

PRELIMINARY BAT ROOST ASSESSMENT AND GREAT CRESTED NEWT ASSESSMENT

31 HURST PARK ROAD
TWYFORD
RG10 0EZ

Client: Charlotte Webb

Our reference: ECO3603

Report date: 16 September 2024

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REPORT ISSUED IN ELECTRONIC FORMAT



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1.0 Introduction

Survey and reporting

- 1.1 This report details the results of a Preliminary Bat Roost Assessment and Great Crested Newt Assessment of 31 Hurst Park Road, Twyford, RG10 0EZ.
- 1.2 The survey, carried out on 15 August 2024, was undertaken to inform a planning application for the site.

Application site

- 1.3 The application site is located midway along Hurst Park Road, a residential road to the south of Twyford (Grid Reference SU 7941 7497; Figure 1).
- 1.4 It comprises a linked attached one and two-storey house and its curtilage (an adjoined single garage, driveway and front and rear gardens).

Details of proposed works

- 1.5 It is proposed to erect a first-floor rear extension, and, convert the existing garage to habitable accommodation (see Figure 2). The development footprint of the building will not be increased.
- 1.6 The small area (approx. 10m²) of the short-cut amenity lawn at the front garden will be removed to create an additional car parking space.

Figure 1 – Site location

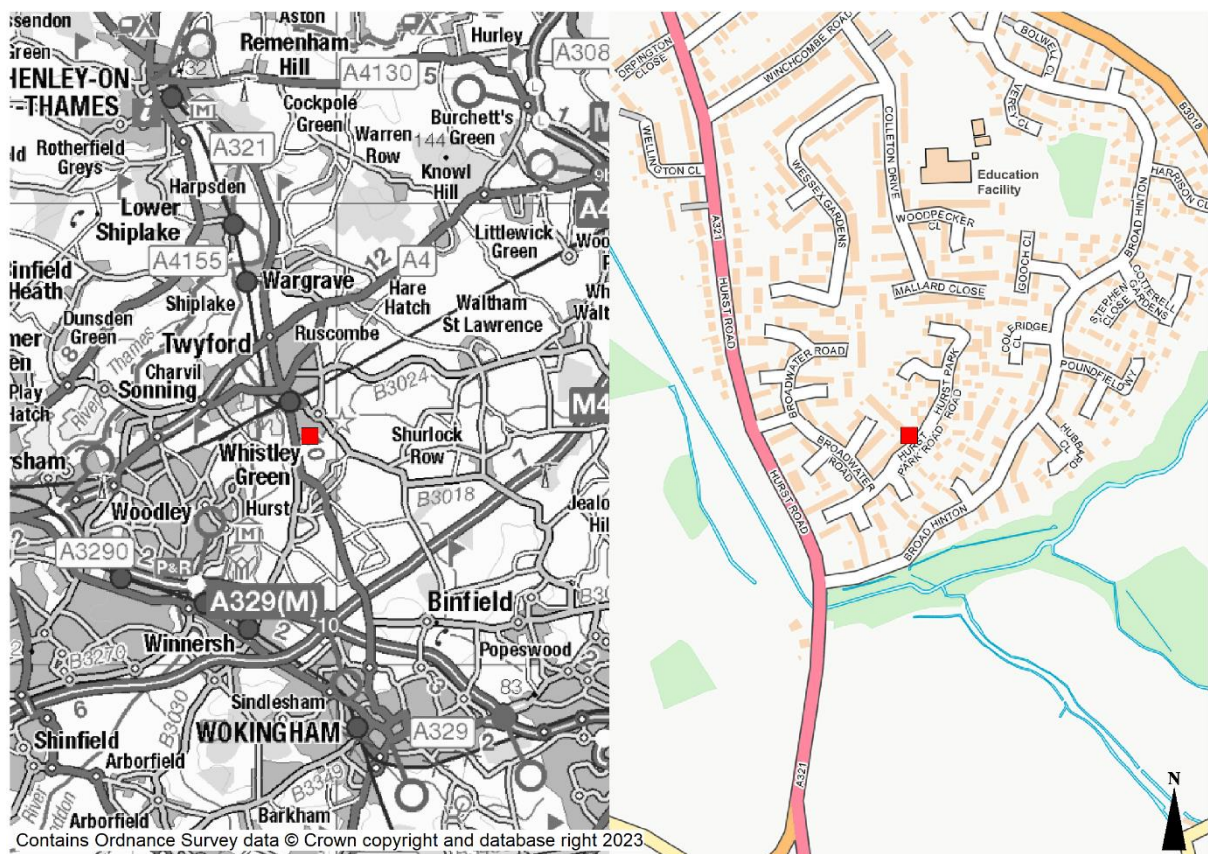
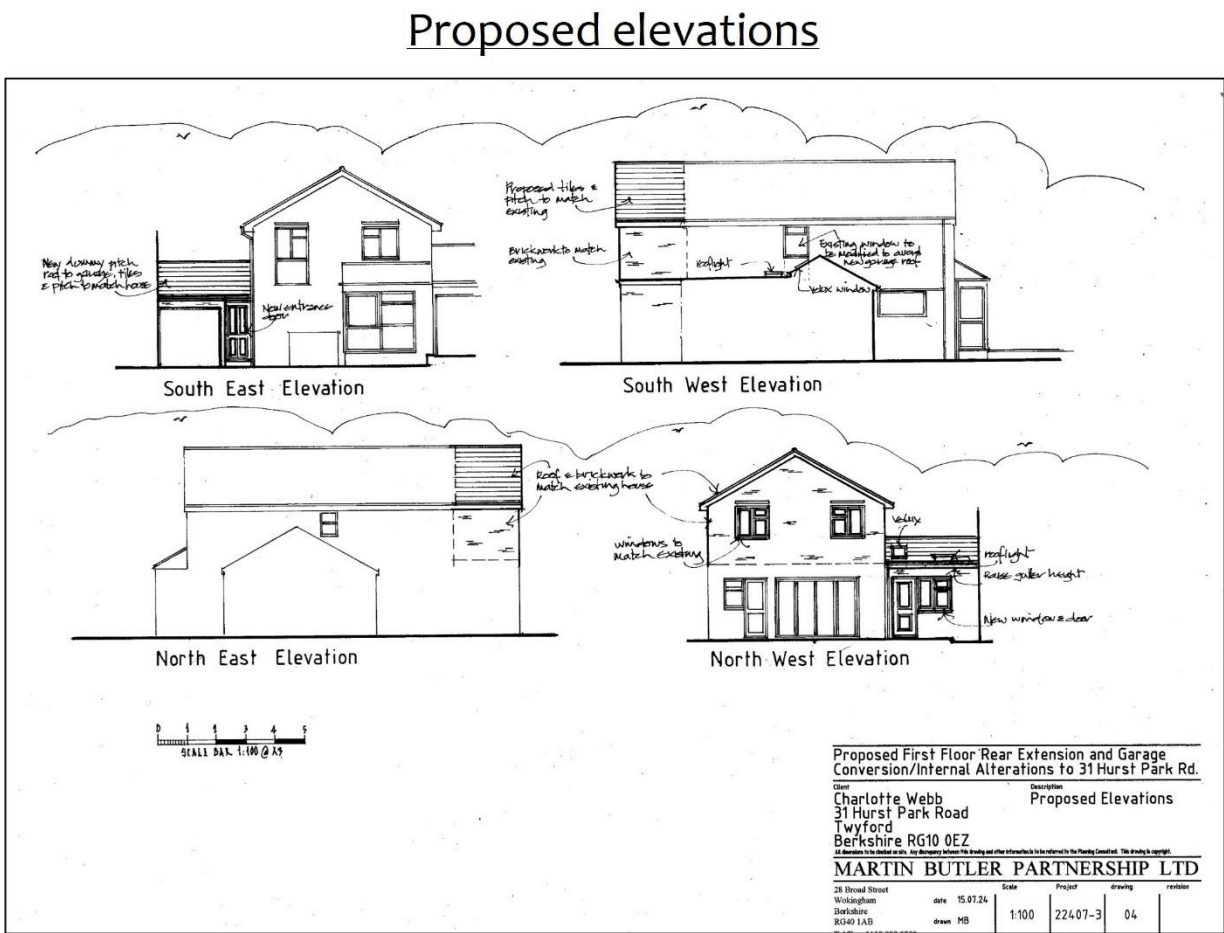
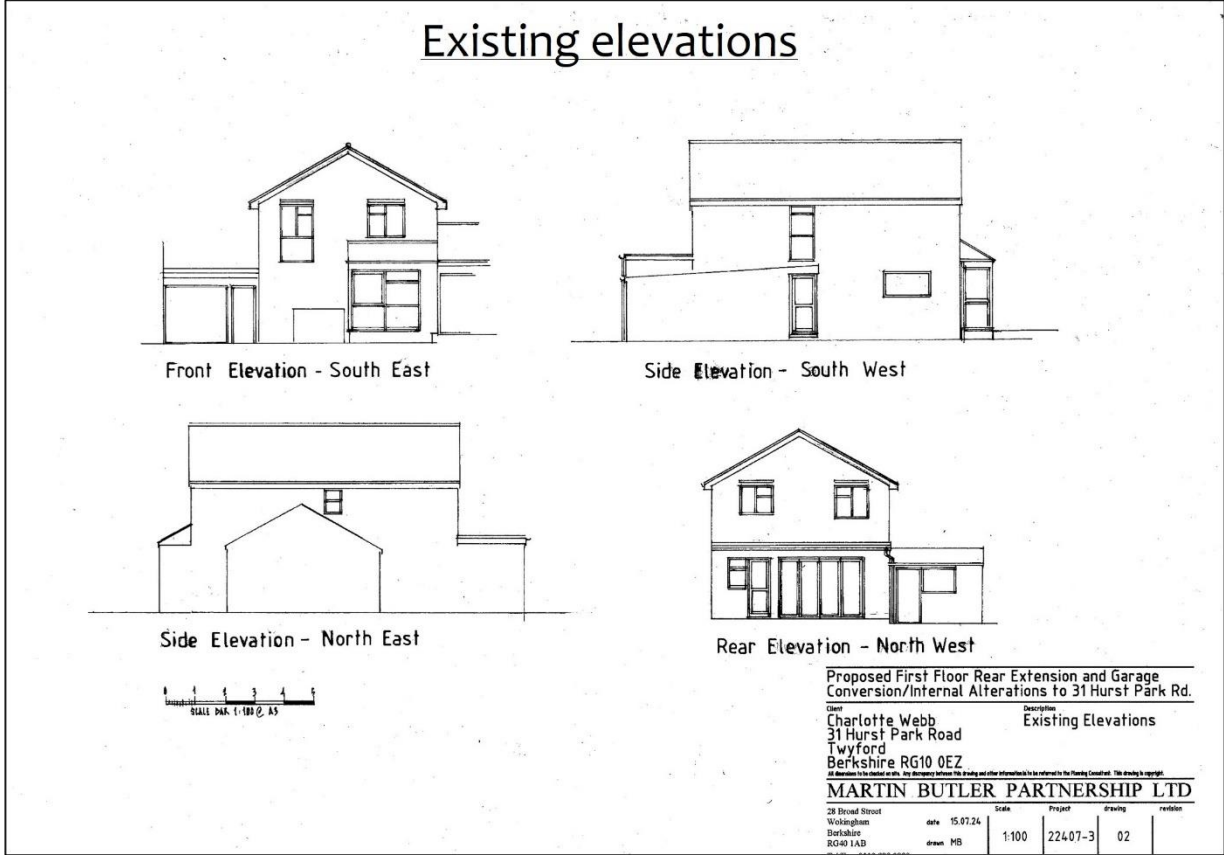


Figure 2 – Existing and proposed elevations



2.0 Methodology

Desk study

- 2.1 A desk study data search was undertaken. This involved reviewing publicly available datasets and citations of statutory designated sites of importance for nature conservation and Natural England's Ancient Woodland Inventory for sites within the zone of influence of the survey area (considered to be a maximum of 500m in this case).
- 2.2 In addition, species records (on the MAGIC website¹) were accessed, and aerial photographs and Ordnance Survey maps were studied for features of interest.

Bat survey

Daytime Bat Walkover (DBW)

- 2.3 A survey to assess the suitability of habitats for bats to roost, commute and forage within and adjacent to the site (where accessible). Habitat suitability was assessed as per Table 1 below.

