EXTENDED PHASE 1 HABITAT AND BAT SCOPING SURVEY & REPORT

at

Holme House
Oxford Road
Cleckheaton
West Yorkshire
BD19 4LA

Client:
Croft Care Group

Client Address:
31 Castleford Road
Normanton
WF6 2DP

JCA Ref:
13931a/JB

Date of Report:
3rd May 2018

JCA Limited
Arboricultural & Ecological Consultants

Quality Assurance

Version	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
	Date	Name	Date	Name	Date	Name	Date	Name
Extended Phase 1 and Bat Scoping Report – Final	30/04/18	Jenny Butler	24/04/18	Jenny Butler	03/05/18	Jenny Butler	04/05/18	Amanda Beck

Risk Assessment Completed	
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

A report is required for **Holme House, Oxford Road** to assess the ecological value of the site by documenting the habitat types present and the site's potential for supporting rare and protected species. The development proposed on this site is the demolition of the current derelict care home and the construction of new residential dwellings in its place.

A desktop study has been undertaken in order to obtain any relevant ecological records that may be present within a 2km radius of the site. This includes protected and notable species records, as well as nature conservation designations. A thorough site assessment was undertaken following the guidelines set out in the JNCC's *Handbook for Phase 1 habitat surveys*. The entire site was walked over by an experienced consultant who mapped and described each habitat type that was present. Whilst conducting the site walk-over, any features that may be of value to or have the potential to support protected species were noted and photographic evidence taken.

After conducting a thorough Bat Roost Potential survey and a detailed Desktop Study, we consider **Holme House, Oxford Road** to have a moderate to high potential for supporting foraging and roosting bats.

The site is not situated within influencing distance of any nature conservation sites of either statutory or non-statutory designation.

Habitats present on site include: scattered mixed trees, hedgerow, hard standing, amenity grassland, ornamental garden and buildings.

The amenity grassland, hard standing, ornamental garden and hedgerow on site provide limited ecological value, and have negligible bat roosting potential.

Himalayan Balsam was found to be present on site during the time of the survey.

Based on the findings outlined in this report the following recommendations are made:

As the care home building on site has been considered to have a high potential of supporting bat roosting sites, we recommend that dawn/dusk emergence surveys should be carried out to establish the absence/presence of roosting bats at **Holme House.**

Dawn and dusk bat surveys are conducted between May until September, and are used to determine whether bats are currently roosting at a site. It can also give you an indication of the level of bat activity at a survey site and any specific foraging patterns. Dawn surveys are started around 1.5 hours before sunrise, when swarming behaviour can be observed around roost sites. Dusk surveys are started around 30 minutes

before sunset and up to 2 hours after, and look for the emergence of bats from their roost sites. If bats are then confirmed to be roosting on the site, a **Bat Mitigation Licence** may be applied for from Natural England, and a mitigation plan devised so development causes as little impact on local bat populations as possible. It is recommended at **Holme House, Oxford Road** that **three** surveys are required on the main care home building. Please refer to **Appendix 5** for bat survey calendar.

As the care home building on site has been considered to have a high potential of supporting bat roosting sites, **three** emergence/re-entry surveys will be required, with **five** of surveyors to cover all aspects of the building. **Three** surveys should be carried out between May and September, with at least **two** surveys carried out between May and August when bats are most active.

All of the trees on site have been assessed for Bat Roosting Potential. This assessment can be found in **Section 3.5.4: Tree Assessment.** Any trees with low, moderate or high bat roosting potential will need additional emergence/re-entry surveys prior to removal. Please see **Appendix 2, Bat Roosting Potential Plan** for locations of trees with bat roosting potential.

A **Biodiversity Enhancement Plan** is recommended in order to ensure the development does not have a significant impact on local biodiversity, wildlife and habitat connectivity. Recommendations for faunal boxes and wildlife friendly lighting should be provided within the **Biodiversity Enhancement Plan**. This should then be implemented post construction, during the landscaping phase of the development, prior to the dwellings being occupied.

Contents

1. Introduction and Terms of Reference

1.1 Purpose of the Report

1.1.1 A report is required for **Holme House, Oxford Road** to assess the ecological value of the site by documenting the habitat types present and the site's potential for supporting rare and protected species.

1.2 Terms of Reference

1.2.1 I am instructed by **Croft Care Group** to visit the site and prepare my findings in a report.

1.2.2 For this purpose I have been supplied with a site map and brief details of the proposal.

1.3 Scope of the Report

1.3.1 This survey was carried out in accordance with the Joint Nature Conservation Committee's (JNCC's) *Handbook for Phase 1 habitat survey - A technique for environmental audit* (2010).

1.4 Details of Proposed Development

1.4.1 The development proposed on this site is the demolition of the existing, derelict care home and the construction of a residential development in its place.

1.5 Site Description

1.5.1 **Holme House, Oxford Road** is situated 4.7km southeast of Bradford city centre, at grid reference: SE205268.

