Delcroft and land beyond, Woodchurch Rd, Shadoxhurst, Kent

Preliminary Ecological Appraisal

05th April 2018 / Ref No 2017/11/02

Client: FDC Homes

Prepared by Katia Bresso CEnv MCIEEM
Trading as 'KB Ecology Ltd' (Reg 7595382)
9 Barleyfields,
Weavering, Maidstone
ME145SW Kent
Tel: 07810 412 773
Email: katia.bresso@kbecology.co.uk

Contents

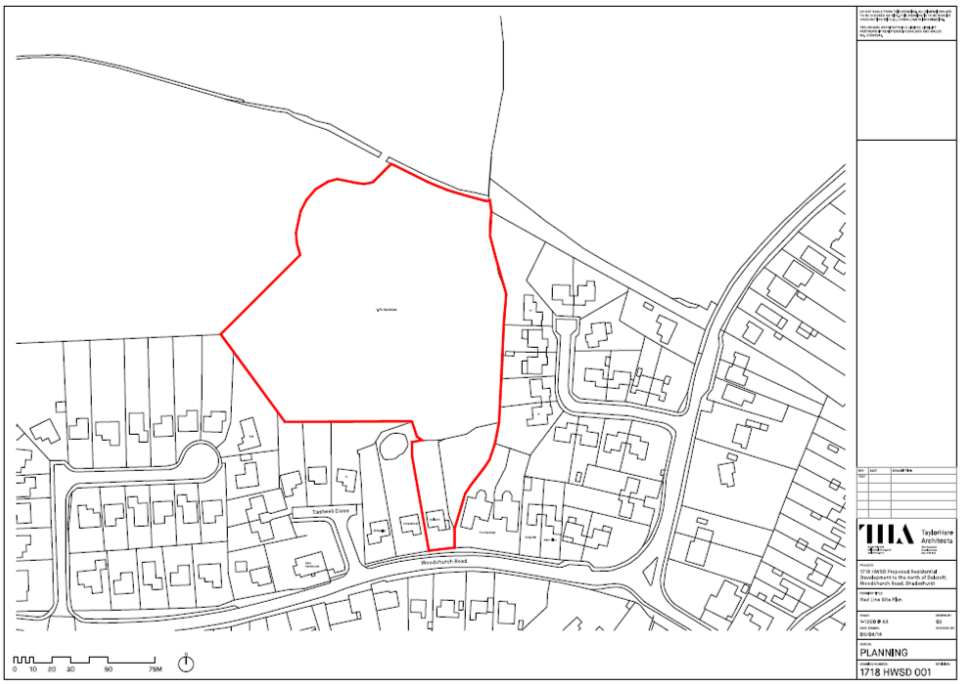
1 Introduction 2
1.1 Background to the Scheme 2
1.2 Survey Location/Area 2
1.3 Survey Objectives 2
1.4 Limitations 3
2 Methodology 3
2.1 Desk Study 3
2.2 Scoping Survey 3
2.3 Habitat Suitability Index Calculation 4
2.4 Bats in trees assessment 4
3 Baseline Ecological Conditions 5
3.1 Designated Nature Conservation Sites 5
3.2 Habitats 5
3.3 Amphibians 7
3.4 Reptiles 12
3.5 Birds 12
3.6 Hazel Dormouse 13
3.7 Badger 13
3.8 Water voles 14
3.9 Bats 14
3.10 Other Species 16
4 Ecological constraints and opportunities, recommendations for mitigation, compensation and further survey 17
4.1 Designated Nature Conservation Sites 17
4.2 Habitats 18
4.3 Amphibians 18
4.4 Reptiles 25
4.5 Birds 25
4.6 Hazel Dormouse 25
4.7 Badger 26
4.8 Water voles 26
4.9 Bats 26
4.10 Other Species 27
4.11 Additional Recommendations: Enhancements 27
5 References and Bibliography 30

1 Introduction

1.1 Background to the Scheme

KB Ecology Ltd has been commissioned to undertake a baseline ecological survey and a preliminary ecological appraisal with regards to a proposed development at Delcroft and land beyond, Woodchurch Rd, Shadoxhurst, Kent, in support of a planning application for the demolition of the existing bungalow and erection of a number of new dwellings.

The extent of site to be surveyed is shown on the map below, as sent by the client:



1.2 Survey Location/Area

The site is located at approximately TQ 975 381. The location of the site is shown on Figure 1 and Figure 2.

1.3 Survey Objectives

The purpose of this survey is to provide a scoping assessment and to assist in demonstrating compliance with wildlife legislation and planning policy objectives.

The key objectives are as follows:

- Identify all relevant statutory and non-statutory designated sites and features of ecological significance within the site and its surroundings.
- Assess the potential for the presence of protected species and species of principal conservation importance, important habitats or other biodiversity features within the site and its surroundings.
- Provide recommendations for further surveys where assessed as necessary and suggest potential enhancements.

- Present the likely significance of ecological impacts on the proposed development.
- Provide an early indication of potential ecological mitigation and compensation requirements necessary as part of any development proposals.

A summary of wildlife legislation and policy has been included in Appendix A.

1.4 Limitations

This report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct and the opinions expressed are true and professional bona fide opinions. It records the potential for flora and fauna evident on the days of the site visits. It does not record any flora or fauna that may appear at other times of the year and, as such, were not evident at the time of visit.

The findings of this report represent the professional opinion of a qualified ecologist and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document.

MAGiC

Figure 1

Legend

- Limestone Pavement Orders (England)
- Local Nature Reserves (England)
- Moorland Line (England)
- National Nature Reserves (England)
- National Nature Reserves (Scotland)
- National Nature Reserves (Wales)
- National Parks (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Ramsar Sites (Scotland)
- Ramsar Sites (Wales)

0 0.6 1.2
km

Projection = OSGB36
xmin = 594200
ymin = 135700
xmax = 601200
ymax = 140700

Map produced by MAGIC on 1 February, 2018.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Figure 2 -K-LIS

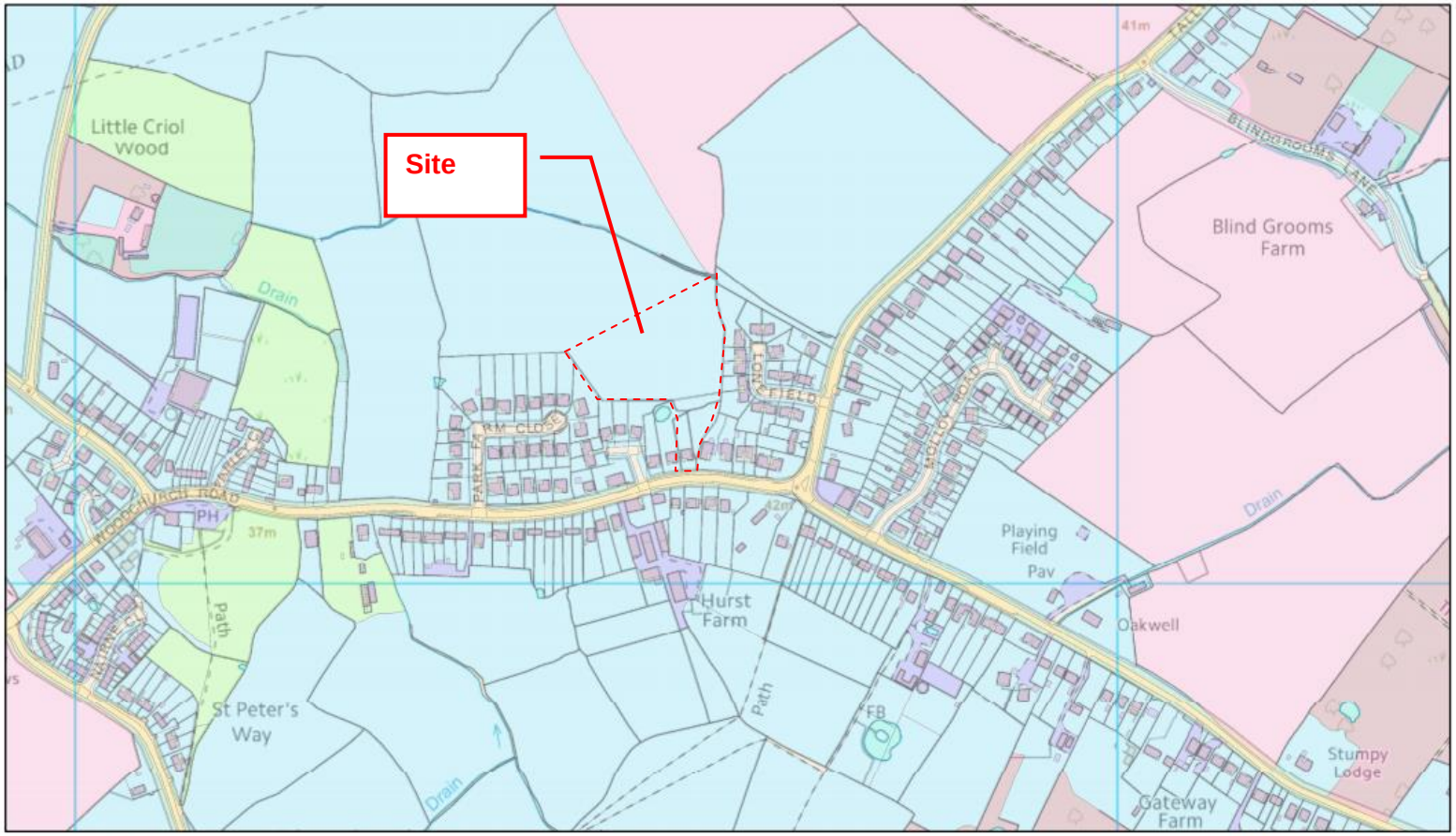
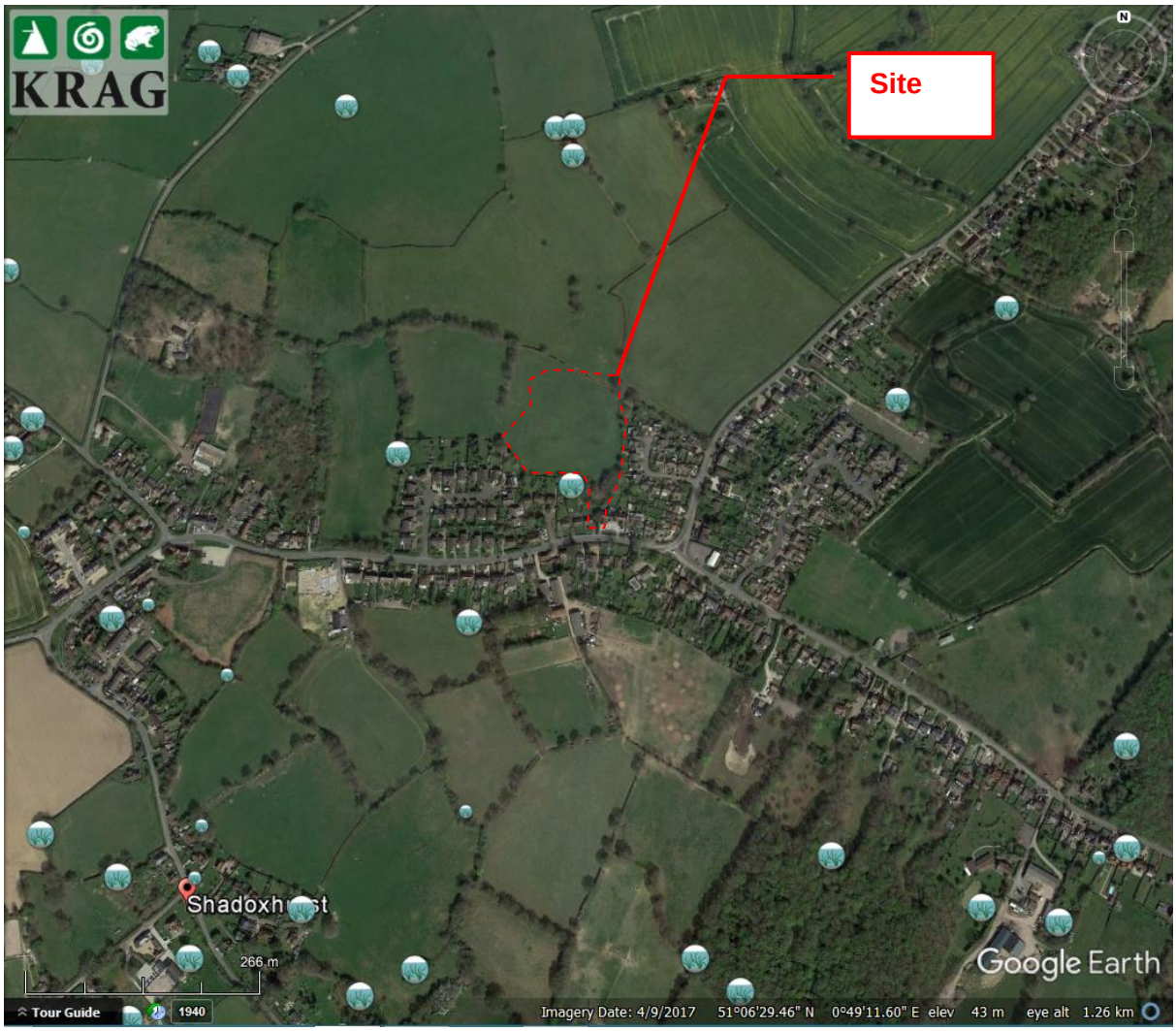


Figure 3: indicates location of ponds from KRAG data search



2 Methodology

2.1 Desk Study

Internet-based resources were consulted to identify designated nature conservation sites within 1km of the site and habitats of potentially high ecological importance and sensitivity within 500m of the site (e.g. ancient woodlands, ponds).