Preliminary Roost Assessment (PRA)

- 2.4 This survey consisted of a detailed search of the interior and exterior of the buildings looking for bats and/or evidence of bats including droppings (on walls and windowsills and in roof and loft spaces), rub or scratch marks, staining at potential roosts and exit holes, live or dead bats and features, such as raised or missing tiles, potentially suitable for use by roosting bats. Binoculars, an endoscope, a ladder and a high-powered torch were used as required.
- 2.5 The buildings were classified in terms of their suitability for use by roosting bats (see Table 2) and in accordance with the Bat Conservation Trust's Bat Survey Guidelines².
- 2.6 Classification was dependent on a number of factors including:
 - Bats and/or signs of bats
 - External and internal features potentially suitable for use by roosting bats (e.g. raised or missing tiles, gaps behind fascia boards)
 - Setting
 - Night time light levels
 - Disturbance levels
 - Proximity of suitable foraging habitat and flight-paths
 - (e.g. ponds, streams, woodland, large gardens, hedgerows)

Surveyor details

- 2.7 The survey was undertaken by Ryan Davies BSc (hons) ACIEEM (senior ecologist) and Cherry Leung MSc (assistant ecologist) of GS Ecology Ltd. Ryan is an associate member of the Chartered Institute of Ecology and Environmental Management and holds a Natural England great crested newt survey licence (WML-CLo8) and a Natural England WML A34 Level 2 bat survey licence.

¹ <http://www.natureonthemap.naturalengland.org.uk/>

² Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn) Bat Conservation Trust

Table 1 – Habitat suitability scale for potential flight-paths and foraging bats

Potential Suitability of potential flight-paths and foraging habitats	Potential Suitability	Description
	High	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths 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.
	Moderate	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths 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.
	Low	Habitat that could be used by small numbers of bats as flight-paths 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.
	Negligible³	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
	None [Not suitable]	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).

³Negligible is defined as ‘so small or unimportant as to be not worth considering, insignificant.’ This category may be used where are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute)

Table 2 – Description of the categories used to assess a building’s bat roost potential and the survey effort required to determine the likely presence or absence of bats

	Roost status	Description	Survey effort required to determine the likely presence or absence of bats
Bat Roost Potential Status	Confirmed	Bats or evidence of bats found.	Surveys would be required to establish the status of the roost. Generally, three dusk emergence surveys between May and September. Optimum period May – August (two surveys should be undertaken during the optimal period). Surveys should be carried out at least three weeks apart.
	High	A structure 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 (For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance) and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Three dusk emergence surveys between May and September. Optimum period May – August. Two surveys should be undertaken during the optimal period. Surveys should be carried out at least three weeks apart.
	Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Two dusk emergence surveys, between May and September (one of the surveys needs to be carried out between May and the end of August). Surveys should be carried out at least three weeks apart.
	Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	One dusk emergence survey between May and the end of August (but only if features will be affected by the proposals).
	Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No further surveys required.
	None [No potential]	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No further surveys required.

3.0 Results

Weather conditions

- 3.1 Weather conditions during the survey were 21°C, 5/8ths cloud cover, wind at Beaufort scale 2, with no rain.

Desk study

Statutory sites of importance for nature conservation and ancient woodland

- 3.2 There are no statutory sites of importance for nature conservation or areas of woodland listed on Natural England's Ancient Woodland Inventory within 1km of the application site.

Protected and notable species records

- 3.3 Within 2km of the site there are eight records of licenses issued by Natural England for works affecting protected species on The MAGIC website. These records are summarised in Table 3 below.

Table 3 – Summary of Natural England licence records within 2km of the application site

Distance and direction from the application site	Species affected	Breeding site	Year licence was issued
1.1km Southeast	Soprano pipistrelle	Yes	2016 & 2017
1.2km North	Common pipistrelle, soprano pipistrelle	No	2020
1.2km Northeast	Brown long-eared	Yes	2010
1.2km Northeast	Brown long-eared, common pipistrelle, soprano pipistrelle	No	2019
1.3km South	Soprano pipistrelle	No	2020
1.4km South	Brown long-eared, common pipistrelle	No	2012
1.9km Southwest	Brown long-eared, common pipistrelle, soprano pipistrelle	No	2017
2km South	Common pipistrelle	No	2018

Nearby Ponds

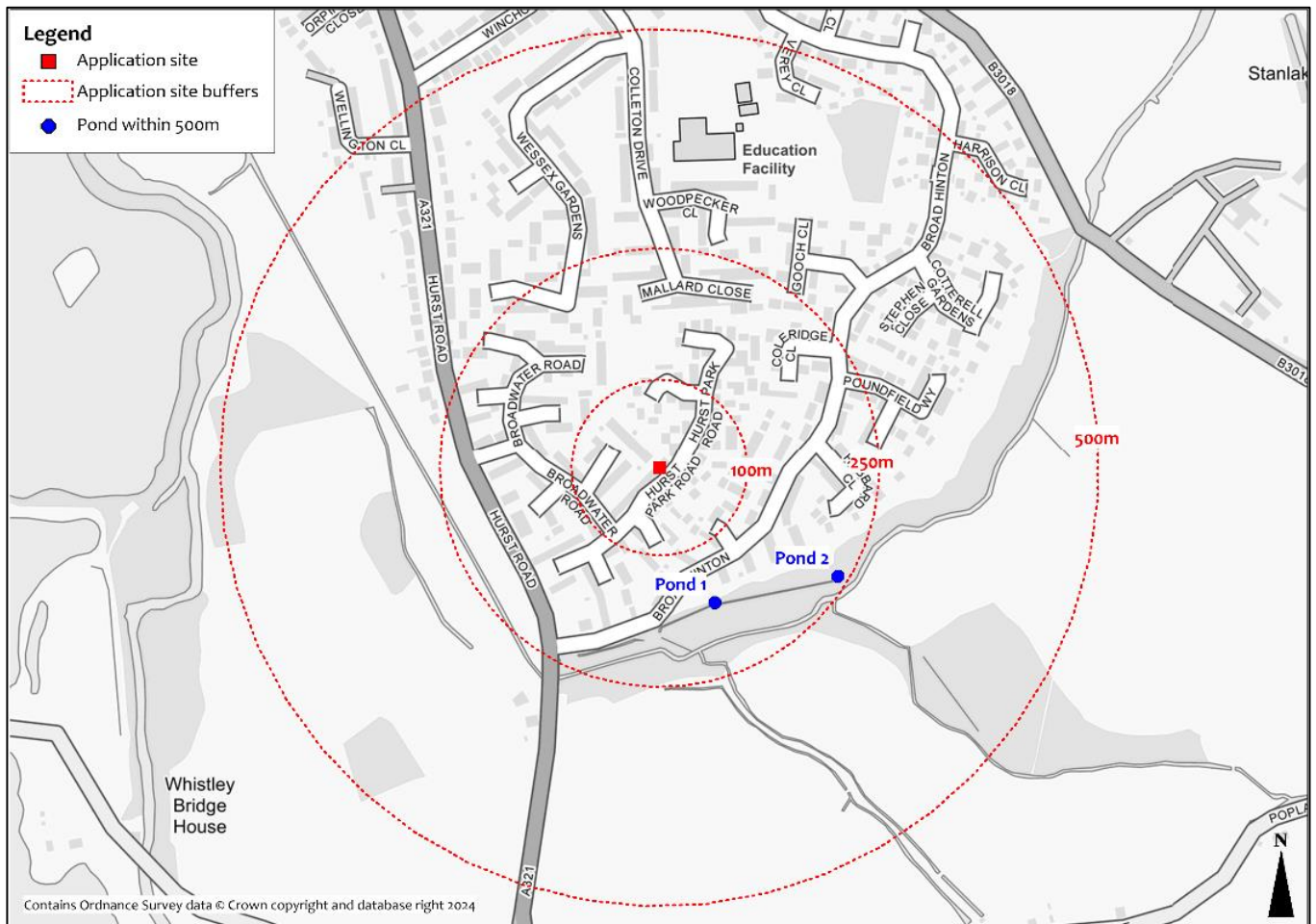
- 3.4 There are two ponds shown on ordnance survey maps within 500m of the application site (see Figure 3). The nearest pond is located approximately 170m south east of the application site, with the other located 240m to the south east.

