctalus: unidentified Nyctalus sp. (noctule or Leisler's); Myotis sp: unidentified *Myotis* species

Date	Time	45 Pip	55 Pip	Myotis sp.	BLE	Noctule	Nyctalus	
19/07/2014	20:00	0	0	0	0	0	0	
19/07/2014	21:00	0	0	0	0	3	0	
19/07/2014	22:00	3	0	0	0	2	0	
19/07/2014	23:00	2	0	1	0	3	0	
20/07/2014	00:00	3	0	1	0	1	0	
20/07/2014	01:00	1	0	0	0	0	0	
20/07/2014	02:00	0	0	0	0	1	0	
20/07/2014	03:00	4	0	0	0	0	0	
20/07/2014	04:00	12	1	1	0	0	0	
20/07/2014	05:00	0	0	0	0	0	0	
Total passes		25	1	3	0	10	0	
Hours		7.94	7.94	7.94	7.94	7.94	7.94	
Passes per hour		3.15	0.13	0.38	0.00	1.26	0.00	
Date	Time	45 Pip	55 Pip	Myotis sp.	BLE	Noctule	Nyctalus	
20/07/2014	20:00	0	0	0	0	0	0	
20/07/2014	21:00	1	0	0	0	1	0	
20/07/2014	22:00	5	0	0	0	0	2	
20/07/2014	23:00	3	0	1	0	0	0	
21/07/2014	00:00	0	0	0	0	1	0	
21/07/2014	01:00	1	1	0	0	0	0	
21/07/2014	02:00	1	0	0	0	0	0	
21/07/2014	03:00	0	0	0	0	0	0	
21/07/2014	04:00	3	2	0	0	0	0	
21/07/2014	05:00	0	0	0	0	0	0	
Total passes		14	3	1	0	2	2	
Hours		7.98	7.98	7.98	7.98	7.98	7.98	
Passes per hour		1.75	0.38	0.13	0.00	0.25	0.25	
Date	Time	45 Pip	55 Pip	Myotis sp.	BLE	Noctule	Nyctalus	
21/07/2014	20:00	0	0	0	0	0	0	
21/07/2014	21:00	0	0	0	0	0	0	
21/07/2014	22:00	4	0	1	1	0	0	
21/07/2014	23:00	3	0	1	1	1	0	
22/07/2014	00:00	3	0	0	0	0	1	
22/07/2014	01:00	1	0	1	0	0	0	
22/07/2014	02:00	1	2	0	0	0	0	
22/07/2014	03:00	2	0	0	0	0	0	
22/07/2014	04:00	3	1	0	0	0	0	
22/07/2014	05:00	0	0	0	0	0	0	
Total passes		17	3	3	2	1	1	
Hours		8.02	8.02	8.02	8.02	8.02	8.02	
Passes per hour		2.12	0.37	0.37	0.25	0.12	0.12	
Combined total passes		56	7	7	2	13	3	88
Total hours		23.94	23.94	23.94	23.94	23.94	23.94	23.94
Mean passes per hour		2.34	0.29	0.29	0.08	0.54	0.13	3.68

Appendix F

Full Breeding Bird Survey Results

Full results of breeding bird survey 2014

(F: flyover only, (√): recorded adjacent to the Site only)