A data search was carried out with the Kent Reptile and Amphibian Group KRAG[1],[2].

2.2 Scoping Survey

The site and its immediate surroundings were considered in terms of habitats, protected species and species of principal conservation importance during a walkover survey undertaken on 30th January 2018 by Katia Bresso CEnv MCIEEM, a qualified professional consultant ecologist with over 15 years of experience[3], licensed bat surveyor (Class Licence CL19, Level 3, Registration Number: 2016-27133-CLS-CLS[4]) and Registered Consultant of the Bat Low Impact Class Licence WML-CL21 with Natural England (since May 2015), licensed dormouse surveyor (Class Survey Licences Registration Number 2016-22060-CLS-CLS) and licensed great crested newt surveyor (Class Licence CL08, Level 1, Registration Number: 2015-16268-CLS-CLS and licence 2017-30955-SCI-SCI for box traps). Evidence of the use of the site by species was recorded (i.e. field signs).

The habitat survey was undertaken in general accordance with Phase 1 Habitat Survey (JNCC 2010), i.e. within the survey area every parcel of land is classified, recorded and mapped in accordance with a list of ninety specified habitat types using standard colour codes to allow rapid visual assessment of the extent and distribution of different habitat types.

The survey and report aim at following the guidance and recommendations in the 'British Standard Biodiversity Code of Practice for Planning and Development (BS 42020: 2013)'.

A visual examination of the external and internal areas of the buildings was undertaken. This consisted of a ground level visual inspection using a bright torch (Cluson CB1 Clubman Standard High Power, 500,000 candle power). Cracks and holes were inspected using an endoscope or night vision scope where needed. The purpose of the survey was to look for signs of bats such as droppings, urine staining, marking around entrance/exit holes and any animals; and to note any potential roosting locations and access points. The latter is important because signs of bats are frequently not present; for example, they can be washed off external surfaces by wind and rain and are often not visible where bats roost in crevices

[1] Please note that absence of records should not be taken as confirmation that a species is absent from the search area.

[2] Due to the scale of the project, it was judged disproportionate to undertake a costly data search with the Kent and Medway Biological Record Centre KMBRC as the data would be unlikely to be relevant to this site.

[3] Katia Bresso is a Suitably Qualified Ecologist with regards to Code for Sustainable Homes assessment and BREEAM

[4] This licence allows the holder to disturb or capture bats using: torches, endoscopes, hand nets, static hand-held nets, mist nets for development surveys (can be used for a maximum of 3 days at any one site), acoustic lures and to disturb but not handle hibernating bats.

such as gaps between tiles and boarding or felt, behind weatherboarding, holes in brickwork, timbers and similar.

2.3 Habitat Suitability Index Calculation

The great crested newt Habitat Suitability Index (HSI) is a quantitative measure of habitat quality, which was calculated for a number of ponds. The HSI is a number between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts. An HSI of 1 is optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single pond basis but takes into account surrounding terrestrial habitat and local pond density.

2.4 Bats in trees assessment

The survey entailed a preliminary ground level roost assessment, i.e. an external inspection of all trees present within the survey area, looking at potential to support bats and looking for actual signs of bats, using an endoscope, high powered torch and binoculars where needed (from the ground only).

The features of trees that can be used as bat roosts include:

- Natural holes, woodpecker holes, rot cavities that orient upwards from the entrance,
- Cracks/splits in major limbs
- Loose bark
- Behind dense, thick-stemmed ivy
- Hollows/cavities
- Within dense epicormic growth
- Bird and bat boxes

Each tree was classified as follows:

Suitability	Description Roosting habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[a] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation[b]). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.[c]
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[a] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[a] and surrounding habitat.

3 Baseline Ecological Conditions

3.1 Designated Nature Conservation Sites

The site is not part of, nor directly adjacent to, any statutory designated sites and none are located within 1km of the site. One local wildlife site[5], 'Shadoxhurst woods and pasture', is present 720m to the South East of the site. Another, 'Woods and meadows near Shadoxhurst', is present 880m to the South West of the site.

A small pocket of ancient woodland[6] is present within 500m, connected to the site by hedgerows.

3.2 Habitats

The site is surrounded by dwellings and pasture with hedgerows.

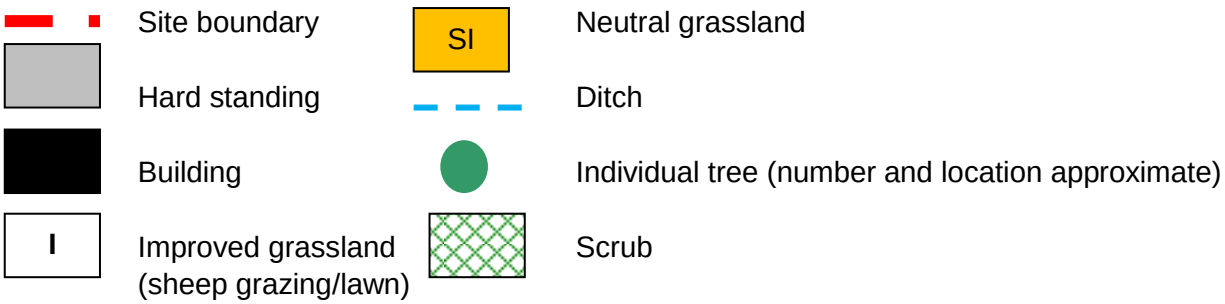
The Integrated Habitat System (IHS) classification of the Kent Habitat Survey 2012 describes the site as:

- *Built-up areas*
- *Improved grassland.*

Indeed, the site (approximately 1.3ha in total) mainly consists of a sheep grazing field at the back of the garden of a bungalow. Mature pedunculate oak trees *Quercus robur* are present along the East boundary of the field (albeit outside the site itself), as is a small length of hedge (blackthorn, hawthorn *Crataegus monogyna, rosa sp*). An area of unmanaged scrub (blackthorn *Prunus spinosa* and bramble *Rubus fruticosus agg*) with scattered oak trees is present to the side of the bungalow. This area becomes tussocky grassland towards the fence line with the sheep pasture field. It is also crossed by a small ditch, wet in places at the time of site visit. A dry ditch lines the East boundary, on the other side of the fence line. This ditch becomes wet in the North East corner of the site where it veers away from the site boundary. Short sections of *Leylandii* hedges are present at the back of the some of the Woodchurch Road properties.

Plates are present in Appendix B. Figure 4 below shows the location of the habitats.

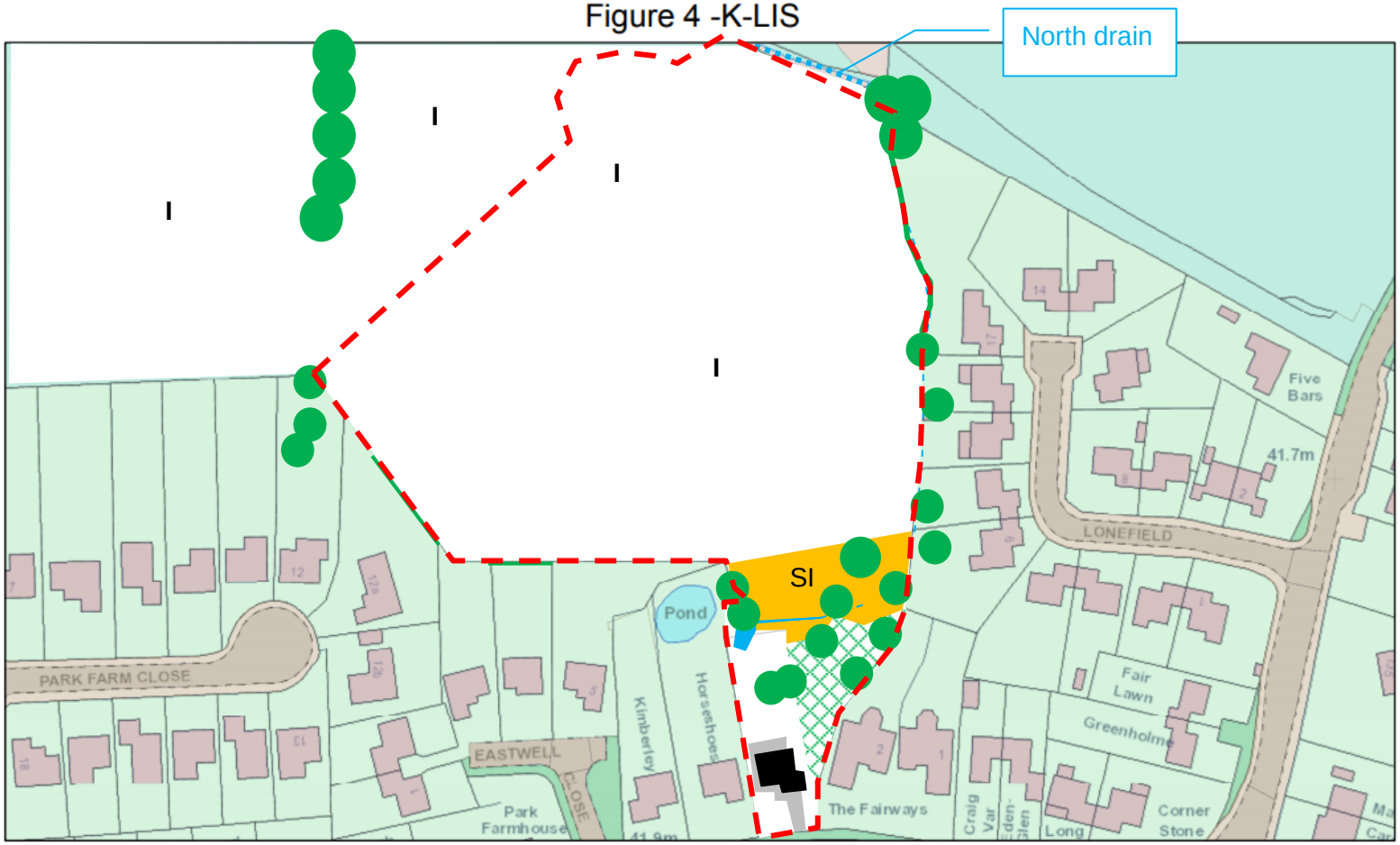
Legend of Phase 1 habitat survey map hereafter:



[5] In Kent, there are over 460 Local Wildlife Sites, covering a total area of over 27,500 hectares, (roughly 7% of the county). They range from a 0.13 hectares churchyard important for its orchids, to grazing marsh sites of over 1,000 hectares.