Great crested newt District Licence Zone

- 3.5 The NatureSpace "Impact Risk Map"⁴ shows the site as being located partly within the "Red zone", defined as "*highly suitable habitat – the most important areas for GCN.*" and partly within the "Amber Zone (defined as "*suitable habitat – great crested newt likely to be present*").

⁴ The "Impact Risk Map" is the accepted statutory guidance that Local Planning Authorities must take into account when considering the risk of development for great crested newts. naturespaceuk.com/the-scheme/impact-map/

Figure 3 – Location of ponds within 500m of the application site



Surrounding habitats

- 3.6 The application site is located midway along Hurst Park Road, a residential road to the south of Twyford. Adjacent to the site, and further in all directions are similar-sized residential properties and their associated gardens with some trees.
- 3.7 Approximately 150m south of the application site is a long strip of woodland. Through the woodland runs a watercourse - Twyford Brook - located approximately 200m to the south of the site. There are other areas of woodland further afield – approximately 300m west and 380m northeast from the application site.
- 3.8 Further west, also beyond the Twyford Brook (approx. 240m) is an area of grassland bound by woodland and trees. Beyond this grassland runs the River Loddon, a watercourse bound by trees, situated approximately 520m west of the application site.
- 3.9 The habitats surrounding the site are therefore of predominantly ‘moderate’ suitability for commuting and foraging bats (see Table 1) with areas of higher suitability across the wider landscape

Habitats within the application site

- 3.10 The application site comprises a linked attached one and two-storey house an adjoined single garage, concrete driveway, and, front and rear gardens.
- 3.11 The front garden comprises a small strip of short-cut lawn with a line of low shrub planting along the roadside. The rear garden comprises a larger area of short-cut and well-maintained lawn with raised flower beds, scattered scrub and a small plum tree at the periphery.

Bat survey (preliminary roost assessment)

- 3.12 31 Hurst Park Road is a linked attached one and two-storey house with cavity brick walls and an adjoining single garage. The main roof of the house is pitched and clad with interlocking concrete tiles. At the rear of the house is a single storey extension with a flat, felt-clad roof. The garage has a flat corrugated fibreboard roof.
- 3.13 The main section of the house has painted wooden soffit boxes at the eaves and painted wooden bargeboards at the gable ends. The single-storey rear extension has UPVC fascias at the eaves. The garage has wooden soffits and fascias (with the former at the front elevation and the latter at the rear).
- 3.14 Generally, the roof tiles, fascias and soffits are in good condition and tightly fitted. However, the house has a number of features potentially suitable for use by roosting bats, including
- Gaps between the under cladding and bargeboard on the front elevation (these are unaffected by the proposals)
 - Gaps between the bargeboard and the end walls on the front and rear elevations - a bat dropping was found stuck on the barge board on the rear elevation
 - Holes between the wooden barge board and soffit on the rear elevation – these lead into the soffit.
- 3.15 Internally the house has a single loft space with a modern timber A-frame construction and no exposed ridge board. The roof is lined with bitumen felt and the loft is insulated with fibreglass and partially boarded out. No bats or signs of bats were found inside the loft.
- 3.16 Internally the adjoining single garage it is open to the roof and the roof and walls are unlined.
- 3.17 31 Hurst Park has a number of features potentially suitable for use by roosting bats and a bat dropping was found on the exterior of the building. It is therefore assessed as having ‘moderate’ potential to host a bat roost (see Table 2).

4.0 Bat roost assessment

Survey constraints

- 4.1 The survey was carried out at a time of year suitable for undertaking preliminary bat roost assessments, and there were no constraints to the survey.

Site status

- 4.2 31 Hurst Park Road is assessed as having ‘moderate’ potential to host roosting bats. This is because the building is in habitats of ‘moderate’ suitability for commuting and foraging bats, has a number of features potentially suitable for use by roosting bats and a bat dropping was found on the exterior of the house.
- 4.3 The proposed works will destroy some of the potential bat roost features. If these features were to be used by roosting bats the roost could be disturbed, damaged, or destroyed.
- 4.4 As such, to determine if (and how) bats will be affected by the proposals further dusk surveys would need to be undertaken (see below). This information would be needed to inform the planning application and to obtain a licence for derogation from the provisions of The Conservation of Habitats and Species Regulations 2017 for works affecting bats (should surveys show that a licence is required).