1.5.2 The site is predominantly hard standing and landscaped garden areas. The derelict care home forms the majority of the site with some tarmac/cobbled areas around this building. Directly in front of the old care home is an ornamental garden which has not been managed in recent years.

1.5.3 The site is surrounded by residential dwellings to the east and south. To the north are areas of open farmland and parkland habitats. To the west is farmland interspersed with residential and commercial properties. A map of the site in relation to the surrounding habitats can be seen in **Appendix 4.**

1.6 Bats in the UK

1.6.1 In the UK there are thought to be 18 native species of bat (17 known to be breeding), and may account for more than a quarter of mammal species present in the UK. Nearly all UK bat species have experienced serious declines over the last century and all species are protected under UK and European Law.

1.7 Bat Ecology

1.7.1 All species of bat in the UK are insectivorous and have evolved to hunt a different set of insects, present in different habitat types. Preferred bat habitats include woodland, grassland, agricultural land, wetland and rivers.

1.7.2 Bats typically roost close to foraging sites, and use linear features such as hedgerows, tree lines and rivers to navigate. Removal of these linear features is thought to have a significant negative impact on their movement, which could be contributing to their decline.

1.7.3 Bats will roost in a wide range of different sites including built structures, underground sites and mature trees. Due to bats ecology different roost sites will be used at different times of the year. Known roost types include:

- Night Roosts: A place where individual bats, or sometimes the colony, rest or shelter in the night, but are rarely found in the day. Can be used throughout the year.

- Day Roosts: A place where individual bats, or small groups of males, rest or shelter during the day but are rarely found by night in the summer months.

- Feeding Roosts: A place where individual or a few individuals rest or feed during the night, but are rarely found in the day during the summer months.

- Transitional/Occasional Roosts: Used by a few individuals or occasionally by small groups for short periods of time on waking from hibernation, or in the period prior to hibernation. Usually found during February-April or during September to November.

- Swarming Sites: Where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites. September – November.

- Mating Sites: Where mating takes place from late summer and can continue through the winter. August – March.

- Maternity Roosts: Where female bats give birth and raise their young to independence. May-September.

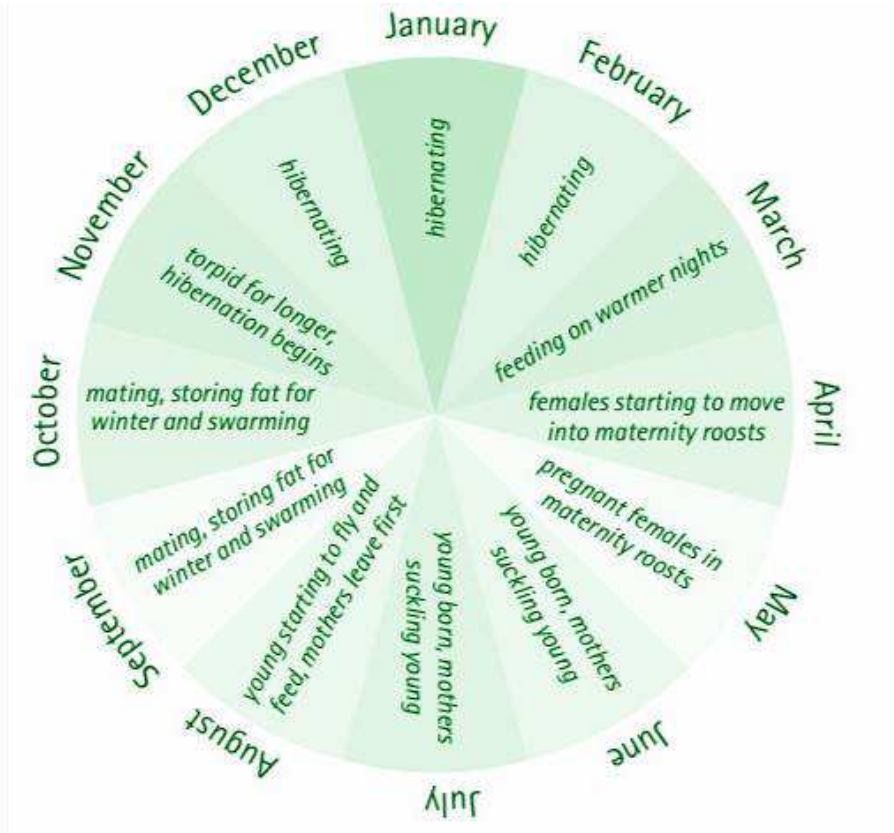
- Hibernation Roosts: Where bats may be found individually or together during the winter. They have a constant cool temperature and high humidity. December- February.

- Satellite Roosts: An alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season. May-September.

- The three main roosts to be considered, with respect to buildings and development, are maternity roosts, satellite and hibernation roosts. Disturbance of these roosts can have significant negative impacts on local bat populations.