Common name	Latin name	Breeding Status*	Conservation Status**	30/04/14	16/05/14	30/05/14	02/05/14	Comments/Notes
Red kite	<i>Milvus milvus</i>	-	Sch 1, Amber	-	F	F	F	One bird recorded soaring over the site during three surveys
Lesser black-backed gull	<i>Larus fuscus</i>	-	Amber	F	-	-	-	One bird recorded flying over the site
Wood pigeon	<i>Columba palumbus</i>	Possible	-	√	√	√	√	Abundant throughout the site.
Collared dove	<i>Streptopelia decaocto</i>	-	-	(√)	√	F	F	Mainly associated with adjacent housing. Predominantly flyover but also recorded in on-site trees
Swift	<i>Apus apus</i>	-	Amber	-	F	F	F	Regularly seen and heard flying over the site with a peak count of seven birds.
Green woodpecker	<i>Picus viridis</i>	-	Amber	-	-	(√)	-	Seen foraging in allotments. May forage on-site
Skylark	<i>Alauda arvensis</i>	-	Red, S41, LBAP	-	(F)	-	-	Singing within adjacent arable field to the south. One bird incidentally recorded flying from rape crop to the south, whilst singing
House Martin	<i>Delichon urbica</i>	-	Amber	-	F	-	-	One bird seen flying over the site on one occasion
Pied wagtail	<i>Motacilla alba</i>	-	-	-	-	-	F	Flyover only
Wren	<i>Troglodytes troglodytes</i>	Probable	-	√	√	√	√	Frequently detected in all hedgerows at the Site
Duncock	<i>Prunella modularis</i>	Confirmed	Amber, S41, LBAP	√	√	√	√	Frequent across site particularly within hedgerows surrounding F2, and H3. Recorded carrying food on a few occasions and juvenile seen within H2. Occasionally seen to forage in crop and field margins.
Robin	<i>Erithacus rubecula</i>	Probable	-	√	√	-	√	Adults and juveniles recorded occasionally within hedgerows.
Song thrush	<i>Turdus philomelos</i>	Probable	Red, S41, LBAP	(√)	-	√	√	Occasionally recorded on-site. Territories held in offsite woodland belt to the north-west.
Mistle thrush	<i>Turdus viscivorus</i>	Possible	Amber	(√)	-	-	√	Recorded once onsite in trees at junction of H2/H3.
Blackbird	<i>Turdus merula</i>	Confirmed	-	√	√	√	√	Abundant across the site using hedgerow and open field habitats for foraging. Food carrying behaviour and dependent juveniles recorded on-site. Groups of 11 seen foraging in F2.
Blackcap	<i>Sylvia atricapilla</i>	Probable	-	√	-	-	-	Pair recorded in H3 and singing male in H7 on first survey only.

Common whitethroat	<i>Sylvia communis</i>	Possible	Amber	-	√	√	√	Singing males recorded occasionally at various points within H4, H6 and adjacent allotment gardens.
Great tit	<i>Parus major</i>	Confirmed	-	√	-	√	√	Several singing males recorded, as well food-carrying and recently fledged family groups. Frequent within hedgerows.
Blue tit	<i>Cyanistes caeruleus</i>	Confirmed	-	√	√	√	√	Abundant across the site. Birds seen in pairs and family group recorded. Most frequently recorded within hedgerows H3 and H7..
Magpie	<i>Pica pica</i>	Possible	-	-	-	√	(√)	Recorded within H2 on one occasion
Jackdaw	<i>Corvus monedula</i>	-	-	F	F	F	F	Abundant flyover
Rook	<i>Corvus frugilegus</i>	-	-	F	F	-	F	Flyover only
Carrion crow	<i>Corvus corone</i>	-	-	F	F	F	F	Abundant flyover species, not seen to use habitats on-site
Starling	<i>Sturnus vulgaris</i>	-	Red, S41, LBAP	F	√	√	F	Regularly recorded foraging with juveniles in adjacent allotments and perched in on-site hedgerows. Likely to have bred in adjacent housing estate.
House sparrow	<i>Passer domesticus</i>	Probable	Red, S41, LBAP	√	√	√	√	Colonies recorded mainly in F4 as well as offsite gardens.
Chaffinch	<i>Fringilla coelebs</i>	Probable	-	(√)	√	√	√	Predominantly recorded singing within H3, as well as within offsite woodland belt to the north.
Linnet	<i>Carduelis cannabina</i>	Confirmed	Red, S41, LBAP	√	√	(√)	√	Pairs frequently seen in allotments and adjacent on-site habitats including H6, brash piles and H4 where birds were seen delivering food.
Goldfinch	<i>Carduelis carduelis</i>	Possible	-	√	√	√	√	Small flocks mostly recorded flying over the site but also frequent within hedgerows, particularly in the east
Greenfinch	<i>Carduelis chloris</i>	Possible	-	√	-	√	-	Singing in south east boundary, and in adjacent allotments
Bullfinch	<i>Pyrrhula pyrrhula</i>	Possible	Amber, S41, LBAP	-	√	-	-	Male recorded calling in corner of H1/H2 on one occasion
Yellowhammer	<i>Emberiza citrinella</i>	Possible	Red, S41, LBAP	-	√	-	-	Individual heard singing on a few occasions in/near H2. Also recorded incidentally during other surveys.
Total species:31				21	22	21	23	