Further survey requirements

- 4.5 The Bat Conservation Trust’s Bat Survey Guidelines (referred to by Natural England in their advice to planning officers) state that to confirm if a building hosts a bat roost, where it has “moderate” potential to host roosting bats (as is the case here), two dusk emergence surveys should be carried out between 1 May and 31 August (although one could be carried out in September). If these surveys show that a bat roost is present, then an additional survey would need to be carried out to confirm its status.
- 4.6 Dusk surveys commence fifteen minutes before dusk and continue for up to an hour and a half after sunset.
- 4.7 During the survey, surveyors equipped with professional ultrasonic bat detectors and night vision aids, are stationed around the building so that all potential roosting features can be seen.
- 4.8 Surveys need to be spread over the survey season as much as practicable with at least three weeks between surveys and sufficient surveyors to cover all features potentially suitable for use by roosting bats need to be present. In this case two surveyors are needed to survey the building.

Legislation relating to bats

- 4.9 All species of bats receive special protection under UK law. It is a criminal offence under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations) to deliberately or recklessly destroy or damage their roosts, or to disturb, kill or injure them without first having obtained the relevant licence for derogation from the regulations from the Statutory Nature Conservation Organisation (the SNCO - Natural England in England).
- 4.10 In order to issue the licence, the SNCO must apply the requirements of the Regulations and, in particular, the three tests set out in sub-paragraphs 55(2)(e), (9)(a) and (9)(b). These are as follows:
- (1) Regulation 55(2)(e) states that a licence can be granted for the purposes 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”.

- (2) Regulation 55(9)(a) states that the appropriate authority (the SNCO) shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.
- (3) Regulation 55(9)(b) states that the appropriate authority (the SNCO) shall not grant a licence unless they are satisfied “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.”

The licensing process

- 4.11 If a building hosts a bat roost and the roost will be affected by the works, a licence and for development works affecting bats (i.e., for derogation from the provisions of the Habitat Regulations) needs to be obtained before works that affect the bat roost commence. This involves submitting a licence application to Natural England with a detailed mitigation plan informed by surveys undertaken in accordance with national guidelines.
- 4.12 Natural England takes 30 working days to process a licence application (although for low conservation status roosts it is possible to register sites under the low impact class licence which takes up to three weeks).
- 4.13 The licensing process is separate and distinct from planning permission, but the Local Planning Authority has statutory obligations under the Habitat Regulations. They need to be satisfied that the proposals are likely to meet the three tests of the Habitat Regulations (see above) and that a licence is likely to be obtained from Natural England before they issue planning permission⁵.

Mitigation

- 4.14 To comply with planning policy and wildlife legislation it will be necessary to ensure that following development the “favourable conservation status” of bats will be maintained. This means that if a building does host a bat roost, and if this will be affected, lost, or made unsuitable for use by bats, then appropriate mitigation (including a replacement roost) will need to be provided.
- 4.15 The type of mitigation required will depend on the species of bat(s) using the roost(s) and its status of but normally comprises the provision of bat boxes, bricks, or tiles, and where a building hosts an important roost for a void dwelling species (such as a maternity roost for brown long eared bats) the provision of a loft space for bats.

Planning policy

- 4.16 Paragraph 99 of the Government Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within The Planning System (referred to in the National Planning Policy Framework) reads:

“It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The

⁵ The courts have considered the application of a planning authority's duty under the Habitat Regulations (and therefore the Habitat Directive) in the cases of Woolley vs Cheshire Borough Council (2009) and Morge vs Hampshire County Council (2010). In the Morge vs Hampshire County Council case the supreme court has ruled that it cannot see why planning permission should not be granted unless the proposed development:

- Would be likely to offend the prohibitions in Article 12(1) and
- Would be unlikely to be licensed as a derogation from those provisions

need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. "

- 4.17 In this case, because the extent to which bats (a protected species) has not been established, the local planning authority are unlikely to issue planning permission until the further surveys detailed above have been carried out.

5.0 Great crested newt assessment

Legislation and ecology

- 5.1 GCN receive special protection under UK law and it is an offence under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations) to deliberately or recklessly destroy or damage their habitat, or to disturb, kill or harm them without first having obtained the relevant licence for derogation from the regulations from the Statutory Nature Conservation Organisation (the SNCO - Natural England in England).
- 5.2 GCN spend most of their lives on land, within up to 500m of a breeding pond. The most important terrestrial habitat is within 100m, where most of the population are likely to be located foraging, resting, sheltering and hibernating relatively close to their breeding site. However, a proportion of the population is also likely to forage for food and shelter in suitable habitats up to 250m from a breeding pond and juvenile animals have been known to disperse up to 500m from it in a single season.
- 5.3 GCN are likely to be disturbed by any work that involves altering their breeding pond (e.g. by introducing fish or deepening or altering its size) or works that involve clearing land up to 500m around ponds, where such land has been managed and maintained in such a way that it is likely to support GCN. In such cases a licence for derogation from the provisions of the habitat regulations may need to be obtained.
- 5.4 In addition, GCN are a species of principal importance for the conservation of biodiversity in England under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act (these are the “priority species” as per the NPPF).

Site status

- 5.5 The NatureSpace “Impact Risk Map”⁶ shows the site as being located partly within the “Red zone”, defined as “*highly suitable habitat – the most important areas for GCN.*”
- 5.6 There are no ponds within the application site.
- 5.7 There two ponds shown on ordnance survey maps (1:25,000 scale) within 500m of the application site – both of which are located over 100m of the application site. These ponds were not visited during the survey, and no assessment of their suitability for great crested newts was made.

Impacts of the proposals on GCN

- 5.8 If the ponds within 500m were to host GCN, then these populations are highly unlikely to be affected by the proposals because:
 - 1) the habitats to be affected by the proposals – hardstanding and a small area of short-cut well-maintained lawn – are largely unsuitable for GCN;
 - 2) the proposed works - first floor extension and the small area of front lawn to be removed (approximately 10m²) - do not increase the development footprint significantly, and;
 - 3) the distance of the house from the nearest pond is over 100m – with a number of barriers to the dispersal of GCN from the pond (e.g. roads, buildings, hardstanding and domestic gardens).