1.7.4 Figure 1 below provides a visual representation of the life cycle of a bat; showing the life cycle on a month by month basis.

Figure 1: Diagram of a bat's life-cycle (taken from the BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).



1.8 UK Bat Species

1.8.1 Within the UK there are 17 species of bat known to be breeding, with a further one species listed as a resident, non-breeding species within the UK. **Table 1** below details the roosting preferences of the breeding species of bats currently listed as being found within the UK.

Table 1: Roosting preferences of the known UK breeding resident bat species *(taken from the BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).*

Species Common Name	Species Scientific Name	Species Roosting Preferences
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	During the summer females use large, old, undisturbed buildings including coach houses, stable blocks and barns. This species prefers to fly directly into the roost and to their roosting position and bats hang freely Maternity sites are often found in large spaces at least 3–4m high, providing a sufficiently large flight area. This species generally uses night roosts to rest whilst foraging, which are found in a variety of structures, for example outbuildings, garages, stables, milking sheds, porches and trees. In winter, both male and female bats choose underground sites for hibernation, including tunnels, mines, caves or cold building basements.
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Roost sites include attics, chimneys and boiler rooms of buildings, rural houses and outbuildings in the summer, and cellars, tunnels, disused mines and caves for hibernation. Also found in industrial buildings. This species prefers to fly directly into roost sites and into their roosting position. Maternity sites are often found in large roof spaces at least 3–4m high providing a large flight area. A range of conditions is required throughout the year but this may be found in one building with, for example, an attic for the summer and a cellar for the winter. Summer and winter roost sites are generally no more than 5–10km apart. The lesser horseshoe bat also uses alternative roost sites during the night and day.
Daubenton's Bat	*Myotis daubentonii*	Roosts are found in hollow trees, bridges or sometimes buildings and generally close to water. Nursery roosts are not exclusively female – males may make up 25% or more of the colony and large male-only colonies have also been recorded. This species selected oaks over beech trees and preferred roosts on the edges of woodlands in a study in the Netherlands. Hibernation sites are usually underground including caves, mines and suitable tunnels where bats are found both in crevices and on open walls. They may also hibernate in tree cavities.
Bandt's Bat, Whiskered Bat and Alcathoe's Bat	*Myotis Brandtii, Myotis mystacinus, Myotis alcathoe*	These species can roost in trees and a wide range of buildings in the summer. These species hibernate in caves or other underground sites, where they can be found in the open or in cracks and crevices.

Natterer's Bat	*Myotis nattereri*	Roost sites include tree holes and different types of buildings but has also been is found in bridges. Usually roost in attics between late May and mid-July and often roosts have enough space for internal flight (Swift, 1997). This species also breeds in bat boxes. Timber-framed barns built between the 12th and 19th centuries may be particularly important to this species, with roosts found in mortise joints in both the summer and winter. Hibernates in cracks and crevices in caves and mines. Other hibernation sites recorded are canal and railway tunnels, ice houses and tree cavities.
Bechstein's Bat	*Myotis bechsteinii*	Maternity roosts are found in tree holes in the canopy, generally in old trees with dead branches. May be found in woodpecker holes in old oaks. Recorded switching roosts frequently. One study recorded roosts in rot holes, woodpecker holes and in a gap behind thick ivy. A study of ten colonies across the Isle of Wight found 90% of maternity roosts in woodpecker holes in ash trees. Another study found a maternity roost in a woodpecker hole in an oak tree on a golf course. Hibernates in trees and sometimes caves or other underground sites. Chilmark Quarry is an example of Bechstein's bats using an abandoned mine for hibernation.
Noctule	*Nyctalus noctula*	Roosts almost exclusively in tree holes, but sometimes found in bat boxes or buildings. One Netherlands study found that woodpecker holes are preferred, in trees close to woodland edge. Hibernates in trees but sometimes found in buildings.
Leisler's Bat	*Nyctalus leisleri*	Roosts in trees, bat boxes and buildings such as houses; for example, around the gable end of lofts, under tiles, under soffit boards and in disused chimneys. Often uses a variety of sites in the summer. Hibernates in tree holes, buildings and sometimes underground sites.
Common Pipistrelle and Soprano Pipistrelle	*Pipistrellus pipistrellus, Pipistrellus pygmaeus*	Maternity colonies are found mainly in buildings, usually roosting out of sight in crevices. Colonies may use a number of sites through the summer but are often loyal to the same sites for many years. Maternity colonies are extremely variable in terms of numbers, from 20 to over 1,000 bats. Soprano pipistrelle colonies tended to be larger than those of the common pipistrelle. Common pipistrelle shift roosts between pregnancy and lactation. Roost selection is based on temperature for common pipistrelle and on surrounding habitats (woodland and water) for both species. Males roost singly or in small groups in the summer, in buildings or trees. Bat boxes are used by both males and females but generally only males use them during the summer. These species do not use underground sites for hibernation but are sometimes found in the cracks and crevices of buildings in the winter.
Nathusius' Pipistrelle	*Pipistrellus nathusii*	The very few known British nursery roosts are in buildings, with hibernation roosts in hollow trees and crevices in cliffs, walls and caves. One study recorded males roosting under lead flashing and roof tiles.