[6] Land that has had continuous woodland cover since at least 1600 AD

Figure 4 -K-LIS

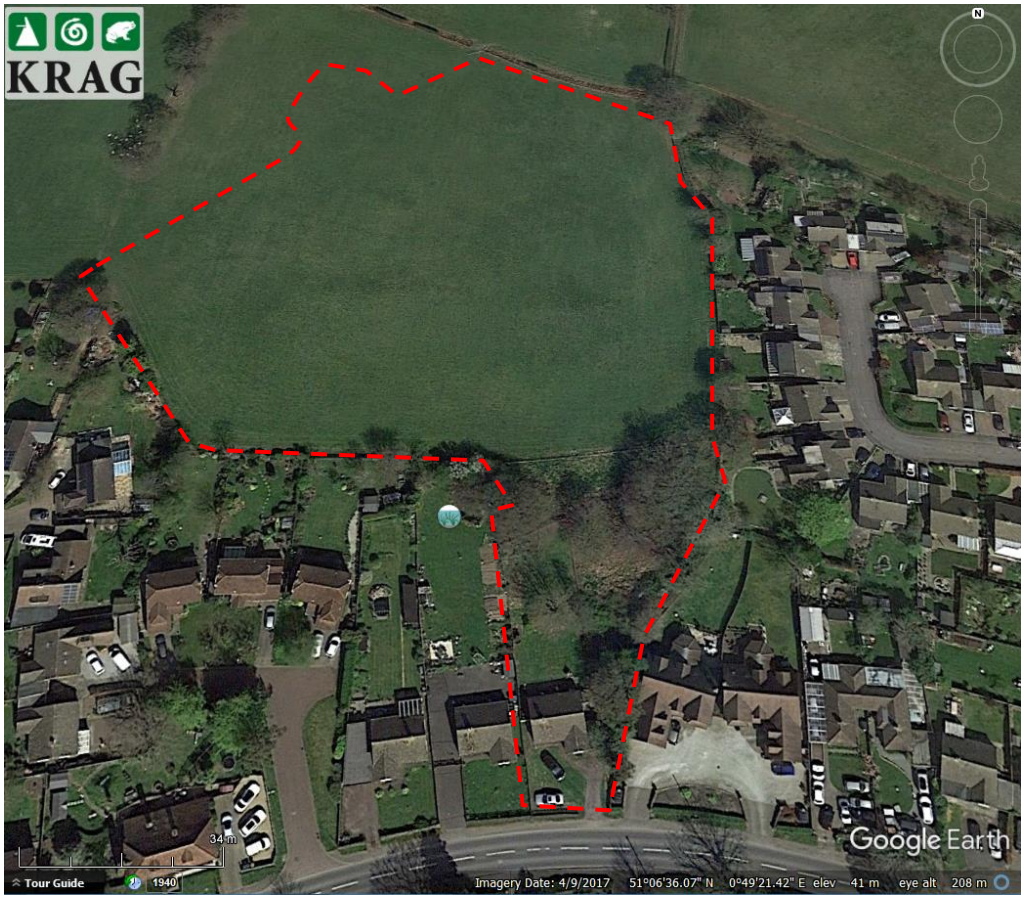


February 1, 2018

1:1,250

0 0.01 0.02 0.04 mi

0 0.015 0.03 0.06 km



3.3 Amphibians

The data search carried out with KRAG (Enquiry No: CES/17/067) revealed that the closest recorded Great Crested Newt *Triturus cristatus* site is located at [Private Residence], 2.18 km to the E (record id: 72674).

The 'Great Crested Newt Mitigation Guidelines' (English Nature 2001) state the following:
'Great crested newts have been found to move over considerable distances (up to 1.3km from breeding sites). However, the vast majority of newts will inhabit an area much closer to the pond, and the exact distribution and migration patterns of newts on land depends on a variety of factors. The quality of terrestrial habitat near to breeding ponds is important, as are the lack of barriers to dispersal (such as fast-flowing rivers, or very busy roads). The distribution of ponds and hibernation opportunities may also influence movements. […] Several studies have been conducted which reveal a great deal of variation, but great crested newts commonly move between ponds that are within around 250m of each other.'

Great crested newts favour areas of high pond density and occupancy levels can exceed 40% of ponds when conditions are favourable. KRAG's database risk assessment indicates that the likelihood of presence of great crested newts *in the overall area* is *'High'*[7].

Great crested newt data was gathered from other proposed developments near-by.

[7] Likelihood of Presence Scores are described using the following categories: Unlikely<Possible<Likely<High

Only one pond is present within 100m of the site:

- Pond 1: It could be seen from the site during the 2018 site visit but no access was granted in 2015 nor in 2017 for the other proposed developments near-by, thus there is no prior information about great crested newts for this pond.

A further two ponds are shown as present within 250m on OS maps:

- Pond 2: it was assessed as unsuitable for great crested newts during a site survey by 'Martin Newcombe Wildlife Management Consultancy' in 2014 for an adjacent development (ref 16/01841/AS). The pond was visited by KB Ecology Ltd in July 2017 and was dry at the time.
- Pond 3: Its location was visited by KB Ecology Ltd in July 2017 but no pond was present.

Another seven ponds are present within 500m of the site.

The Great Crested Newt Conservation Handbook, 2001 states that 'very short pasture is easily traversed by newts, and provides night time foraging, but little in the way of shelter' (Great Crested Newt Conservation Handbook, 2001).

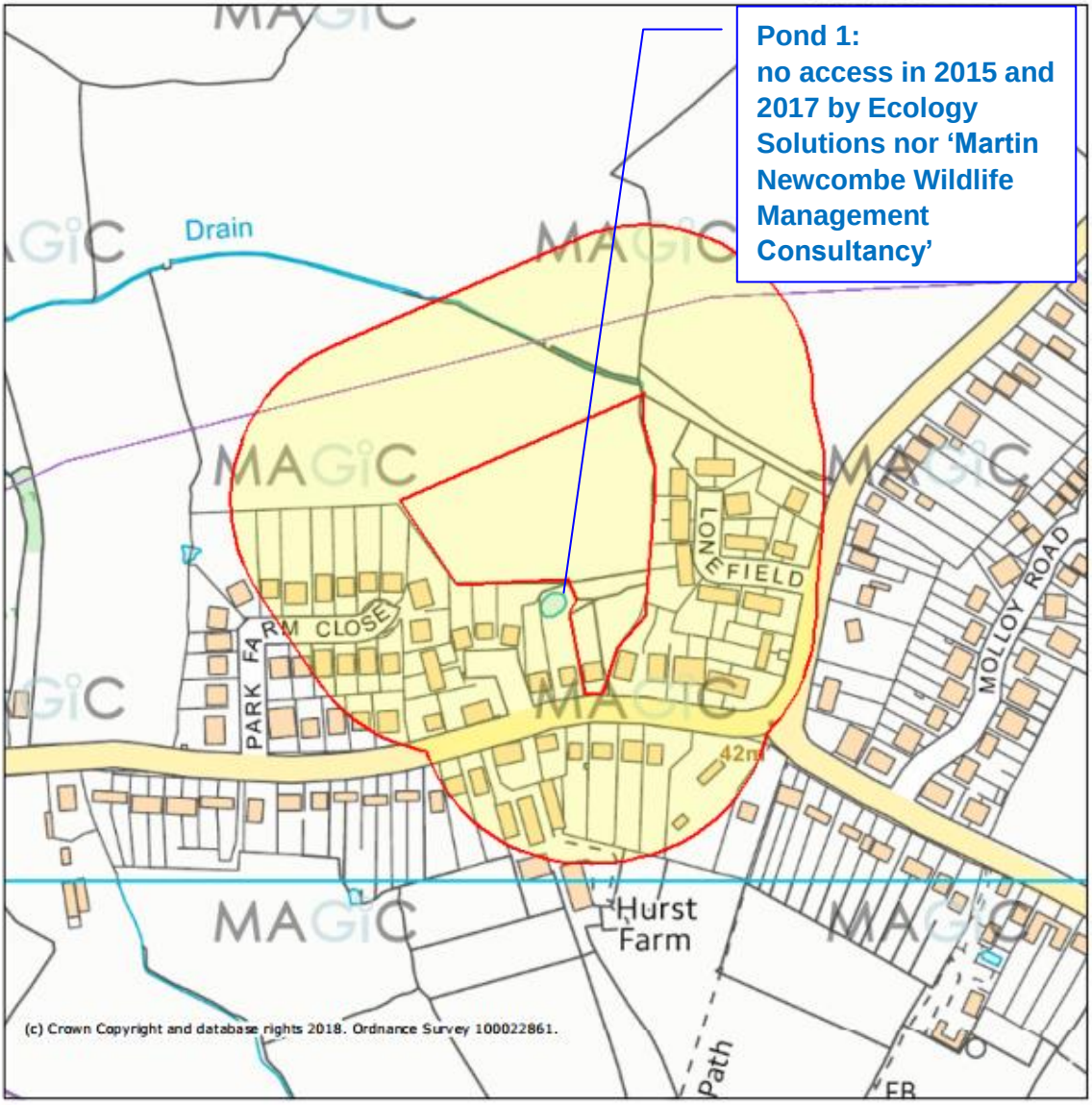
Thus, should great crested newts be present in Pond 1, they are highly likely to be present on site: resting and hibernating in hedges and unmanaged land and foraging throughout, including the sheep pasture field.

Should great crested newts not be present in Pond 1, they are unlikely to be present on site, other than occasionally commuting from pond to pond.

	Pond 1	
	Data	Field score
SI1 - Location	Optimal	1
SI2 - Pond Area	$50m^2$	0.05
SI3 - Pond Drying	Sometimes Dries	0.5
SI4 - Water Quality	Good	1
SI5 - Shade	0%	1
SI6 - Fowl	Absent	1
SI7 - Fish	Absent	1
SI8 - Ponds	58 ponds within 1km of survey pond	1
SI9 - Terrestrial Habitat	Moderate	0.67
SI10 - Macrophytes	60% of pond surface	0.9
HSI:	**0.66**	

The HSI calculation means that suitability of Pond 1 for great crested newts is average.

MAGIC **Figure 5 - 100m radius**



Legend

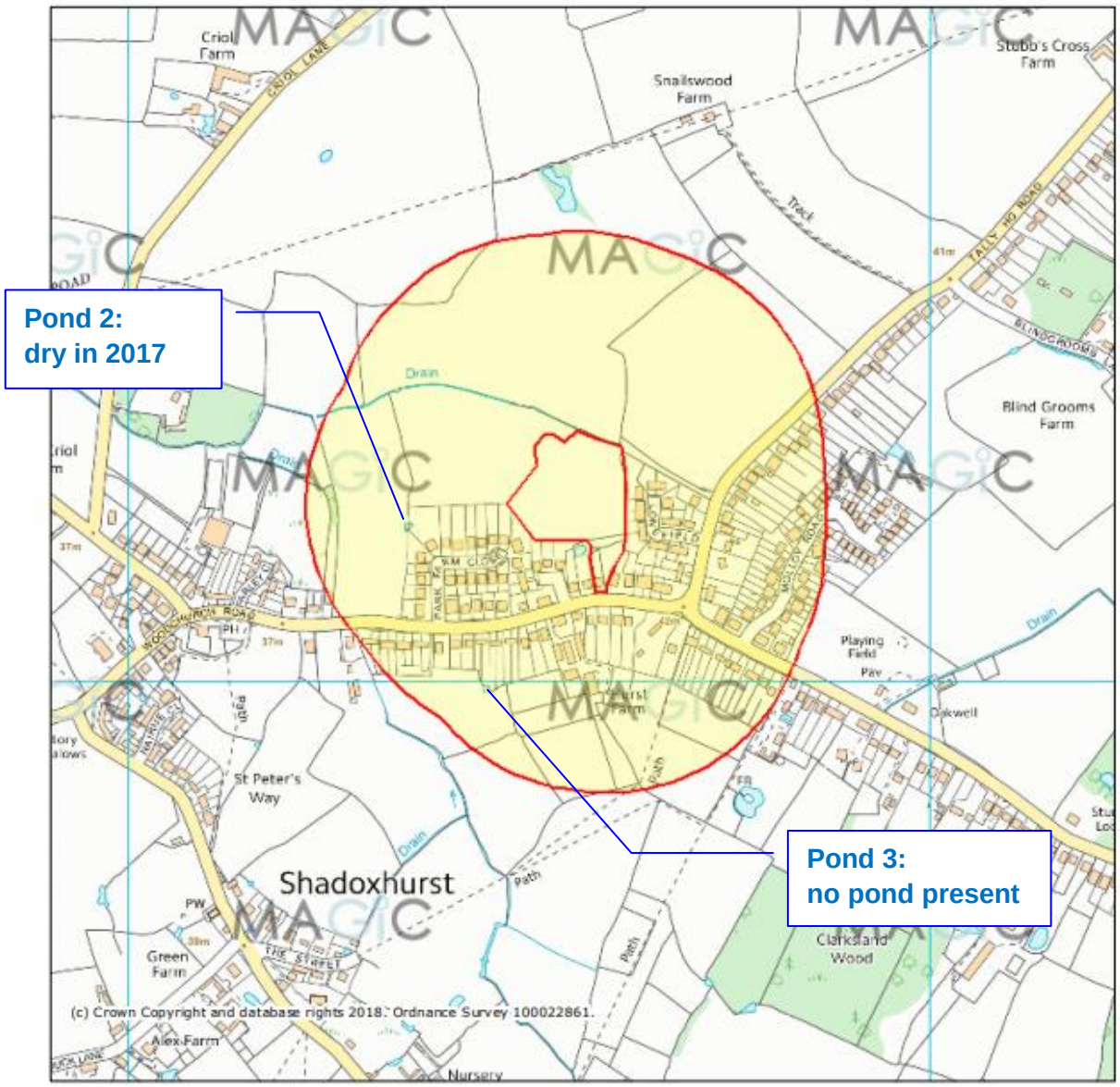
- Limestone Pavement Orders (England)
- Local Nature Reserves (England)
- National Nature Reserves (England)
- National Nature Reserves (Scotland)
- National Nature Reserves (Wales)
- National Parks (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Ramsar Sites (Scotland)
- Ramsar Sites (Wales)