⁶ The “Impact Risk Map” is the accepted statutory guidance that Local Planning Authorities must take into account when considering the risk of development for great crested newts. naturespaceuk.com/the-scheme/impact-map/

- 5.9 This is confirmed by using Natural England's risk assessment, as detailed in their GCN licence method statement template⁷. Application of the risk assessment shows that an offence under the 2017 Habitat Regulations as a result of the development is "highly unlikely", if the species were to be breeding in these ponds (see Table 4).

Table 4 - Risk assessment for great crested newts as per Natural England's Great Crested Newt method statement in the event that any of the nearby ponds were to be a great crested newt breeding pond

Component	Likely effect	Notional offence probability score
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)	0.001 - 0.01 ha lost or damaged	0.005
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
Maximum:		0.005
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

- 5.10 Great crested newts are therefore very unlikely to be a constraint to the proposals. This will be further reduced if the following method statement is adhered to:
- (1) The amenity grassland lawn will remain short-cut until works commence, this will dissuade GCN from using these areas (due to lack of shelter or suitable "resting places" and very limited foraging opportunities).
 - (2) Similarly, any vegetation to be removed within the flowerbeds will be cut to a height of 50mm using hand tools and the arisings removed (also by hand).
 - (3) All building materials will be kept off the ground and stored on pallets.
 - (4) Any bulk materials such as sand which cannot be stored off the ground will be covered with a tarpaulin overnight to prevent GCN from sheltering within.
 - (5) In the unlikely event that GCN are encountered during the construction process, all works will stop immediately, GS Ecology will be contacted (any GCN will be moved to a nearby safe place by a licensed GCN ecologist) and works will not continue until any requisite licence has been obtained from Natural England.

⁷ See http://www.naturalengland.org.uk/Images/GCN%20WML-14-2_tcm6-4103.xls [sheet - Licence risk assmt(2)]

6.0 Summary

Bats

- 6.1 31 Hurst Park Road is assessed as having 'moderate' potential to host roosting bats. This is because the house is located in habitat of 'moderate' suitability for commuting and foraging bats, has a number of features potentially suitable for use by roosting bats, and, a bat dropping was found on the exterior of the house.
- 6.2 The proposed works will destroy some of the potential bat roost features. If these features were to be used by roosting bats the roost could be disturbed, damaged, or destroyed.
- 6.3 As such, to determine if and how bats will be affected by the proposals dusk emergence surveys would need to be carried out.

Great crested newt

- 6.4 The application site is partly within the GCN district licence "Red zone.
- 6.5 There are two ponds shown on ordnance survey maps within 500m of the application site – both of which are located over 100m of the application site.
- 6.6 As such, due to the following factors, is considered highly unlikely that GCN inhabiting these ponds will be effected by the proposals:
 - (1) the small amount of land to be affected within the development footprint – approximately 10m²
 - (2) the distance of the house from the nearest pond – over 100m, with a number of barriers to dispersal between them, and,
 - (3) the habitats to be affected by the proposals – all unsuitable or sub-optimal for GCN
- 6.7 it is therefore considered highly unlikely that GCN will be found within the development footprint, works area, or, be affected by the proposals.
- 6.8 The risk will be further reduced if the method statement detailed in section 5.10 of this report is followed.

Appendix 1 – Photographs

Photos 1 and 2 – 31 Hurst Park Road viewed from the front and rear



Photos 3 and 4 – Outside and inside of the adjoined single garage



Photos 5 and 6 – Gaps between the barge boards and gable end walls

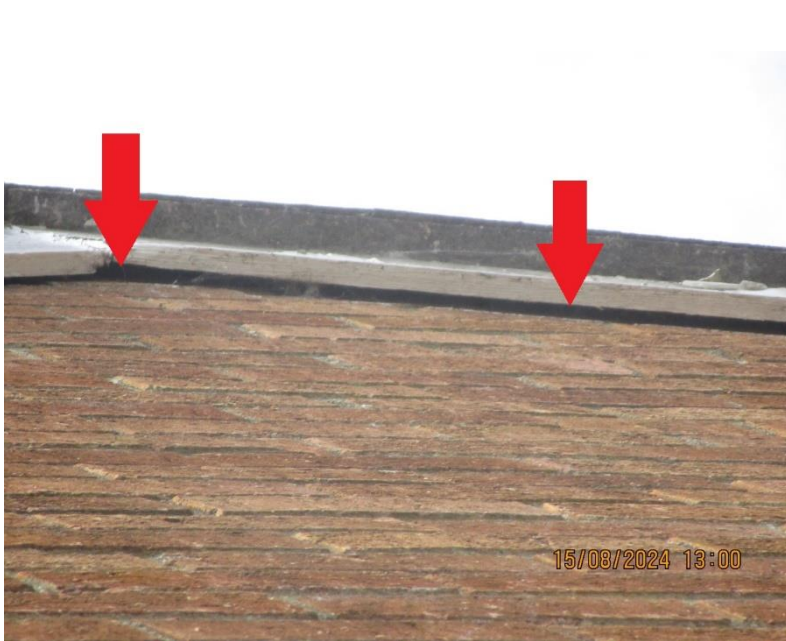


Photo 7 – Hole in the soffit box, and Photo 8 - Gap between the under cloaking and barge board on the front elevation



Photo 9 – Bat dropping found stuck on the barge board on the rear elevation, and, Photo 10 – Inside the loft



Photos 11 and 12 – Front and rear garden



Appendix 2 - Bat ecology and conservation status

Background

Bats are the only true flying mammals and belong to their own taxonomic group, the *Chiroptera*. Worldwide there are almost 1,000 species, with 16 in the UK. All species in the UK are insectivorous. They have a highly sophisticated echolocation system that allows them to avoid obstacles and catch invertebrates, either in flight or by picking them off water, the ground or foliage.

Bat species in the UK

There are 16 species of bat that are known to exist in the UK mainland, with a further two - the greater mouse eared bat *Myotis myotis*, and the parti-coloured bat *Vespertilio murinus* - that are thought to occur as rare migrants or to have small populations in the UK. Bats in the UK belong to one of two taxonomic families, the Rhinolophidae (horseshoe bats) and the Vespertilionidae (all other UK bats).