Serotine	*Eptesicus serotinus*	Roosts in buildings in small cavities or crevices with high access points such as gables but occasionally also found in trees. Recorded hibernation sites include cavity walls, disused chimneys and occasionally caves.
Barbastelle	*Barbastella barbastellus*	In summer, breeding females move regularly between large numbers of different tree roosts. One study found that they preferred dead trees surrounded by holly under-storey and another found them in tree crevices and cavities, between overlapping limbs and behind ivy, on average 6.9m above ground level. Tree roosts are in relatively undisturbed places and frequently in thick cover, although cracks much higher up in trees were used at the time of birth. Bat boxes are also used. Almost all roosts found in two studies were behind loose bark and in mixed locations not always surrounded by under-storey. Winter roosts include deep, hollow trees (usually dead and among holly under-storey) and sometimes buildings or underground sites. Other winter roosts recorded are flaking bark and splits less than 2m above the ground and disused railway tunnels, barns, outbuildings, church porches and lime kilns. Chilmark Quarry is an example of barbastelle bats using an abandoned mine for hibernation. 24 Spring and autumn roosts have been recorded behind loose bark, in dead tree stumps and in splits in limbs mainly less than 2m above ground level.
Brown Long-Eared Bat	*Plecotus auritus*	Maternity roosts found in trees, in the voids of large, old buildings and bat boxes in woodland. Usually roosts against wooden beams at the roof apex in attics or farm buildings. Bats often cluster at the highest part of the roof and require enough space for unobstructed, internal flight. Shows high roost fidelity. Commonly uses feeding perches and night roosts in porches or outbuildings separate from the main roost. Hibernate in underground sites, tree holes and buildings.
Grey Long-Eared Bat	*Plecotus austriacus*	Frequently roosts on ridge beam in spaces between rafters. Maternity colonies show high roost fidelity. Number of males in maternity colony increases through summer. Many males are, however, solitary.

1.8.2 Greater Mouse-eared bats *(Myotis myotis)* are extremely rare in Britain and little is known about where they roost in the summer or winter, they are listed as a resident, non-breeding species within the UK within this species currently found at one site in Sussex.

1.9 Bats and the Law

1.9.1 All bat species and their roosts in the UK are protected under European and UK law. The main piece of legislation protecting UK bats is the Conservation of Habitats and Species Regulations 2017.

1.9.2 In addition to this, bats and their roosts are also protected in England and

Wales under the Wildlife and Countryside Act 1981 and The Countryside and Rights of Way Act 2000.

1.9.3 Under these legislations, it is an offense to:

- Deliberately capture, injure or kill a bat.
- Deliberately disturb a bat in a way that would affect its ability to survive, breed or rear young (or hibernate or migrate in England, Wales and Northern Ireland) or (Significantly in England, Wales and Scotland) affect the local distribution or abundance of the species.
- Damage or destroy a roost (this is an 'absolute' offence).
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.
- Intentionally or recklessly disturb a bat at a roost.
- Intentionally or recklessly obstruct access to a roost.

If it is discovered that development may impact upon bat roosts (thus leading to an offence being committed) a **Mitigation Plan** should be devised and a **Bat Mitigation Licence** applied for from the relevant government department (i.e. Natural England). Gaining a licence will depend on many variables, such as the bat species present, roost type, roost size and its local/regional/national importance.

2. Methodology

2.1 Desktop Study Methodology

2.1.1 A desktop study was undertaken on 30/04/18 in order to obtain any relevant ecological records that may be present within a 2km radius of the site. This includes protected and notable species records, as well as nature conservation designations. For this information, the West Yorkshire Ecology Unit was contacted.

2.1.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website was used to locate any designated sites, both statutory and non-statutory, such as Local Nature Reserves (LNRs), Ramsar Sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) that may be present within 2km of the survey site.

2.2 Site Assessment Methodology

2.2.1 A thorough site assessment was undertaken on 24/04/18 by Jenny Butler *BSc (Hons*), following the guidelines set out in the JNCC's *Handbook for Phase 1 habitat surveys*.

2.2.2 The entire site was walked over by an experienced consultant who mapped and described each habitat type that was present. The dominant floral species of each habitat were noted as well as any faunal species that were encountered.

2.2.3 Whilst conducting the site walk-over, any features that may be of value to or have the potential to support protected species were noted and photographic evidence taken (please refer to **Appendix 2**). Such protected species include, but are not limited to, Badgers, Bats, Dormice, Great Crested Newts, Nesting Birds, Otters, Reptiles, Water Voles, White-Clawed Crayfish (please see **Appendix 6**).