0 0.095 0.19
km

Projection = OSGB36
xmin = 597000
ymin = 137800
xmax = 598100
ymax = 138600

Map produced by MAGIC on 1 February, 2018.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Figure 6 - 250m radius

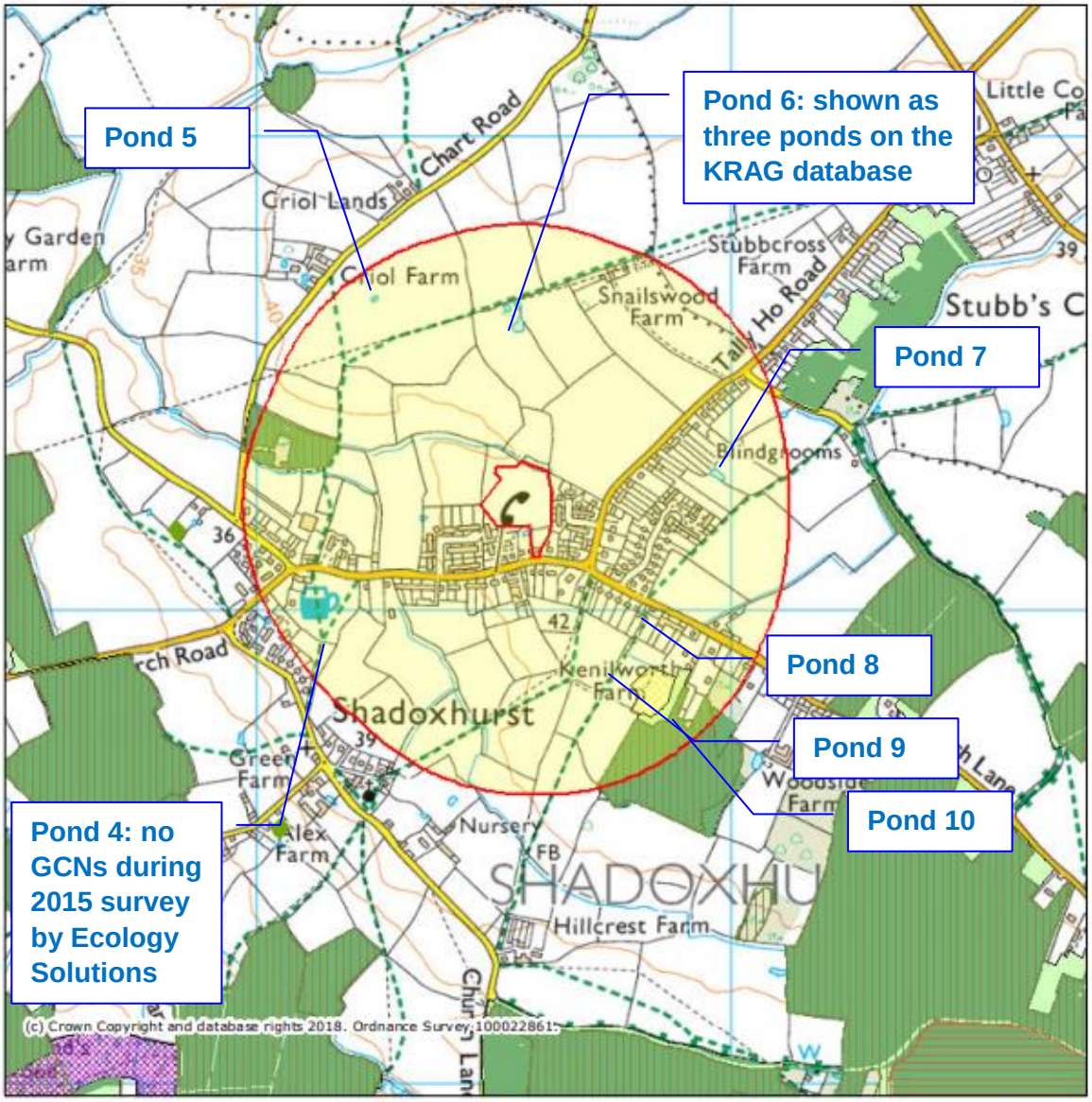


0 0.2 0.4
km

Projection = OSGB36
xmin = 596400
ymin = 137400
xmax = 598700
ymax = 139000

Map produced by MAGIC on 5 April, 2018.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

MAGiC **Figure 7 - 500m radius**



Legend

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)
- Forestry Commission Legal Boundary (England)

0 0.35 0.7
km

Projection = OSGB36
xmin = 595700
ymin = 136800
xmax = 599500
ymax = 139500

Map produced by MAGIC on 5 April, 2018.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Common amphibian species are afforded limited legal protection under the Wildlife & Countryside Act 1981 (as amended). The great crested newt is afforded full legal protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). It is also listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 and are therefore a European Protected Species (EPS). Great crested newts and common toads are also listed as species of principal conservation importance (See Appendix A).

For more information, guidance from Natural England is available at
https://www.gov.uk/great-crested-newts-protection-surveys-and-licences

3.4 Reptiles

The KRAG datasearch revealed that the closest recorded reptile is Viviparous Lizard, located at [Private Residence], 0.22 km to the NE (record id: 15745). The likelihood of reptiles to be present *in the overall area* is judged as per table below:

Reptiles

	Likelihood of Presence	
	Score	Dist (km)
Viviparous Lizard:	HIGH	0.22
Slow-worm:	Possible	2.26
Sand Lizard:	*unlikely*	*44.67*
Grass Snake:	HIGH	1.10
Adder:	*unlikely*	*5.28*
Smooth Snake:	n/a	n/a

Reptile survey effort in local area is considered to be below average. Results should be interpreted with caution.

The areas of unmanaged scrub and grass offer potential for reptiles, namely slow worms *Anguis fragilis*, common lizards *Zootoca* and grass snakes *Natrix natrix.*

Common reptiles are afforded limited legal protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). They are also listed as species of principal conservation importance (See Appendix A).

For more information, guidance from Natural England is available at
https://www.gov.uk/reptiles-protection-surveys-and-licences

3.5 Birds

It is considered that the site has high potential to support breeding birds within the trees, hedges and scrub.

No signs of barn owl *Tyto alba* were found during the survey. No white droppings, black/grey pellets or white/buff feathers (specific signs of barn owls) were found.

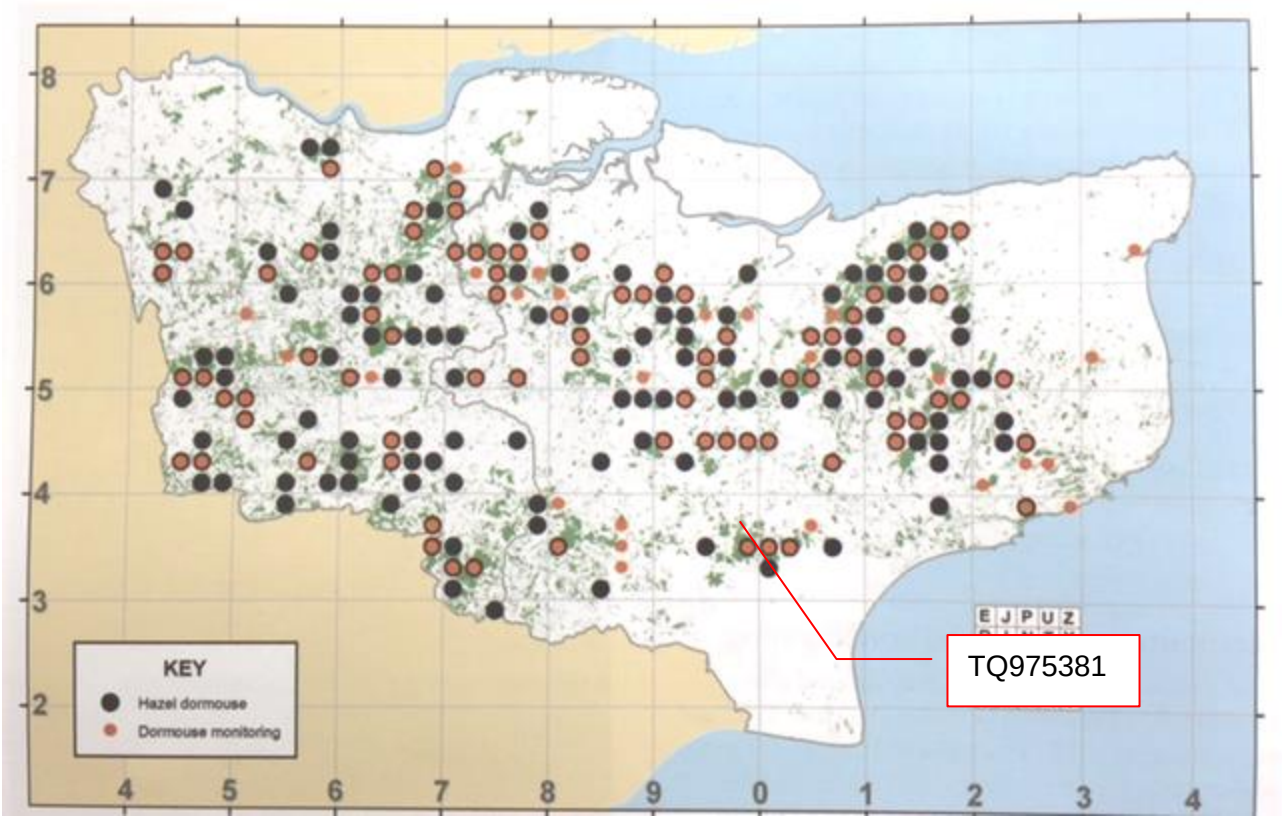
All species of bird whilst actively nesting are afforded legal protection under the Wildlife & Countryside Act 1981 (as amended) and special penalties are available for offences related to birds listed on Schedule 1. Some species are also listed as species of principal conservation importance, including sky lark, common cuckoo, house sparrow, tree sparrow and song thrush (See Appendix A).

For more information, guidance from Natural England is available at https://www.gov.uk/wild-birds-protection-surveys-and-licences

3.6 Hazel Dormouse

It is considered that the boundary trees and unmanaged scrub have some restricted potential to support the hazel dormouse *Muscardinus avellanarius*: indeed, although suitable ancient woodlands are present near-by, the nearest are connected over 500m away (see Figure 7). No nests were found during the site visit (visibility was good).

Map from Mammals of Kent (2015):



The dormouse is afforded full legal protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). It is also listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 and are therefore a "European Protected Species" EPS) . The dormouse is also listed as species of principal conservation importance (See Appendix A).

3.7 Badger

The grassland habitat on site provides foraging opportunities for badgers *Meles meles*. However, no setts or signs of badgers *Meles meles* were identified during the survey.

The Protection of Badgers Act 1992 was introduced in recognition of the additional threats that badgers face from illegal badger digging and baiting. Under the Act, it is an offence inter alia to:

- Wilfully kill, injure or take a badger, or to attempt to do so;
- Cruelly ill-treat a badger; or
- Intentionally or recklessly interfere with a badger sett by (a) damaging a sett or any part of one; (b) destroying a sett; (c) obstructing access to or any entrance of a sett;

(d) causing a dog to enter a sett; or (e) disturbing a badger when it is occupying a sett.