Bat Conservation Status

Bat populations have undergone a significant decline in the past sixty years. For example, estimates from the National Bat Colony Survey suggest that the UK pipistrelle population (one of our commonest bat species), declined by approximately 70% between 1978 and 1993. Factors contributing to this decline include:

- Loss of, and damage to, roosting sites, including buildings, trees, and underground structures (mines, tunnels, ice-houses, cellars, etc).
- Loss and fragmentation of suitable insect-rich feeding habitats such as wetlands and deciduous woodland.
- Reduction in the abundance and diversity of insect prey due to intensive agriculture, particularly over-grazing and the use of pesticides.
- Loss of linear features such as tree-lines and hedgerows, depriving bats of commuting routes between roosts and feeding areas.
- Loss of winter roosting sites in buildings and old trees.
- Disturbance and destruction of roosts, including the loss of maternity roosts due to the use of toxic timber treatment chemicals.

Roosts

Bats use a variety of roosts of different types including trees, buildings, caves, mines and other structures. Most species are colonial and roost in groups. This can make populations particularly vulnerable to loss of roosts as the loss of a single roost may affect the whole population. Some species hang in obvious locations, such as the timbers near to the apex of a roof, others roost in cracks and crevices, such as the gaps under tiles, and as such can be very difficult to locate.

During the winter (November to February), when there is a reduction in insect numbers, bats hibernate to conserve energy. They prefer sites with a constant low temperature and a high relative humidity. On mild winter's nights, bats may wake up and feed. However, bats are particularly vulnerable to disturbance at this time of year, as flying in winter uses up large quantities of energy that cannot easily be replaced.

In the spring, after emerging from hibernation, bats often move from site to site and may congregate in small groups. Female bats gather together in the summer (approximately May to August dependant on species) in maternity roosts. Once the young have stopped suckling, and the baby is independent, bats tend to disperse and use other roosts. Maternity roosts are particularly vulnerable to disturbance, as

bats may have come from a wide geographical area and have a strong tradition of returning to the same roost year after year.

During the late summer and early autumn males occupy mating roosts which are visited by several females. After mating some species gather together at swarming sites to fatten up prior to hibernation.

Habitat associations

In addition to roosts, bats also need foraging habitats to find suitable food resources, and commuting routes to get to these areas. As would be expected, the highest numbers of bats are found in areas with abundant invertebrates. Some species specialise in catching small invertebrates in flight, whilst others specialise in catching larger invertebrates such as moths and beetles. The distances that bats travel to foraging areas varies between species; records have shown some greater horseshoe bats travel up to 22km to forage, although many species will typically feed within 1km of a roost.

Bats, especially the smaller species, tend to follow linear features (such as hedgerows and tree lines) to their foraging habitats and will often not cross open spaces. A gap of 10m in a linear feature will often not be crossed by bats, and it is important that developments do not create such gaps if linear features are used by bats.

Appendix 3 - Great crested newts: ecology and legislation

The great crested newt (*Triturus cristatus*) can grow up to 18cm in size. It is Britain's largest newt. The body can have a warty appearance and the skin is normally dark brown or black, the belly is predominantly bright orange with black markings. During the breeding season the males develop a crest on their back and tail which they use to attract a mate.

The species is widely distributed in Britain but is absent from Cornwall, Devon, and parts of Wales. It is uncommon but locally abundant. The population has undergone a severe decline in the last 50 years due to the loss of breeding ponds and a decline in the quality of foraging habitat.

The species can be found in northern Europe part of West Siberia. The edge of the northern range extends from northern France, Great Britain, southern Scandinavia to the north of Russia, and the southern edge from central France to south-western Romania into central European Russia. Britain is one of the last strongholds for the species.

Great crested newts spend the majority of their lives on land, returning within up to 500m, but more usually 250m, of their breeding ponds. The mainstay of their diet is invertebrates.

They return to waterbodies, usually ponds, in the spring to breed. Adults enter the ponds from February onwards with the courtship and egg-laying period being from mid-March to mid-June. Eggs are laid in the folds of debris or the leaves of submerged aquatic plants. A female lays up to 200 eggs per season.

Eggs take 3 weeks to hatch and the larvae take 2 to 3 months to develop. Adults begin to leave breeding ponds gradually from late May. However they can over-winter in ponds and also sometimes return to feed. Young start to emerge from the pond in August and will not normally return until they have reached sexual maturity 2 – 4 years later.

Great crested newts receive special protection under UK law and it is an offence under the Wildlife and Countryside Act 1981 (as amended) and the European Habitats and Species Directive (92/43/EC), enacted in the UK through The Conservation of Habitats and Species Regulations 2010 (The Habitat Regulations) to deliberately or recklessly, to destroy or damage their habitat, or to disturb, kill or them without first having obtained the relevant licence for derogation from the regulations from the Statutory Nature Conservation Organisation (the SNCO - Natural England in England).

In order to obtain such a licence the SNCO must apply the requirements of Regulation 535 of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b)6. These are as follows:

- (1) Regulation 53(2)(e) states: a licence can be granted for the purposes 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”.
- (2) Regulation 53(9)(a) states: the appropriate authority (the SNCO) shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.
- (3) Regulation 53(9)(b) states: the appropriate authority (the SNCO) shall not grant a licence unless they are satisfied “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.”

Newts are likely to be disturbed by any work that involves altering their breeding ponds (e.g. by introducing fish, deepening or altering its size) or works that involve clearing land up to 500m around

ponds, and in such cases a licence for derogation from the provisions of the habitat regulations may need to be obtained.

Appendix 4 - Legislation and planning policy

Planning Authorities have a legal duty to consider biodiversity when assessing planning applications. Where there is a reasonable likelihood that a planning application might affect important protected sites, species or habitats, information on the species, habitat or site likely to be affected, together with an assessment of the impacts of the proposals, will almost certainly be required.

The legal duty for Planning Authorities to have regard to the conservation of biodiversity was introduced in the 2006 Natural Environment and Rural Communities Act (The NERC Act). This act clarified existing commitments with regard to biodiversity, raised the profile of biodiversity and aimed to make the consideration of biodiversity a natural and integral part of policy and decision making.

In addition to the NERC Act there is also national and international biodiversity legislation. This includes legislation in relation to protected species and sites which operates outside of the planning system. Local Authorities and developers have a duty to comply with this legislation.

National planning policy

Paragraph 99 of the Government Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System (this document has not been revoked by the recently published National Planning Policy Framework) states that:

'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.'