* European Ornithology Atlas Committee, 1979. *Categories of Breeding Bird Evidence*

**Conservation status refers to Red or Amber listed species (Eaton *et al*, 2009 Birds of Conservation Concern 3), Schedule 1 species (Wildlife and Countryside Act, 1981 (as amended)), Oxfordshire BAP species and Section 41(S41) species of principal importance (NERC Act, 2006).

Appendix G

Pond Location Plan
CSa/2325/107



Legend



Site Boundary



Pond location

1. c.295m south-west

2. c.425m west

3. c.90m north-west

Appendix H

Habitat Suitability Index Calculations

Pond Assessment

GENERAL INFORMATION

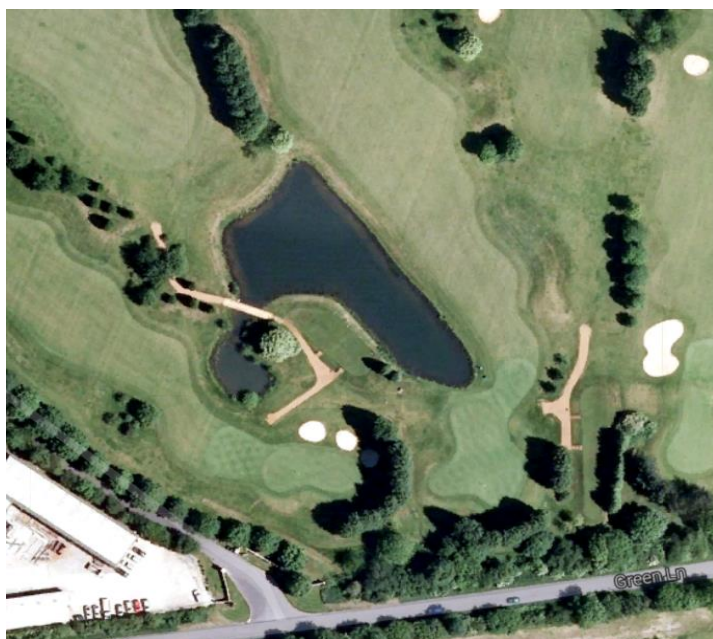
Pond Number: 1	Site description: large golf course pond, deep, minimal edge vegetation, bridge between 2 sections, smaller part has fish
OS Grid Reference: SP554212	

HABITAT SUITABILITY FACTORS

SI SCORE

HABITAT SUITABILITY FACTORS	SI SCORE
1. Map location A (optimal), B (marginal) or C (unsuitable)	A 1
2. Pond area in m ² Estimate	2400m ² omit
3. Number of years in 10 pond dries up Estimate or ask landowner	0 0.9
4. Water quality 1 = bad, 2 = poor, 3 = moderate, 4 = good	3 0.67
5. Percentage perimeter shade to at least 1m from shore Estimate	0 1
6. Waterfowl impact (excluding moorhen) 1 = major, 2 = minor, 3 = possible, 4 = absent	2 0.67
7. Fish presence 1 = major, 2 = minor, 3 = possible, 4 = absent	1 0.01
8. Number of ponds within 1km not separated by barriers	15 (4.78) 1
9. Terrestrial habitat 1 = none, 2 = poor, 3 = moderate, 4 = good	3 0.67
10. Percentage of pond surface occupied by aquatic vegetation (March – May)	5% 0.32

PHOTOGRAPH



HSI SCORE	CATEGORY
0.46	Poor (<0.5)
	Below average (0.5 – 0.59)
	Average (0.6 – 0.69)
	Good (0.7 – 0.79)
	Excellent (>0.8)