For more information, guidance from Natural England is available at https://www.gov.uk/badgers-protection-surveys-and-licences

3.8 Water voles

The drain present to the North of the site could potentially be used by water voles *Arvicola terrestris*.

Water voles are afforded legal protection under section 9 of the Wildlife & Countryside Act 1981 (as amended) (See Appendix A).

For more information, guidance from Natural England is available at https://www.gov.uk/water-voles-protection-surveys-and-licences

3.9 Bats

No bats nor signs of bats were found during the internal/external inspection of the bungalow. It was judged as offering low suitability for roosting bats as tight-fitted concrete interlocking tiles are present over a roofing felt but a few had small gaps which could be used by crevice-dwelling bats.

One of the oak trees present in the unmanaged patch of land and one willow tree present adjacent to Pond 1 offer high suitability for roosting bats due to the presence of cavities. Some of the oak trees present around the boundaries but not within the site offer moderate to high suitability for roosting bats too, due to the presence of cavities and dead wood.

The site is likely to be used by foraging and commuting bats.

Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low Bungalow	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[a] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation[b]). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.[c]	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[a] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High Trees	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[a] and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[a] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
[b] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.
[c] This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Table from Bat Conservation Trust (2012). Bat Surveys - Good Practice Guidelines – 2nd Edition. Bat Conservation Trust, London.

All species of bat are afforded full legal protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). They are also listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 and are therefore a "European Protected Species" (EPS). Some species of bats (noctule, soprano pipistrelle, brown long-eared bat, barbastelle) are also listed as species of principal conservation importance.

Bats rarely use the same roosting place all year round as they need different conditions for breeding and hibernating. But bats are creatures of habit and tend to return to the same sites at the same time year after year. For this reason, roosts are legally protected even if bats don't seem to be living there at certain times of year.

The legislation makes it a criminal offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;

- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat;
- Intentionally or recklessly obstruct access to a bat roost.

For more information, guidance from Natural England is available at https://www.gov.uk/bats-protection-surveys-and-licences

3.10 Other Species

It is considered that the surroundings have potential to support hedgehogs (*Erinaceus europaeus*), which are a Species of Principal Importance under Section 41 of the NERC Act (2008 updated list).

Common mammal species such as rabbit (*Oryctolagus cuniculus*), mole (*Talpa europea*), field vole (*Microtus agrestis*) and fox (*Vulpes vulpes*) are likely to be present on site.

All mammals are afforded protection against unnecessary suffering by the Wild Mammals (Protection) Act 1996 (see Appendix A).

4 Ecological constraints and opportunities, recommendations for mitigation, compensation and further survey

The details of the proposed development were as below at the time of writing this report.

Should the scope of the proposed works be amended following the completion of this scoping survey, or be deferred for an extended period of time, there may be a requirement to update this scoping report and its recommendations.

4.1 Designated Nature Conservation Sites

A site check report was generated for the site using the Impact Risk Zones on the Magic website[8]:

[8] The Impact Risk Zones (IRZs) dataset is a GIS tool which maps zones around each SSSI according to the particular sensitivities of the features for which it is notified and specifies the types of development that have the potential to have adverse impacts.

Natural England uses the IRZs to make an initial assessment of the likely risk of impacts on SSSIs and to quickly determine which consultations are unlikely to pose risks and which require more detailed consideration. Publishing the IRZs will allow LPAs, developers and other partners to make use of this key evidence tool.

http://www.naturalengland.org.uk/ourwork/planningdevelopment/impactriskzonesgistoolfeature.aspx

01/02/2018

Site Check Report Report generated on Thu Feb 01 2018
You selected the location: Centroid Grid Ref: TQ976381
The following features have been found in your search area:

SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?	2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:
All Planning Applications	
Infrastructure	Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.
Wind & Solar Energy	
Minerals, Oil & Gas	Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
Rural Non Residential	
Residential	
Rural Residential	
Air Pollution	Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, pig & poultry units, slurry lagoons > 200m² & manure stores > 250t).
Combustion	General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste	Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.
Composting	Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.
Discharges	
Water Supply	Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.
Notes	
GUIDANCE – How to use the Impact Risk Zones	/Metadata_for_magic/SSSI IRZ User Guidance MAGIC.pdf

The type of development proposed is not listed as being a category for which the LPA should consult Natural England. The proposal is not judged detrimental to any protected sites.

4.2 Habitats

Habitats present outside the works footprint should be suitably protected against any damage during works.

Trees to be retained should be protected during any construction work and guidance is given in the 'BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations' document. This standard requires a tree protection plan to be developed which involves erecting physical barriers to prevent damage to existing trees, with an exclusion area around the trees. It also looks at defining a root protection area and requires consideration when compulsory work is carried out within the root protection area.

In order to reduce any risk of pollution incidents such as spillage of oil, diesel, detergents, cement, etc., or an increase in sedimentation from disturbance to the North drain, all work in its vicinity should follow recommendations given in the Environment Agency Pollution Prevention Guidance[9].

4.3 Amphibians

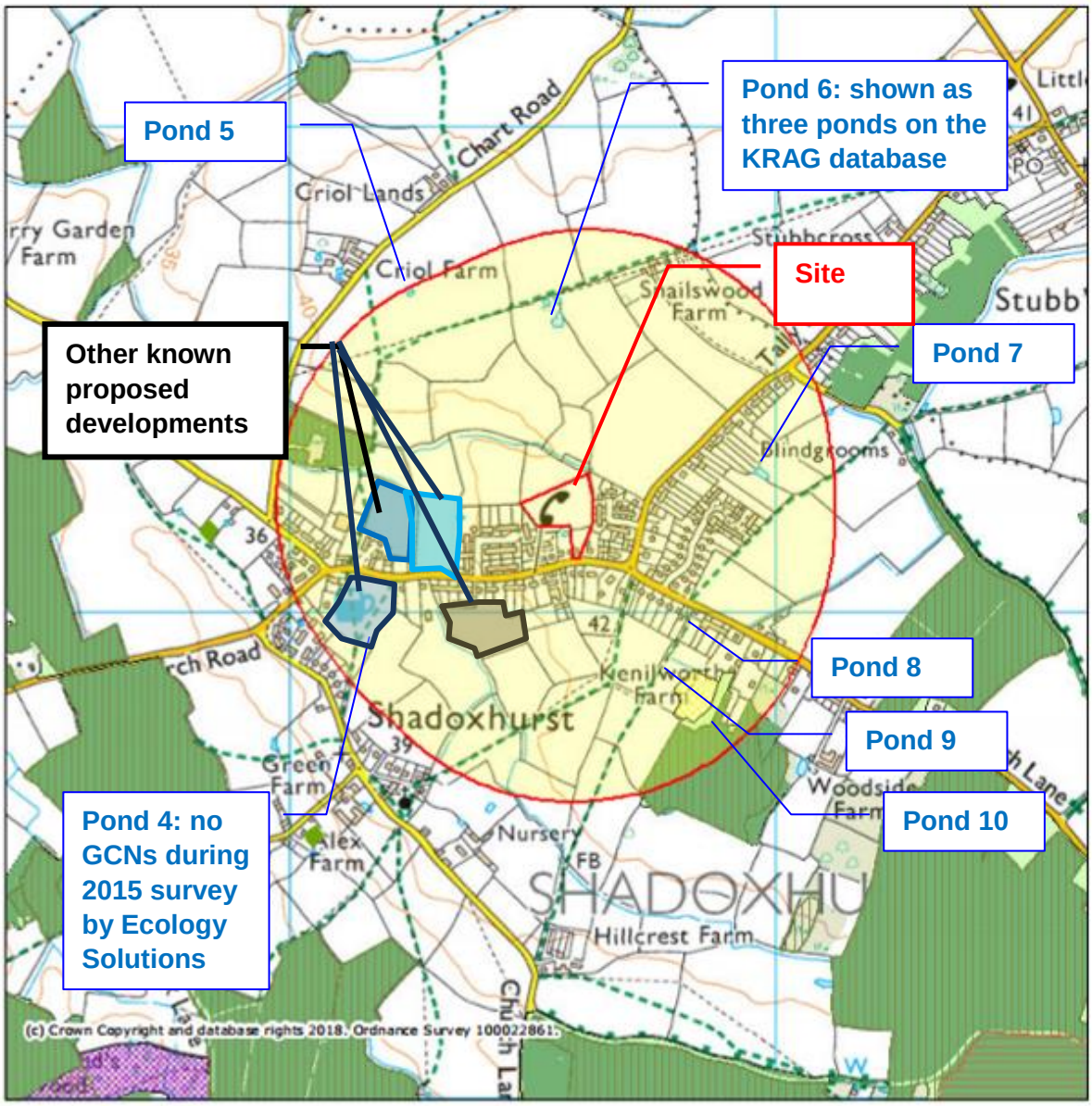
Pond loss is often seen as the most damaging impact on great crested newt populations, but the loss of terrestrial habitat can also have serious consequences. Great crested newts live on land for the majority of their lives, and so loss of terrestrial areas, particularly those close to the breeding pond, can be very damaging. The main effect of habitat loss is reduction in population size, reduced foraging opportunities, reduced refuge opportunities leading to exposure to predators or harsh conditions, and unsuccessful hibernation.

[9] Can be found here: https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg

There are a number of development activities which can affect great crested newts, which should be fully considered at the application stage. Great crested newts can migrate more than 500 metres from their breeding ponds in areas of suitable terrestrial habitat. However, generally the scale of potential impacts will decrease as the distance from the breeding pond increases. Impacts on great crested newts could include:

	If GCN are present, would it be the case for this project?	
Habitat loss	Both the loss of breeding ponds and terrestrial habitat can have significant impacts upon great crested newts since newts live on land for the majority of their lives. Populations can be reduced or even go extinct where there is a major loss of habitat due to reduced foraging, breeding and refuge opportunities. Consequently, the mitigation strategy must ensure that there is no net loss of habitat (be it breeding ponds or terrestrial habitat) for newts.	**Yes, if GCNs breed in Ponds present within 250m, ie Pond 1.** **No if GCNs do not breed in Pond 1.**
Habitat modification	Although some development may not replace newt habitat with built land, it can be made less suitable. For example, changing an area of rough grassland used by newts as terrestrial habitat into amenity grassland could have a negative impact on the population. Therefore the mitigation strategy should ensure that there is no net loss in quantity and quality of habitat.	**Yes, if GCNs breed in Ponds present within 250m, ie Pond 1.** **No if GCNs do not breed in Pond 1.**
Habitat fragmentation and isolation	Habitat fragmentation and isolation of great crested newt populations can be caused when development imposes barriers to newt dispersal. These barriers can include built land, fast flowing water bodies or extreme landforms. Isolation of great crested newts can result in population number declines and a decrease in genetic viability. Therefore the mitigation strategy should include measures to maintain habitat linkages and preferably reconnect fragmented areas.	**Yes, the development could contribute to the fragmentation of habitat for this species as other similar developments are also proposed very near-by.**
Miscellaneous	Other more indirect impacts caused by development also need to be fully considered, such as increased shading and siltation of ponds, water table alteration and potential for increased chemical run-off into waterbodies. Great crested newts can also be impacted by interference following a development, such as the introduction of fish to breeding ponds which will predate the young life stages of newts.	**No**

MAGIC **Figure 7 - 500m radius**



Legend

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)
- Forestry Commission Legal Boundary (England)

0 0.3 0.6
km

Projection = OSGB36
xmin = 595600
ymin = 136800
xmax = 599400
ymax = 139500

Map produced by MAGIC on 1 February, 2018.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Natural England provides a rapid risk assessment tool to work out whether a licence will be needed.