2.2.4 Limitations: Access to some areas of the site were restricted due to the safety issues and structural problems posed; however, this limitation should not affect the overall results of the report

2.2.5 The survey was conducted during the sub-optimal time for botanical surveys. Therefore, many of the plant species encountered were either not in flower/leaf or were dead. Plant species that may be present in the summer months are often not visible in the winter. If a more accurate and comprehensive floral record is required, the optimum time to conduct botanical surveys would be between the months of April and September.

2.2.6 This limitation made floral identification difficult, meaning this report will not represent a comprehensive indication of the site's biodiversity. However, this constraint will not affect the overall conclusion of the report, as habitat types can still be classified and the potential for protected species can still be accurately assessed.

2.3 Scoping Survey Methodology

2.3.1 The site was surveyed for foraging, commuting and roosting potential. A detailed search of habitat, buildings structures and trees was conducted during daylight hours in order to identify potential bat roosting sites and look for evidence of bat activity. Potential roost sites and features deemed to be of value to bats were documented on the site map (please refer to **Appendix 1**) and photographic evidence was taken (please refer to **Appendix 2**).

2.3.2 All surveys are conducted by experienced surveyors using the following equipment to ensure an accurate assessment; a printed site map, camera, 1 million candlelight torch, binoculars and ladders.

2.3.3 Signs that bats have previously or are currently using a potential roost site include:

- Scratch marks, urine and oil stains around holes in buildings or trees.
- Droppings, carcasses and/or food remains found around the site.
- Bats observed flying in/out of a hole in a building or tree.
- Bats heard 'chattering' within a potential roost site, especially on warm summer days.

2.3.4 Limitations: It must be highlighted that the absence of any of these signs is not proof that the site is not being used by bats. Weathering and other factors will often remove any signs of bat activity, especially when present on the exterior of a building or a tree. As previously explained, many bat species will have several roost sites which they regularly move between and therefore an absence during a survey visit does not exclude their presence at a later date.

3. Results

3.1 Desktop Study Results

3.1.1 Local Data Centre Records: West Yorkshire Ecology has been commissioned to provide the records held for protected and notable species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area. Please see Appendix 3 for full desktop study results.

Legally Protected Species

3.1.2 Legally protected species are those protected under EU and UK legislation such as the Wildlife and Countryside Act (1981), Conservation of Species and Habitat Regulations (2017), Countryside and Rights of Way Act (2000) and the Protection of Badgers Act 1992.

3.1.3 Amphibians: The data search revealed records of Common Toad *(Bufo bufo)*, Common Frog *(Rana temporaria)* and Smooth Newt *(Triturus vulgaris)* within 2km of the site. No records of amphibians were recorded within 500m of the site boundary.

3.1.4 Badgers: The data search revealed records of badger *(Meles meles)* activity within 2km of the site. No records of badger setts or activity were recorded within 500m of the site. *NB: Due to the confidential nature of badger records these have been excluded from Appendix 3.*

3.1.5 Barn Owls: The data search did not reveal any records of Barn Owls *(Tyto alba)* within 2km of the site.

3.1.6 Bats: The data search revealed records of seven bat species within 2km of the site: Soprano Pipistrelle *(Pipistrellus pygmaeus),* Common Pipistrelle *(Pipistrellus pipistrellus),* Unknown Pipistrelle Species *(Pipistrellus sp.),* Leisler's Bat *(Nyctalus leisleri),* Noctule *(Nyctalus noctula),* Daubenton's Bat *(Myotis daubentoni)* and Unknown Bat Species (Vespertilionidae). Common Pipistrelle was recorded within 500m of the site.

3.1.7 Dormice: The data search did not reveal any records of Dormice *(Muscardinus avellanarius)* within 2km of the site.

3.1.8 Nesting Birds: The data search revealed records of 30 bird species within 2km of the site, including four Schedule 1 listed species. Species within 2km include: Swallow *(Hirundo rustica)*, Brambling *(Fringilla montifringilla)* and Fieldfare

(Turdus pilaris). No records of bird species were obtained within 500m of the site boundary.

3.1.9 Otters: The data search revealed records of Otter *(Lutra lutra)* within 2km of the site. No records of Otter were obtained within 500m of the site boundary.

3.1.10 Reptiles: The data search did not reveal any records of reptiles within 2km of the site.

3.1.11 Water Voles: The data search did not reveal any records of Water Vole *(Arvicola amphibious)* within 2km of the site boundary.

Notable Species

3.1.12 Notable species are those listed in the UK BAP, local BAP, NERC Act (2006) S.41 or any other relevant policies.

3.1.13 Flowering Plants: The data search revealed records of four invasive species: Giant Hogweed *(Heracleum mantegazzianum)*, Indian Balsam *(Impatiens glandulifera)*, New Zealand Pigmyweed *(Crassula helmsii)* and Canadian Waterweed *(Elodea canadensis)* within 2km of the site. No records of invasive plant species were obtained within 500m of the site.