Pond Assessment

GENERAL INFORMATION

Pond Number: 2	Site description: Near the clubhouse, 2 inlets of freshwater, vegetated, shallow on edges
OS Grid Reference: SP552214	

HABITAT SUITABILITY FACTORS

SI SCORE

HABITAT SUITABILITY FACTORS		SI SCORE
1. Map location A (optimal), B (marginal) or C (unsuitable)	A	1
2. Pond area in m ² Estimate	900m ²	0.98
3. Number of years in 10 pond dries up Estimate or ask landowner	0	0.9
4. Water quality 1 = bad, 2 = poor, 3 = moderate, 4 = good	4	1
5. Percentage perimeter shade to at least 1m from shore Estimate	5%	1
6. Waterfowl impact (excluding moorhen) 1 = major, 2 = minor, 3 = possible, 4 = absent	2/3 moorhen and geese in other ponds	0.67
7. Fish presence 1 = major, 2 = minor, 3 = possible, 4 = absent	2 (1 fish observed)	0.33
8. Number of ponds within 1km not separated by barriers	12 (3.82)	0.95
9. Terrestrial habitat 1 = none, 2 = poor, 3 = moderate, 4 = good	4	1
10. Percentage of pond surface occupied by aquatic vegetation (March – May)	60%	0.9

PHOTOGRAPH



HSI SCORE

CATEGORY

	Poor (<0.5)
	Below average ($0.5 - 0.59$)
	Average ($0.6 - 0.69$)
	Good ($0.7 - 0.79$)
0.84	Excellent (>0.8)

Pond Assessment

GENERAL INFORMATION

Pond Number: 3	Site description: Small pond, golf course pond, closest to the site, tall reeds, shallow on edges
OS Grid Reference: SP556215	

HABITAT SUITABILITY FACTORS

SI SCORE

1. Map location A (optimal), B (marginal) or C (unsuitable)	A	1
2. Pond area in m ² Estimate	426m ²	0.8
3. Number of years in 10 pond dries up Estimate or ask landowner	0	0.9
4. Water quality 1 = bad, 2 = poor, 3 = moderate, 4 = good	3	0.67
5. Percentage perimeter shade to at least 1m from shore Estimate	0	1
6. Waterfowl impact (excluding moorhen) 1 = major, 2 = minor, 3 = possible, 4 = absent	2	0.67
7. Fish presence 1 = major, 2 = minor, 3 = possible, 4 = absent	3	0.67
8. Number of ponds within 1km not separated by barriers	15 (4.78)	1
9. Terrestrial habitat 1 = none, 2 = poor, 3 = moderate, 4 = good	3	0.67
10. Percentage of pond surface occupied by aquatic vegetation (March – May)	25%	0.55

PHOTOGRAPH



HSI SCORE	CATEGORY
	Poor (<0.5)
	Below average (0.5 – 0.59)
	Average (0.6 – 0.69)
0.78	Good (0.7 – 0.79)
	Excellent (>0.8)

Appendix I

Full Great Crested Newt Survey Results

GCN Pond Survey results

Pond 1

Date	No of bottle traps	Torch air temp (°C)	Veg cover (0=none, 5=complete)	Turbidity (0=clear, 5=turbid)	Torch/ no of newts									Netting/no of newts									Presence of eggs Y/N	Immature GCN or larvae	Other info	
					GCN			Lv		Lh		Lv/Lh		GCN			Lv			Lh						
					M	F	NS	M	M	M	F	NS	M	F	NS	M	F	NS	M	F	NS					
29/04/2014	0	8	1	2	1	0	0	5	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	N	N	Hundreds of fish and some larger koi. Frogs and toads
08/05/2014	0	13.9	1	3	0	0	0	0	0	0	0	1	0	-	-	-	-	-	-	-	-	-	-	N	N	Fish, tadpoles. Two small newt eggs found.
16/05/2014	0	13	1	3 (4-5 in smaller area)	0	0	0	2	0	0	0	5	2	-	-	-	-	-	-	-	-	-	-	N	N	Vegetation seems much reduced since first survey. Geese with goslings
19/05/2014	0	18	2	3	0	0	0	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	N	N	Small newt egg. Toads, lots of frogs
29/05/2014	0	15	1	3 (4 in small)	0	0	0	0	0	0	0	2	0	-	-	-	-	-	-	-	-	-	-	N	N	Frogs and toads
05/06/2014	0	10.2	2	4	0	0	0	0	0	0	0	2	3	-	-	-	-	-	-	-	-	-	-	N	N	Toad, fish