Application tools: (1) "Do I need a licence?" - rapid risk assessment
Caveats and limitations
T**his risk assessment tool has been developed as a general guide only**, and it is inevitably rather simplistic. It has been generated by examining where impacts occurred in past mitigation projects, alongside recent research on newt ecology. It is not a substitute for a site-specific risk assessment informed by survey. In particular, the following factors are not included for sake of simplicity, though they will often have an important role in determining whether an offence would occur: population size, terrestrial habitat quality, presence of dispersal barriers, timing and duration of works, detailed layout of development in relation to newt resting and dispersal. The following factors could increase the risk of committing an offence: large population size, high pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, long construction period. The following factors could decrease the risk: small population size, low pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint, short construction period. You should bear these mitigating and aggravating factors in mind when considering risk.
It is critical that, even if you decide not to apply for a licence, you ensure that any development takes account of potential newt dispersal. Where great crested newts are present, landuse in that area must ensure there is adequate connectivity. Retaining and improving connectivity will often involve no licensable activities.
Guidance on risk assessment result categories
"Green: offence highly unlikely" indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, bearing in mind that this is a generic assessment, you should carefully examine your specific plans to ensure this is a sound conclusion, and take precautions (see **Non-licensed avoidance measures tool**) to avoid offences if appropriate. It is likely that any residual offences would have negligible impact on conservation status, and enforcement of such breaches is unlikely to be in the public interest.
"Amber: offence likely" indicates that the development activities are of such a type, scale and location that an offence is likely. In this case, the best option is to redesign the development (location, layout, methods, duration or timing; see **Non-licensed avoidance measures tool**) so that the effects are minimised. You can do this and then re-run the risk assessment to test whether the result changes, or preferably run your own detailed site-specific assessment. Bear in mind that this generic risk assessment will over- or under-estimate some risks because it cannot take into account site-specific details, as mentioned in caveats above. In particular, the exact location of the development in relation to resting places, dispersal areas and barriers should be critically examined. Once you have amended the scheme you will need to decide if a licence is required; this should be done if on balance you believe an offence is reasonably likely.
"Red: offence highly likely" indicates that the development activities are of such a type, scale and location that an offence is highly likely. In this case, you should attempt to re-design the development location, layout, timing, methods or duration in order to avoid impacts (see **Non-licensed avoidance measures tool**), and re-run the risk assessment. You may also wish to run a site-specific risk assessment to check that this is a valid conclusion. If you cannot avoid the offences, then a licence should be applied for.

Below are risk assessments depending on presence of GCNs in ponds and landscaping:

1. If GCNs are present in Pond 1:

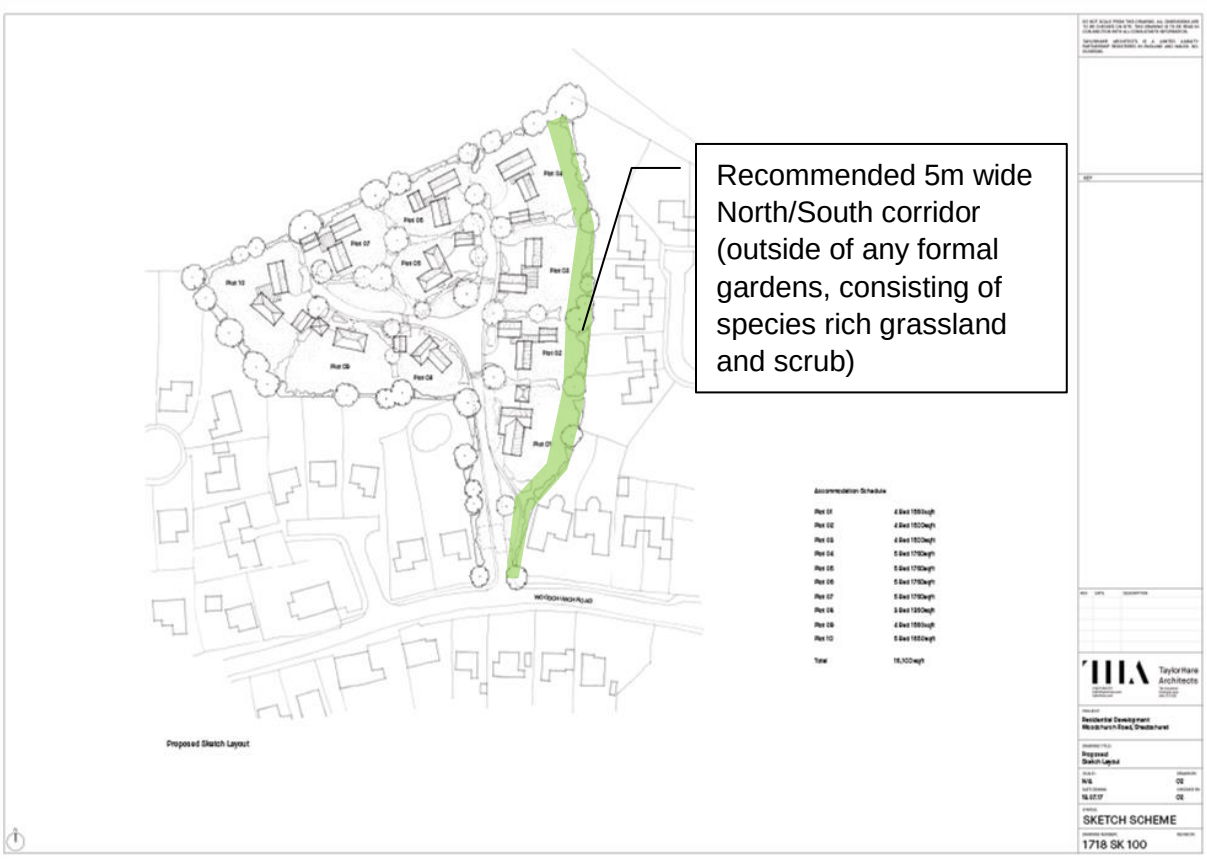
Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	**Notional offence probability**
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	>1 ha lost or damaged	0.9
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
	Maximum:	0.9
Rapid risk assessment result:	**RED: OFFENCE HIGHLY LIKELY**	

2. If GCNs are not present in Pond 1 but are present in ponds over 250m away from the site and there is no retention of a North South wildlife corrior within the site to allow connectivity between ponds and there is thus some fragmentation:

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	**Notional offence probability**
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	Obstructing dispersal of newts	0.8
	Maximum:	0.8
Rapid risk assessment result:	**RED: OFFENCE HIGHLY LIKELY**	

3. If GCNs are not present in Pond 1 but are present in ponds over 250m away from the site BUT there is retention of a North South wildlife corrior within the site to allow connectivity between ponds:
4.

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	**Notional offence probability**
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.04
Rapid risk assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	



Depending on the potential impact, the type of survey needed varies. Here, the potential impact is shown in orange.

Survey guidance table

Impact type and location	Potential terrestrial habitat - loss or damage (ha)	Presence/ likely absence survey	Population size class assessment	HSI	Maximum age of survey data (# breeding seasons)
Permanent habitat loss or damage					
Pond(s) lost or damaged, with or without other habitat loss or damage	≥0	YES	YES	YES	2
No ponds lost or damaged, development within 50m of nearest pond	≤0.01	YES	NO	YES	3
	>0.01	YES	YES	YES	2
No ponds lost or damaged, development 50-100m from nearest pond	≤0.2	YES	NO	NO	3
	>0.2	YES	YES	YES	2
No ponds lost or damaged, development 100-250m from nearest pond	≤0.5	YES	NO	NO	4
	>0.5	YES	YES	YES	3
No ponds lost or damaged, development >250m from nearest pond (NB see notes)	≤5	YES	NO	NO	4
	>5	YES	NO	YES	3
Temporary habitat loss or damage					

if GCNs present in Pond 1

if GCNs not present in Pond 1 and no corridor

It is thus recommend to carry out GCN surveys of Pond 1, including population estimate if present. For all other ponds present within 500m, they should only be surveyed if a wildlife corridor is not proposed and the proposal would then potentially fragment the local meta-population.

Full great crested newt surveys involve undertaking four visits to establish presence / likely absence (six visit for population estimate, if they are indeed present) between mid-March and mid-June, with at least two of these visits between mid-April and mid-May. Depending on each individual pond, this may consist of refuge search (looking under log piles and other refuges), egg searching, bottle trapping over-night and torching at night, all activities to be undertaken during suitable weather conditions (i.e. little/no rain, ambient night time air temperatures >5^{o}C).

Alternatively, great crested newt Environmental DNA (eDNA) sampling could be undertaken (but this test only provides a presence/absence result, and gives no information about population size, should the species be present). It involves a GCN licence ecologist with suitable experience and training to collect Water samples between 15th April and 30th June.

Should great crested newts indeed breed in pond 1, it will be necessary to put together a mitigation strategy to minimise disturbance to the species (these would likely entail fencing prior to works to minimise risk to animals and incorporation into the design of features such as hibernaculum) and a Habitats Regulations licence (or a Natural England EPSM licence) will be needed to undertake the work, which can be done in two ways:

A. A EPSM licence could be sought from Natural England to permit the proposed works. An application would need to be prepared and submitted to Natural England for determination, once full planning permission has been granted. A decision on the application would be made by Natural England within 30 days of receipt (although it has taken Natural England considerably more time in the last two years). The licence application would need to include full details of the proposed ecological mitigation / compensation and a program for these works.

B. Alternatively, it may be that the site can be part of the soon-to-go live District licensing[10].

Natural England requires objective evidence that the proposed activity fits the purpose set out in Regulation 44(2)(e) - “Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.

If neither public health nor public safety grounds can be met, then Natural England must consider whether other imperative reasons of overriding public interest can be demonstrated. The word “imperative” means that there must be a high degree of “need” for the action concerned. The reason must also be of some significant substance or weight because it has to be judged to be of such public interest that it should override nature conservation interests.

The legislation also requires Natural England to be satisfied that there is “no satisfactory alternative” to the activity proposed.

[10] see https://naturalengland.blog.gov.uk/2017/02/17/newts-in-the-news-a-major-step-forward-for-district-licensing/

4.4 Reptiles

Reptiles may be present in part of the site. It is therefore recommended to carry out a reptile survey looking at presence/absence.

The survey would consist of placing artificial refuges (i.e. 0.5 m^2 tins or roofing felt) in areas of suitable reptile habitat and leaving them in place for at least 1 week prior to the survey commencing. The refuges would be checked on seven separate occasions, over four weeks at least, to establish presence / likely absence during suitable weather conditions (i.e. cool weather with no heavy rain but sunny intervals between showers, and ambient air temperatures between 10-20^{o}C). Should reptiles be recorded during the presence / absence survey, further visits may be recommended to establish relative population size. In addition, log piles, rock piles and building debris can also be searched under for the presence of reptiles.

Reptile surveys can be undertaken between March and October, the optimal months being April, May, June and September. Mid-summer temperatures and general activity levels are usually too high for refuges to be successfully used (surveys are highly weather dependent).

Should the presence of reptiles be confirmed through further surveys, mitigation may involve the installation of reptile exclusion fencing, and the trapping and translocation of reptiles during suitable weather conditions. Captured animals should be released into a receptor habitat made suitable beforehand. Such animal translocation exercises should only take place once planning permission has been granted.

Mitigation may also require the enhancement, replacement or creation of additional reptile habitats. These works may be necessary in advance and/or after the construction works.

4.5 Birds

Although a breeding bird survey is not deemed to be necessary, on the basis that the site contains suitable habitat for breeding birds, consideration must be given to the timing of the clearance works, if any is to take place.

The effect on birds can be avoided by undertaking any vegetation clearance outside of the nesting season (which extends from March – August inclusive[11]) or only after a survey has confirmed the absence of nesting birds[12]. New hedgerow/trees/scrub planted and bird nesting boxes erected as part of the proposed development can replace the habitat lost.

4.6 Hazel Dormouse

As no nests were found during the site visit, it is judged unlikely that dormice are present in the scrub and trees present on site. However, such a check does not constitute a survey. Therefore it is recommended that a survey be carried, to confirm the absence of the species on site (this is done by installing nesting tubes and boxes on suitable vegetation in very early spring and checking them monthly from April to October included).

[11] It should be noted however that certain species are known to breed throughout the year (e.g. collard dove) and remain protected.

[12] Inspection by a qualified ecologist must first be completed a maximum of 48hrs before clearance works commence. If during the inspection a nest considered to be in use is discovered, works must be delayed until the young have fledged.

4.7 Badger

No further work is recommended with regards to badgers.

4.8 Water voles

Should any ground works be required within 5m from the banks of the North Ditch, or should the proposal entail any changes to the water levels of the North Ditch, then a water vole survey should be carried out (between mid-April to mid-September) to assess whether the species is present and any potential impact.

4.9 Bats

Should bats be roosting or foraging on site, the proposed development would lead to a loss of habitat and animals could be killed or injured during the clearance works.

The Bat Conservation Trust's guidelines provide a table stating the 'minimum number of presence/absence survey visits required to provide confidence in negative preliminary roost assessment from buildings, built structures and trees in summer.