3.1.14 The data search revealed records of Narrow-Leaved Bitter-Cress *(Cardamine impatiens)*, Spindle *(Euonymus europaeus)*, Bluebell *(Hyacinthoides non-scripta)* and Pale St. John's-Wort *(Hypericum montanum)* within 2km of the site. No records of flowering plant species were obtained within 500m of the site boundary.

3.1.15 Invertebrates: The data search revealed records of one species of beetle, two species of butterfly, and two species of moth within 2km of the site. Species include: Wall butterfly *(Lasiommata megera)*, Cinnabar moth *(Tyria jacobaeae)* and Scarce Vapourer moth *(Orgyia recens)*. No records of invertebrates were obtained within 500m of the site boundary.

3.1.16 Mammals: The data search revealed records of Hedgehog *(Erinaceus europaeus),* Brown Hare *(Lepus europaeus),* Weasel *(Mustela nivalis)*, American Mink *(Mustela vison)* and Grey Squirrel *(Sciurus carolinensis)* within 2km of the site. Hedgehog and Brown Hare are UK BAP, West Yorkshire BAP and Kirklees BAP species. American Mink and Grey Squirrel are invasive species. No records of Hedgehog, Brown Hare, American Mink or Grey Squirrel were recorded within 500m of the site boundary.

3.2 Desktop Bat Records

3.2.1 The records obtained from the West Yorkshire Ecology Unit for **Holme House** are as follows:

Table 2: Summary of bat records held by the West Yorkshire Ecology Unit within 2km of the site. Those marked with an asterisk * were recorded with 500m of the site.

Common Name	Latin Name	Latest Record	Number of Records
Common Pipistrelle*	*Pipistrellus pipistrellus*	2016	28
Daubenton's Bat	*Myotis daubentoni*	2007	2
Leisler's Bat	*Nyctalus leisleri*	2007	5
Noctule	*Nyctalus noctula*	2014	7
Soprano Pipistrelle	*Pipistrellus pipistrellus*	2014	4
Unknown Bat Species	*Vespertilionidae*	2007	16

The data search revealed records of six bat species within 2km of the site. There was no obvious correlation between the records, with records varying in date recorded and location. Records of bat activity and roost records were obtained from urban areas as well as rural areas. The majority of roost records were pipistrelle species, obtained from urban areas south of Birkenshaw. Numerous roost records were also obtained around Gomersal village centre.

3.2.2 The records obtained from the West Yorkshire Bat Group for **Holme House** are as follows:

Table 3: Summary of bat records held by the West Yorkshire Bat Group within 2km of the site. Those marked with an asterisk * were recorded with 500m of the site.

Common Name	Scientific Name	Latest Record	Number of Records
Leisler's Bat	*Nyctalus leisleri*	2015	7
Noctule	*Nyctalus noctula*	2015	2
Pipistrellus Species*	*Pipistrellus*	2016	11
Nathusius' Pipistrelle	*Pipistrellus nathusii*	2015	2
Common Pipistrelle*	*Pipistrellus pipistrellus*	2016	22
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	2015	1
Unknown Bat Species*	*Vespertilionidae*	2011	23

The data search revealed records of seven bat species within 2km of the site boundary: Leisler's Bat, Noctule, unknown Pipistrelle Species, Nathusius' Pipistrelle, Common Pipistrelle, Lesser Horseshoe and unknown bat species. Records of grounded bats, bat roosts and bat activity have been obtained within 2km of the site. The records were spread across a range of habitats including urban areas, farmland and woodland habitats. 22 bat roosts have been recorded within 2km of the site, including Leisler's Bat roosts, Common Pipistrelle roosts, unknown Pipistrelle species roosts and unknown bat species roosts. Within 500m of the site boundary a maternity roost of Common Pipistrelle, two unknown bat species roosts, and two unknown Pipistrelle species roosts have been recorded. Records have also been obtained of Pipistrelle bat activity within 500m of the site.

3.3 Nature Conservation Designations

Statutory Nature Conservation Sites

There are no statutory nature conservation sites within the boundary of the site. There is one statutorily designated area within a 2km radius of the site boundary, which can be seen in Table 4 below:

Table 4: Non-statutory designated sites with 2km of the site.

Name	Designation	Description	Distance from Site
Oakwell Park	Local Nature Reserve (LNR)	No information available	520m East

Non-Statutory Nature Conservation Sites

3.3.1 There are no non-statutorily designated nature conservation sites within the boundary of the site.

3.3.2 The search revealed two non-statutory conservation sites within 2km of the site, which can be seen in Table 5.

Table 5: Non-statutory designated sites with 2km of the site.