Key: M: Male, F: Female, NS: unsexed, GCN: Great Crested Newt, Lv: Smooth Newt, Lh: Palmate Newt, Rt: Common Frog Bb: Common Toad

Pond 2

Date	No of bottle traps	Torch air temp (°C)	Veg cover (0=none, 5=complete)	Turbidity (0=clear, 5=turbid)	Torch/ no of newts									Netting/no of newts									Presence of eggs Y/N	Immature GCN or larvae	Other info	
					GCN			Lv		Lh		Lv/Lh		GCN			Lv			Lh						
					M	F	NS	M	M	M	F	NS	M	F	NS	M	F	NS	M	F	NS					
29/04/2014	0	11	2	0	35	13	1	6	0	0	0	3	7	-	-	-	-	-	-	-	-	-	-	Y	N	
08/05/2014	0	13.9	2	1	5	1	16	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	Y	N	Blanket weed covers about 15% of pond. High turbidity towards centre of pond.
15/05/2014	0	14	3	2	72	19	1	5	0	0	0	7	1	-	-	-	-	-	-	-	-	-	-	Y	N	Blanket weed over c.30% of pond. Most newts on exposed shelf on north side
19/05/2014	0	18	4	1	15	16	5	3	0	1	8	3	3	-	-	-	-	-	-	-	-	-	-	Y	Y	Gravid females, egg laying. 1 larvae seen
29/05/2014	0	15	2	0	23	21	5	13	0	0	19	5	5	-	-	-	-	-	-	-	-	-	-	Y	Y	Water level up. Females laying eggs, fish presence, 1 koi seen. Many GCN larvae
05/06/2014	0	11.6	3	3, 5 from c.0.5m	0	3	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	Y	Y	Lots of mint and blanket weed cover, GCN laying eggs, many GCN larvae

Key: M: Male, F: Female, NS: unsexed, GCN: Great Crested Newt, Lv: Smooth Newt, Lh: Palmate Newt, Rt: Common Frog Bb: Common Toad

Water body 3

Date	No of bottle traps	Torch air temp (°C)	Veg cover (0=none, 5=complete)	Turbidity (0=clear, 5=turbid)	Torch/ no of newts									Netting/no of newts									Presence of eggs Y/N	Immature GCN or larvae	Other info	
					GCN			Lv		Lh		Lv/Lh		GCN			Lv			Lh						
					M	F	NS	M	M	M	F	NS	M	F	NS	M	F	NS	M	F	NS					
29/04/2014	0	8	3	2	15	20	1	8	0	0	0	12	0	-	-	-	-	-	-	-	-	-	-	Y	N	
08/05/2014	0	13.9	4	1	3	18	4	3	0	0	0	8	4	-	-	-	-	-	-	-	-	-	-	Y	N	GCN egg laying
15/05/2014	0	13	3	2	14	23	0	6	0	0	0	6	1	-	-	-	-	-	-	-	-	-	-	Y	N	Lots of egg laying activity, courting 4/5 of pond surveyed before torch ran out
19/05/2014	0	18	4	1	10	16	1	7	0	0	19	2	2	-	-	-	-	-	-	-	-	-	-	Y	N	Gravid/egg laying GCN
29/05/2014	0	15	3	1	51	52	6	1	0	0	18	2	2	-	-	-	-	-	-	-	-	-	-	Y	N	GCN egg laying
05/06/2014	0	10.2	3	1	3	22	2	1	0	0	3	3	3	-	-	-	-	-	-	-	-	-	-	Y	N	GCN egg laying

Key: M: Male, F: Female, NS: unsexed, GCN: Great Crested Newt, Lv: Smooth Newt, Lh: Palmate Newt, Rt: Common Frog Bb: Common Toad