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey[a] (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.[b]	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.[b]

[a] Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

[b] Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

Table 7.1 Recommended timings for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
May to August (structures) No further surveys required (trees)	May to September[a] with at least one of surveys between May and August[b]	May to September[a] with at least two of surveys between May and August[b]

It is therefore recommended that:

- one night-time survey of the bungalow is undertaken between May and August. Two surveyors will be necessary to cover all sides of the building with potential access points.
- three night-time surveys of any tree with suitability for roosting bats to be directly impacted by the proposal. The surveys should be carried out at 3 weeks interval as a minimum in order to sample a long enough period of bats' active season[13].

[13] General guidance for carrying out bat surveys suggests that they only take place in optimum weather conditions in order to maximise the likelihood of recording bats if they use the site being

The boundary vegetation of the site is likely to be used by foraging and commuting bats but the sheep pasture is unlikely to be of much interest, being improved. The Bat Conservation Trust's guidelines provide a table stating the number of bat activity surveys recommended to achieve a reasonable survey effort in relation to habitat suitability.

Table 8.3 Guidelines on the number of bat activity surveys recommended to achieve a reasonable survey effort in relation to habitat suitability.

Survey type	Low suitability habitat for bats[a]	Moderate suitability habitat for bats	High suitability habitat for bats
Transect/spot count/timed search surveys	One survey visit[b] per season (spring – April/May, summer – June/July/August, autumn – September/October)[c] in appropriate weather conditions for bats Further surveys may be required if these survey visits reveal higher levels of bat activity than predicted by habitat alone	One survey visit[b] per month (April to October)[c] in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.	Up to two survey visits[b] per month (April to October)[c] in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.
AND			
Automated/static bat detector surveys[d]	One location per transect, data to be collected on five consecutive nights per season (spring – April/May, summer – June/July/August, autumn – September/October)[c] in appropriate weather conditions for bats	Two locations per transect, data to be collected on five consecutive nights per month (April to October)[c] in appropriate weather conditions for bats	Three locations per transect, data to be collected on five consecutive nights per month (April to October)[c] in appropriate weather conditions for bats

As the site is small, only static detector surveys (with two detectors) are recommended, as above.

Besides, as lighting can be detrimental to roosting, foraging and commuting bats[14], the recommendations from the Bat Conservation Trust, titled Bats and Lighting in the UK, should be considered, when designing any lighting scheme for the proposed development (see Appendix C).

4.10 Other Species

There is some potential for hedgehogs to be present on site. Therefore any areas where mammals could be sheltering should be hand searched prior to disturbance. Excavations should not be left open for animals to fall into, or planks of wood should be placed to enable any animals which may fall into such a hole to escape.

4.11 Additional Recommendations: Enhancements

Ecological enhancements should where possible be incorporated into the proposed development to contribute towards the objectives of planning legislation below:
On 27 March 2012, the UK Government published the National Planning Policy Framework (NPPF) which states that "opportunities to incorporate biodiversity in and around developments should be encouraged"(Para 118).

---

surveyed. It is usually advised to avoid very heavy rain, strong winds, mists and dusk temperatures below 7oC.

[14] http://www.bats.org.uk/pages/bats_and_lighting.html and http://www.batsandlighting.co.uk/index.html for more information

The design and implementation of habitat enhancements could also be used to contribute towards the 'Home Quality Mark' or similar accreditation, should this be a consideration for this site.

Biodiversity enhancements for the site could include the following:

- Provision of hedgehog nesting boxes[15].
- Provision of 12cm square gaps under any new fencing to allow hedgehogs access onto all garden areas.
- Provision of ready-made bird boxes (sparrow terrace timber boxes or house martin nests for instance[16] or mix of open-fronted and hole-nesting boxes and constructed from woodcrete)[17].
- Provision of bat roosting spaces within the new buildings (examples can be found in: Williams, C (2010*). Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build*. RIBA) or installation of ready-made bat boxes (such as Kent Bat Box[18], Habibat[19], EcoSurv Bat Box or Schwegler Bat tube[20])[21].
- Provision of bat friendly planting within the gardens[22]
- Provision of barn owl boxes[23] as the surrounding landscape is judged suitable[24]
- Provision of owl boxes in trees[25]
- Provision of reptile / amphibian hibernacula[26].
- Provision of brash/log piles[27].
- Tree / shrub/ hedgerow planting (native species to be used only).
- Planting of a hedge with dormouse friendly species (using native species)[28].

---

[15] http://www.hedgehogstreet.org/pages/hedgehog-homes.html

[16] to benefit these declining urban bird species

[17] In order not to damage trees, free-hanging nesting boxes can be hung from a loop or hook over a branch. This method avoids the use of nails. It is also helpful to avoid predation.

[18] http://www.teach-organic.org.uk/uploadedfiles/CMS/pdf/bat_box.pdf

[19] Habibat is a large, solid bat box made of concrete with an internal roost space, which can be incorporated into the fabric of a building http://www.habibat.co.uk/

[20] http://www.bats.org.uk/publications_download.php/1109/BCT_BatBoxProductList_v4a.pdf http://www.bats.org.uk/pages/accommodating_bats_in_buildings.html http://www.habibat.co.uk/about-habibat

[21] It is highly recommended to install bird boxes near bat boxes to avoid birds from using the bat boxes to the detriment to bats.

[22] More information can be found here http://www.bats.org.uk/publications_download.php/231/Encouraging_bats_English_2010.pdf

[23] More information can be found here: http://www.barnowltrust.org.uk/infopage.html?Id=42

[24] http://www.barnowltrust.org.uk/content_images/gallery/ENGLAND_Southern1159973743.jpg

[25] More information can be found here http://www.barnowltrust.org.uk/infopage.html?Id=56

[26] http://www.rspb.org.uk/advice/gardening/reptiles_amphibians/hibernacula.aspx

[27] Brash and log piles will be at least one meter high and two metres in diameter. They will comprise a mix of large and small diameter material. The centre of the pile will be compacted, but the outer part will be un-compacted. They will be located in sunny positions. They will be topped up periodically (for example every five years) with further material.

[28] Possible species, which also provide food for dormice and grow relatively quickly, include bramble *Rubus fruticosus* agg., hawthorn *Crataegus monogyna*, honeysuckle *Lonicera* species, and hornbeam *Carpinus betulus*. Other species include include hazel *Corylus*

- Establish climbing plants on walls and other vertical structures[29].
- Establish wildflower plug/bulb planting in amenity grassland and private gardens [30].
- Creation of drought-resistant wildflower garden to attract invertebrates and reduce need for water[31].
- Integration of Sustainable Urban Drainage Systems (SUDS)[32].
- Integration of green or grey roofs[33],[34],[35].
- Consider using grid mesh system (or Ground Reinforcement Grids) with topsoil and seeding with a wildflower species mix, to car parking areas and new access drives to retain some vegetation as well as drainage, or Gravel turf[36].
- Planting of community orchards[37].
- Establish Fruit Espaliers[38].
- Provide suitable nesting areas for bumblebees[39].

Priority should be given to species present on the Kent BAP species list, which include great crested newt, common toad, viviparous lizard, slow-worm, grass snake, adder, house sparrow, tree sparrow, hedgehog, noctule, soprano pipistrelle, brown long-eared bat, brown hare, water vole, harvest mouse, dormouse, otter as well as many more species (see http://www.kentbap.org.uk/habitats-and-species/priority-species/).

---

avellana, oak *Quercus* species, blackthorn *Prunus spinosa* and ivy *Hedera helix* (English Nature, 2006).

[29] More information can be found here: http://www.greenblueurban.com/climbing-plant-guide.php and http://www.london.gov.uk/priorities/environment/urban-space/parks-green-spaces/green-roofs-walls

[30] Spring flowering bulbs and plugs of nectar rich flowering plants should be embedded into amenity grassland to increase the biodiversity and amenity value of the grassland and to provide early sources of nectar for insects. Suitable bulbs include Snake's head fritillary *Fritillaria meleagris*, Ramsons *Allium ursinum*, Snowdrop *Galanthus nivalis*, Primrose *Primula vulgaris*, Bluebell *Hyacinthoides non-scriptus*, Wild daffodil *Narcissus pseudonarcissus*, Lesser celandine *Ranunculus ficaria*

[31] list of suitable species can be found in Natural England Guidance document (2007): 'NE29 - Plants for wildlife friendly gardens'.
http://www.lrwt.org.uk/media/uploads/wildlife/plants_for_wildlife_friendly_gardens_ne_leaflet.pdf

[32] http://www.ciria.org.uk/suds/index.html for more information

[33] http://www.environment-agency.gov.uk/business/sectors/91967.aspx,
http://www.london.gov.uk/priorities/environment/urban-space/parks-green-spaces/green-roofs-walls
and http://publications.naturalengland.org.uk/publication/31036 for more information

[34] An example of a company with extensive experience in designing biodiverse roofs in Central London: the Green Roof Consultancy http://www.greenroofconsultancy.com

[35] 'Creating green roofs for invertebrates – a best practice guide' by Buglife
http://www.kentbap.org.uk/images/uploads/Creating_Green_Roofs_for_Invertebrates_Best_practice_guidance.pdf

[36] http://www.schotterrasen.at/e_index.htm

[37] http://www.orchardnetwork.org.uk/content/case-study-planting-orchard for more information

[38] http://apps.rhs.org.uk/advicesearch/profile.aspx?PID=319 for more information

[39] https://bumblebeeconservation.org/about-bees/habitats/bumblebee-nests/

5 References and Bibliography

- Joint Nature Conservation Committee (2003). *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. JNCC, Peterborough. [40]
- Martin Newcombe Wildlife Management Consultancy (2014). Land at Woodchurch Rd, Shadoxhurst, Kent – Ecological Scoping Survey
- Ecology Solutions (2015). Land adjacent to the King's Head, Woodchurch Road, Shadoxhurst - Ecological Assessment

Websites Visited:

- http://webapps.kent.gov.uk/KCC.KLIS.Web.Sites.Public/ViewMap.aspx
- http://www.magic.gov.uk/magicmap.aspx
- https://kmbrc.maps.arcgis.com/apps/webappviewer/index.html?id=c261e81e403041009a34c0f37316ca12
- http://www.kentbap.org.uk/species/

With kind permission from Google Earth Brand

[40] http://www.jncc.gov.uk/pdf/pub90_HandbookforPhase1HabitatSurveyA5.pdf

Appendix A – Wildlife Legislation & Policy

The following is a summary of wildlife legislation and planning policy which affords protection to plants and animals and seeks to conserve, enhance and restore biodiversity. This section is provided for general guidance only. While every effort has been made to ensure accuracy, this section should not be relied upon as a definitive statement of the law.

For further information, please see:
https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals
and
https://www.gov.uk/government/policies/protecting-biodiversity-and-ecosystems-at-home-and-abroad/supporting-pages/species-protection

Commonly encountered protected species

Many species of plants, invertebrates and animals receive protection under the legislation detailed above. However, of these, the following are the most likely to be affected by development in the southeast:

Species	Legislation
Bats (all species) Dormice Great crested newts Otters Sand lizards and smooth snakes	The Wildlife and Countryside Act 1981 (as amended) & The Conservation of Habitats and Species Regulations 2010. These make it an offence to: • Deliberately or recklessly capture, injure or kill any wild animal of a European protected species • Deliberately or recklessly disturb wild animals of any such species • Damage or destroy their breeding site or resting place • Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal, or any part of, or anything derived from these species. Disturbance of animals includes in particular any disturbance which is likely • to impair their ability: - to survive, to breed or reproduce, or to rear or nurture their young, or - in the case of animals of a hibernating or migratory species, to hibernate or migrate; • to affect significantly the local distribution or abundance of the species to which they belong.
Breeding birds	The Wildlife and Countryside Act 1981 (as amended). This makes it

Species	Legislation
(in particular barn owls)	illegal to intentionally kill, injure or take any wild bird and to take, damage or destroy the nest (whilst being built or in use) or eggs.
Adders, grass snakes, common lizards and slow worms	The Wildlife and Countryside Act 1981 (as amended) (intentional killing and injuring only). This makes it illegal to kill or injure these animals.
Water voles	The Wildlife and Countryside Act 1981 (as amended). This makes it illegal to intentionally damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection; it is also an offence to intentionally disturb water voles while they are using these places.
White clawed crayfish	The Wildlife and Countryside Act 1981 (as amended). This makes it an offence to: • intentionally, or recklessly, kill or injure any of the above species, and/or; • sell, or attempt to sell, any part of the species, alive or dead. Advertises that he buys or sells, or intends to buy or sell.
Badgers	The Protection of Badgers Act 1992. This makes it an offence to: • Willfully killing, injures or takes, or attempts to kill, injure or take, a badger. • Cruelly ill-treating a badger, digging for badgers, using badger tongs, using a firearm other than the type specified under the exceptions within the Act. • Interfering with a badger sett by damaging, destroying, obstructing, causing dog a dog to enter a sett, disturbing an occupied sett - either by intent or by negligence. • Selling or offering for sale a live badger, having possession or control of a live badger. • Marking a badger or attaching any ring, tag, or other marking device to a badger.

The Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) implements the Birds Directive (1979) and the Berne Convention (1979) into national legislation. The Wildlife and Countryside Act 1981 (as amended) includes a number of Schedules which are reviewed (usually every five years) on which details of the protected species, and their level of protection, are detailed. A detailed summary of the sections of the Wildlife and Countryside Act, along with the

protection afforded under them can be found within Paragraphs 118-122 of ODPM Circular 06/2005 (Circular06/2005)

Full details of the legislation can be found at www.jncc.gov.uk/page-3614 and details of the species listed on the Schedules can be found at:

- Birds www.jncc.gov.uk/PDF/waca1981_schedule1.pdf
- Animals www.jncc.gov.uk/page-1815
- Plants www.jncc.gov.uk/page-1816

There are no licensing functions within the Wildlife and Countryside Act for development activities which may affect a species protected under The Wildlife and Countryside Act 1981 (as amended) and works need to proceed following good practice and if appropriate rely on the 'incidental result of an otherwise lawful operation defence'. However, with regards to the water vole, where translocation of animals is proposed, Natural England does not feel this could be considered the incidental result of other activities and so would not be covered by the defence in the legislation. If there is no alternative to translocation, Natural England may be able to issue a licence to trap and translocate the water voles for the purpose of conservation.

The Countryside and Rights of Way Act 2000

The Wildlife and Countryside Act 1981 was amended by the Countryside and Rights of Way Act (CRoW Act) in 2000. The CRoW Act strengthened the protection afforded to species listed within the Schedules of the Wildlife and Countryside Act by adding 'reckless' to several of the offences and increased the penalties for wildlife offences.

In addition, Section 74 of the CRoW Act introduced a new duty on Government Ministers and Department to further the conservation of biodiversity for habitats and species of principal importance. This was superseded by Sections 40 and 41 of the Natural Environment and Rural Communities (NERC) Act of 2006. Section 40 provides that every public authority must, in exercising its functions, have regard to the purpose of conserving biodiversity. Details of the lists of habitats and species provided for at Section 41 of the NERC act can be found at www.ukbap-reporting.org.uk/news/details.asp?X=45. The ODPM Circular 06/2005 (Circular06/2005) place a clear responsibility on Local Planning Authorities to further the conservation of habitats and species of principal importance where a planning proposal may adversely affect them.

Full details of the legislation contained within the Countryside and Rights of Way Act can be found at www.opsi.gov.uk/acts/acts2000/ukpga_20000037_en_1.

The Protection of Badgers Act 1992

The legislation affording protection to badgers is primarily concerned with animal welfare and the need to protect badgers from activities such as baiting and deliberate harm. The Protection of Badgers Act 1992 makes it an offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat a badger, or attempt to do so;
- To intentionally or recklessly interfere with a sett (this includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

As with The Wildlife and Countryside Act 1981 (as amended), there are several defences to prosecution in the legislation and the text should be consulted for details of these. Penalties

for offences include fines up to £5,000, plus up to six months imprisonment for each illegal sett interference, or badger death or injury.

Full Details of the legislation can be found at
www.opsi.gov.uk/ACTS/acts1992/ukpga_19920051_en_1.

Conservation of Habitats and Species Regulations 2010 (SI 2010/490) came into force (the "2010 Regulations").

From 1st April 2010, these are now the principal means by which the Habitats Directive is transposed in England and Wales. This updates and consolidates all the amendments to the Regulations since they were first made in 1994.

The 2010 Regulations implement the European Habitats Directive into national legislation. Details of those species (often referred to as European protected species or EPS) which receive protection under these regulations can be found in Schedule 2 of the 2010 Regulations.

Full details of the legislation can be found at
http://www.opsi.gov.uk/si/si2010/uksi_20100490_en_1

The Regulations state that:

Part 3 - 41.—
(1) A person who:
(a) deliberately captures, injures or kills any wild animal of a European protected species,
(b) deliberately disturbs wild animals of any such species,
(c) deliberately takes or destroys the eggs of such an animal, or
(d) damages or destroys a breeding site or resting place of such an animal,

is guilty of an offence.

(2) For the purposes of paragraph (1)(b), disturbance of animals includes in particular any disturbance which is likely:

(a) to impair their ability:

(i) to survive, to breed or reproduce, or to rear or nurture their young, or
(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate;

Or

(b) to affect significantly the local distribution or abundance of the species to which they belong.

(3) It is an offence for any person:
(a) to be in possession of, or to control,
(b) to transport,
(c) to sell or exchange, or
(d) to offer for sale or exchange, anything to which this paragraph applies.

(4) Paragraph (3) applies to—
(a) any live or dead animal or part of an animal—
(i) which has been taken from the wild, and

(ii) which is of a species or subspecies listed in Annex IV(a) to the Habitats Directive; and

(b) anything derived from such an animal or any part of such an animal.

(5) Paragraphs (1) and (3) apply regardless of the stage of the life of the animal in question.

(6) Unless the contrary is shown, in any proceedings for an offence under paragraph (1) the animal in question is presumed to have been a wild animal.

(7) In any proceedings for an offence under paragraph (3), where it is alleged that an animal or a part of an animal was taken from the wild, it is presumed, unless the contrary is shown, that that animal or part of an animal was taken from the wild.

(8) A person guilty of an offence under this regulation is liable on summary conviction to imprisonment for a term not exceeding six months or to a fine not exceeding level 5 on the standard scale, or to both.

(9) Guidance as to the application of the offences in paragraph (1)(b) or (d) in relation to particular species of animals or particular activities may be published by—

(a) the appropriate authority; or

(b) the appropriate nature conservation body, with the approval of the appropriate authority.

(10) In proceedings for an offence under paragraph (1)(b) or (d), a court must take into account any relevant guidance published under paragraph (9).

(11) In deciding upon the sentence for a person convicted of an offence under paragraph (1)(d), the court must in particular have regard to whether that person could reasonably have avoided the damage to or destruction of the breeding site or resting place concerned.

Licences may be obtained to permit activities that would otherwise be unlawful, but they can only be granted for certain purposes. Those purposes include that of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment (Regulation 42(10). It is the imperative reasons of overriding public interest element of this that is relied upon by those seeking to carry out development where those activities affect a European protected species or their places used for shelter or protection. Even where that purpose is met, however a licence may only granted where:

- There is “no satisfactory alternative”; and
- 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”

Natural England issues licences for this purposes under Regulation 44(2)(e).

It is not the responsibility of Natural England staff to decide when a licence is required/recommended. This decision is down to the proposer of the operation who should consider whether, on balance and usually with the assistance of an ecological consultant, the operation would be reasonably likely to result in the commission of an offence under these Regulations. This view should be formed in the light of survey information and specialist knowledge. A licence simply permits an action that is otherwise unlawful. A licence should be applied for if, on the basis of survey information and specialist knowledge, it is considered that the proposed activity is reasonably likely to result in an offence (killing, breeding site destruction, etc – see above).

It should be noted that the protection afforded to species under the UK and EU legislation referred to here is in addition to that provided by the planning system and the applicant must ensure that any activity they undertake on the application site (regardless of whether or not planning permission has been obtained) complies with the appropriate wildlife legislation. Failure to do so may result in fines and, potentially, a custodial sentence.

Biodiversity Action Plans

Biodiversity Action Plans (BAPS) set out actions for the conservation and enhancement of biological diversity at various spatial scales. They consist of both Habitat Action Plans (HAPs) and Species Action Plans (SAPs).

The UK BAP was the UK's response to the 1992 Convention on Biological Diversity in Rio de Janeiro. Following a review in 2007 a list of 1149 priority species and 65 priority habitats has been adopted, which are given a statutory basis for planning consideration under Section 40 of the NERC Act 2006.

The UK Post-2010 Biodiversity Framework was published on 17 July 2012. It covers the period from 2011 to 2020, and was developed in response to two main drivers: the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020 and its 5 strategic goals and 20 'Aichi Biodiversity Targets', published in October 2010; and the EU Biodiversity Strategy (EUBS), released in May 2011. http://jncc.defra.gov.uk/page-6189

Further information about Kent BAP can be found here: http://www.kentbap.org.uk/habitats-and-species/priority-species/

Red Data Books

British Red Data Books (RDB) are an additional method for classifying the rarity of species, and are often seen as a natural progression from Biodiversity Action Plans.

RDB species have no automatic legal protection (unless they are protected under any of the legislation previously mentioned). Instead they provide a means of assessing rarity and highlight areas where resources may be targeted. Various categories of RDB species are recorded, based on the IUCN criteria and the UK national criteria based on presence within certain numbers of 10x10km grid-squares (see http://www.jncc.gov.uk/page-3425). As with Biodiversity Action Plans, where possible, steps should be taken to conserve RDB species which are to be affected by development.

Appendix B – Plates

IMG_1549

IMG_1550

IMG_1551

IMG_1552

IMG_1553

IMG_1554

IMG_1555

IMG_1556

IMG_1557

IMG_1558

IMG_1559

IMG_1560

IMG_1561

IMG_1562

IMG_1563

IMG_1564

IMG_1565

IMG_1566

IMG_1567

IMG_1568

IMG_1569

IMG_1570

IMG_1571

IMG_1572

IMG_1573

IMG_1574

IMG_1575

IMG_1576

IMG_1577

IMG_1578

IMG_1579

IMG_1580

IMG_1581

IMG_1582

IMG_1583

IMG_1584

IMG_1585

IMG_1586

Appendix C - Bats and Lighting in the UK

Bat Conservation Trust and Institution of Lighting Engineers Summary of requirements

The two most important features of street and security lighting with respect to bats are:
1. **The UV component**. Low or zero UV installations are preferred to reduce attraction of insects to lighting and therefore to reduce the attraction of foraging bats to these areas.
2. **Restriction of the area illuminated**. Lighting must be shielded to maintain dark areas, particularly above lighting installations, and in many cases, land adjacent to the areas illuminated. The aim is to maintain dark commuting corridors for foraging and commuting bats. Bats avoid well lit areas, and these create barriers for flying bats between roosting and feeding areas.

UV characteristics:
Low
• Low pressure Sodium Lamps (SOX) emit a minimal UV component.
• High pressure Sodium Lamps (SON) emit a small UV component.
• White SON, though low in UV, emit more than regular SON.

High
• Metal Halide lamps emit more UV than SON lamps, but less than Mercury lamps
• Mercury lamps (MBF) emit a high UV component.
• Tungsten Halogen, if unfiltered, emit a high UV component
• Compact Fluorescent (CFL), if unfiltered, emit a high UV component.

Variable
• Light Emitting Diodes (LEDs) have a range of UV outputs. Variants are available with low or minimal UV output.

Glass glazing and UV filtering lenses are recommended to reduce UV output.

Street lighting
Low-pressure sodium or high-pressure sodium must be used instead of mercury or metal halide lamps. LEDs must be specified as low UV. Tungsten halogen and CFL sources must have appropriate UV filtering to reduce UV to low levels.
Lighting must be directed to where it is needed and light spillage avoided. Hoods must be used on each lamp to direct light and contain spillage. Light leakage into hedgerows and trees must be avoided.
If possible, the times during which the lighting is on overnight must be limited to provide some dark periods. If the light is fitted with a timer this must be adjusted to reduce the amount of 'lit time' and provide dark periods.

Security and domestic external lighting
The above recommendations concerning UV output and direction apply. In addition:
Lighting should illuminate only ground floor areas. Light should not leak upwards to illuminate first floor and higher levels.
Lamps of greater than 2000 lumens (150 W) must not be used.
Movement or similar sensors must be used. They must be carefully installed and aimed, to reduce the amount of time a light is on each night.
Light must illuminate only the immediate area required, by using as sharp a downward angle as possible. Light must not be directed at or close to bat roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit.

Wide angle illumination must be avoided as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.
Lighting must not illuminate any bat bricks and boxes placed on buildings, trees or other nearby locations.