Name	Designation	Description	Distance from Site
Hunsworth Little Wood	Local Wildlife Site (LWS)	Much of the site appears to be replanted with only a small area of possibly semi-natural woodland within Hunsworth Little Wood; therefore it does not meet Criteria Wd1 for semi-natural ancient woodland. Hunsworth Little Wood meets Criteria Wd3 Scoring 9 for acid woodland species diversity with the threshold being 8. Bluebells were present in Hunsworth Little Wood, but were mainly scattered with few dense Patches, therefore, it does not meet Criteria Wd5. Hunsworth Great Wood is more species-poor with frequent bare ground, scoring only 1 when viewed from the boundary therefore is unlikely to meet Criteria Wd3.	1900m West

Oakwell Park	Local Wildlife Site (LWS)	Faunal species recorded were: grey wagtail, jay, blue tit, wood pigeon, mistle thrush, wren, blackbird, blackcap, robin and magpie. A road bridge over the area of wet woodland has features of interest for roosting bats. Bats will use habitats within the site and adjacent habitats for foraging and navigation. The habitats within the open area have the potential to be used by reptiles, especially grass snake. The tall ruderal habitats within the site will also be used by invertebrates.	520m East

3.4 Site Assessment Results

3.4.1 The site was surveyed on 24/04/2018 by Jenny Butler *BSc (Hons).* Survey conditions are summarised in **Table 6**.

Table 6: Survey times and weather conditions.

Survey date	Lead surveyor	Temp	Humidity	Wind speed/Direction		Cloud Cover	Precipitation
24/04/18	Jenny Butler	12°C	65%	8mph	WSW	100%	Light Showers

3.4.2 The site comprises of a large derelict care home building, an ornamental garden area to the front of the care home, and some scattered trees, small section of hedgerow and amenity grassland within the ornamental garden area.

Habitats Present

3.4.3 The following habitat types are present at Holme House Oxford Road (in alphabetical order):

- Amenity Grassland

- Buildings
- Hard Standing
- Hedgerow (intact, Species Poor)
- Ornamental Garden
- Scattered Trees (Mixed)

Amenity Grassland: There is a small area of amenity grassland habitat to the north of the site, adjacent to the access track located to the front entrance of the care home building. Species present include: Yorkshire Fog, Perennial Rye-Grass, Cleavers, Dandelion, Common Chickweed and Greater Plantain.

Buildings: There is one large building present on site, the derelict care home building. This building is in poor condition, access into this building is restricted to essential access for maintenance staff only. This building consists of two floors and a cellar. The loft space is enclosed, however due to damp and water leaking the loft floor has collapsed in places, exposing the loft to the rest of the house. The building is constructed of stone with a slate roof. The roof is lined internally with a bitumen membrane.

Hard Standing: There is a stone area to the west of the site, directly in front of the main access door to the care home. This was once an in use driveway providing access and parking for the care home. This area is no longer in use. There are cobbled areas to the north and east of the care home, which form paths leading to and from the car parks and new care home buildings.

Hedgerow, Intact, Species Poor: There is a small section of Privet hedgerow to the northeast of the site, which appears to be maintained and managed.

Ornamental Garden: To the front of the derelict care home building is an area of ornamental garden. This appears to be lightly managed, with weeds present and log piles forming along the borders of this area. Species present include: Hyacinth, Lesser Celandine, Daffodil, Ivy, Common Chickweed, Flowering Currant, Bramble and Tulip.

Scattered Trees - Mixed: To the north and west of the site, along the boundary edges are a number of trees. Species present include: Common Ash, Horse Chestnut, Sycamore, Pear and Common Beech. These trees vary in age, size and condition, with some covered in Ivy and showing signs of damage and decay.

Target Notes

3.4.4 Target Note 1: Himalayan Balsam present

3.4.5 Target Note 2: Piles of deadwood/windfall/branches

Invasive Plant Species

3.4.6 The following invasive plant species were present at the survey site:

- Himalayan Balsam *(Impatiens glandulifera)*

3.5 Scoping Survey Results

3.5.1 The site was surveyed on the 24/04/2018 by lead surveyor Jenny Butler *BSc (Hons),* NE Level 2 Class Licence – 2018-33192-CLS-CLS. Survey conditions are summarised in **Table 7**.

Table 7: Survey times and weather conditions.

Survey date	Lead surveyor	Temp	Humidity	Wind speed/Direction		Cloud Cover	Precipitation
24/04/18	Jenny Butler	12°C	65%	8mph	WSW	100%	Light Showers

3.5.2 Habitats and Features Present

Habitats present on site include amenity grassland, hard standing, buildings, hedgerow, ornamental garden and scattered mixed trees.

The hard standing, amenity grassland, hedgerow and ornamental garden provide limited value for bat species.

The buildings and scattered mixed trees provide opportunity for foraging, roosting and commuting bat species. These habitats were assessed for their bat roosting potential.