As such, in line with national planning policy, most planning authorities will ask for this information to be provided before a planning decision is made and in many cases before it is registered.

Local planning policy

In addition to national planning policy, most councils have planning policies to protect biodiversity, and to enhance it where practicable within and adjacent to development sites.

European protected species

The United Kingdom hosts a number of European Protected Species (EPS) of animals (table 1) and plants (table 2). These species receive special protection under UK law and it is an offence under the Wildlife and Countryside Act 1981 (as amended) and the European Habitats and Species Directive (92/43/EC), enacted in the UK through The Conservation of Habitats and Species Regulations 2017, to deliberately or recklessly destroy or damage their habitat, or to disturb, kill or injure the species without first having obtained the relevant licence from Natural England.

Planning Authorities have a statutory duty under these regulations to have regard to the requirements of the Habitats Directive and need to be satisfied that the development is likely to receive a licence from Natural England, and therefore comply with the Habitats Directive, before granting planning permission.

Table 1 – European Protected Species of Animal found in the UK

Common name	Scientific name
Bats, Horseshoe (all species)	<i>Rhinolophidae</i>
Bats, Typical (all species)	<i>Vespertilionidae</i>
Butterfly, Large Blue	<i>Maculinea arion</i>
Cat, Wild	<i>Felis silvestris</i>
Dolphins, porpoises and whales (all species)	<i>Cetacea</i>
Dormouse	<i>Muscardinus avellanarius</i>
Frog, Pool	<i>Rana lessonae</i>
Lizard, Sand	<i>Lacerta agilis</i>
Moth, Fisher's Estuarine	<i>Gortyna borellii lunata</i>
Newt, Great Crested (or Warty)	<i>Triturus cristatus</i>
Otter, Common	<i>Lutra lutra</i>
Snail, Lesser Whirlpool Ram's-horn	<i>Anisus vorticulus</i>
Snake, Smooth	<i>Coronella austriaca</i>
Sturgeon	<i>Acipenser sturio</i>
Toad, Natterjack	<i>Bufo calamita</i>
Turtles, Marine	<i>Caretta caretta</i> <i>Chelonia mydas</i> <i>Lepidochelys kempii</i> <i>Eretmochelys imbricata</i> <i>Dermochelys coriacea</i>

Table 2 – European Protected Species of Plant found in the UK

Common name	Scientific name
Dock, Shore	<i>Rumex rupestris</i>
Fern, Killarney	<i>Trichomanes speciosum</i>
Gentian, Early	<i>Gentianella anglica</i>
Lady's-slipper	<i>Cypripedium calceolus</i>
Marshwort, Creeping	<i>Apium repens</i>
Naiad, Slender	<i>Najas flexilis</i>
Orchid, Fen	<i>Liparis loeselii</i>
Plantain, Floating-leaved water	<i>Luronium natans</i>
Saxifrage, Yellow Marsh	<i>Saxifraga hirculus</i>

Nationally protected species

Many species of animal are protected under the 1981 Wildlife and Countryside Act (as amended). 'Full protection' applies to EPS and some non EPS species such as the water vole. This prohibits the intentional killing, injuring or taking (capture. etc); possession; intentional disturbance whilst occupying a 'place used for shelter or protection' and destruction of these places; sale, barter, exchange, transporting for sale and advertising to sell or to buy. Many species, such as common species of reptile and amphibian, are protected from intentional killing and injuring and trading.

Badgers

Badgers and their setts are protected under the 1992 Protection of Badgers Act and the Wildlife and Countryside Act 1981 (as amended). It is illegal to intentionally or recklessly kill, injure or take badgers or to interfere with a badger sett. Interference with a sett includes blocking tunnels, or damaging the sett in any way, and could include blocking a badger pathway if it were to stop badgers entering or leaving a

sett. Penalties for offences can be severe, with fines of up to £5,000 plus up to six months' imprisonment, for each illegal sett interference, badger death or injury.

Work that disturbs badgers occupying a sett is illegal without the appropriate licence from the relevant statutory authority being held. Natural England issue licences for reasons including science, education or conservation, for development such as the building of houses and for investigation of offences against badgers. They also issue licences for the prevention of serious damage to land, crops or other form of property, as well as for agriculture, forestry, drainage operations and prevention of the spread of disease.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), whilst they are actively nesting or roosting. Section 1 of this Act makes it an offence to kill, injure or take any wild bird, and to intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.

In addition, bird species listed under Schedule 1 of the Act receive extra protection. The Act states that 'it is an offence to intentionally or recklessly disturb any wild bird listed in Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird'.

In practice this means that in areas where birds are likely to be nesting works should not be undertaken during the nesting season, which is generally considered to be March to September, although this very much depends on weather conditions, habitats and the species involved. If works cannot be avoided then areas should first be checked for nesting birds. Habitats likely to host nesting birds include trees, hedgerows and dense scrub, buildings, reedbeds and riverine habitats and open areas with tussocky vegetation.

Appendix 5 - About GS Ecology

Established in 2009, GS Ecology is an independent [ecological consultancy in Berkshire](#). We carry-out surveys and ecological consultancy services for public and private sector clients including in Berkshire, Oxfordshire and Hampshire, London and the south of England. We can advise you on cost effective sustainable solutions for your project, whether it be a bat survey to inform a planning application, the ecology chapter of an Environmental Statement or a Woodland Management Plan.

Our work is undertaken by experienced and qualified ecologists, who are members of the [Chartered Institute of Ecology and Environmental Managers](#). Our services include:

- [Ecology surveying and reporting to inform planning applications](#), e.g.
 - [Preliminary Ecological Appraisal](#)
 - [Extended Phase 1 Habitat Survey in Hampshire](#), Berkshire, Oxfordshire, London and Southern England
 - [Protected species surveys](#), e.g. badgers, dormouse, great crested newts
 - [Bat surveys in Oxfordshire](#), Berkshire, Hampshire, London and Southern England
- [Code for sustainable homes or BREEAM ecology assessments](#) – to demonstrate the sustainability of a new building
- [Protected species licensing](#) such as bat and great crested newt licences for development sites after planning permission has been obtained
- Providing advice to land managers and writing ecological management plans, such as [woodland management plans](#) and farm environmental plans for [England woodland Grant Scheme](#) and Environmental Stewardship applications
- [Providing ecology advice to Local Authorities](#) and Local Planning Authorities