3.5.3 Building Assessment

The building on site is a derelict care home, which has been abandoned for more than 10 years. The building is two storeys in height with a small cellar. There are no external access points such as windows or doors within the cellar area. The building is in poor condition due to the roof and building being stripped of lead and copper. The building is a Victorian era property, built of stone with a slate tiled, pitched roof.

External Inspection: Externally the roof was difficult to inspect. The lead flashing is missing from the chimney breast, and numerous slate tiles are missing. The pointing is in poor condition with visible lifting where the tiles meet the stonework. The chimney is damaged, with slates missing around the chimney join. The stonework of the building is mostly in good condition, with no noticeable access points for bats. The window frames appeared to be in reasonable condition, however some of the glass panels were broken and damaged, which could allow access for bats.

Internal Inspection: The timbers within the roof space were treated, however due to the roof leaking and missing tiles the timbers were mostly rotten and split, with several of the timbers broken and no longer supporting the roof. The membrane below the tiles was bitumen, with signs of damage. In parts the membrane was missing completely, with visible daylight seen. No signs of live bats were seen within the roof space, however it must be noticed the loft was largely accessible due to the structural instability of the building. The roof is approximately 100 years old. Loft insulation had been installed at some point, sections of insulation had fallen through to the second storey floor due to the collapse of the loft floor. The loft space is not used, with minimal human disturbance occurring within the last 10 years. No lights are used in the property and the water supply has been cut off for a number of years.

Signs of Bat Use: All rooms were inspected for signs of bat use. No bat droppings were found in the property, however feeding remains were found on windowsills and floors of three of the rooms in the care home.

No live or dead bats, urine stains or droppings were found in the care home building.

3.5.4 Tree Assessment

There are a number of trees present on site. See details of these trees, including bat roosting potential of each individual tree, in **Table 8** below.

Table 8: Trees with potential/actual roost features and/or evidence of bats.

Tree Ref	Common Name	Scientific Name	Potential/Actual Roost Features	Evidence of Bats	Bat Roosting Potential
T1	Ash	*Fraxinus excelsior*	Ivy covering trunk, hard to see whether any cracks, crevices or damages beneath. Some pruning damage evident.	None	Moderate
T2	Horse Chestnut	*Aesculus hippocastanum*	Damage, splits and cracks evident. Crevices noticeable.	None	Moderate
T3	Horse Chestnut	*Aesculus hippocastanum*	Damage, splits and cracks evident. Crevices noticeable.	None	Moderate
T4	Sycamore	*Acer pseudoplatanus*	No evident damage, splits, cracks or signs of decay. Smooth	None	Negligible

			trunk. No Ivy cover.		
T5	Sycamore	*Acer pseudoplatanus*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T6	Horse Chestnut	*Aesculus hippocastanum*	Damage, splits and cracks evident. Crevices noticeable.	None	Moderate
T7	Sycamore	*Acer pseudoplatanus*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T8	Lime	*Tilia sp.*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T9	Sycamore	*Acer pseudoplatanus*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T10	Pear	*Pyrus communis*	No evident holes, splits or cracks. Some signs of damage and decay.	None	Low
T11	Lime	*Tilia sp.*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T12	Lime	*Tilia sp.*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T13	Lime	*Tilia sp.*	Leaning, no evidence of cracks or damage. Some wounds noted.	None	Low
T14	Lime	*Tilia sp.*	Ivy present, some signs of damage, no obvious holes or splits.	None	Low
T15	Sycamore	*Acer pseudoplatanus*	Signs of pruning wounds and damage.	None	Moderate
T16	Sycamore	*Acer pseudoplatanus*	Ivy covering the trunk, hard to assess. Some evidence of damage/pruning wounds.	None	Moderate
G17	Mixed	-	Some small stemmed specimens, some with ivy cover and damage noted.	None	Moderate
T18	Sycamore	*Acer pseudoplatanus*	Dense Ivy covering trunk, making assessment difficult. Some damage and pruning wounds noted.	None	Moderate
T19	Copper Beech	*Fagus sylvatica 'Atropurpurea'*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T20	Beech	*Fagus sylvatica*	Dense Ivy covering the trunk, making assessment difficult. Some potential areas of decay present.	None	Moderate
T21	Lime	*Tilia sp.*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible
T22	Lime	*Tilia sp.*	Ivy present on trunk, some evidence of pruning wounds and damage.	None	Moderate

T23	Lime	*Tilia sp.*	Ivy present on trunk, some evidence of pruning wounds and damage.	None	Moderate
G24	Sycamore	*Acer pseudoplatanus*	Ivy present on trunk, some evidence of pruning wounds and damage, forming a dense cluster of small tree specimens.	None	Moderate
T25	Cypress	*Cupressus sp.*	No evident damage, splits, cracks or signs of decay. Smooth trunk. No Ivy cover.	None	Negligible

4. Discussion and Analysis of Results

4.1 Nature Conservation Designations

4.1.1 No designated nature conservation sites are located within the boundary of the site.

4.1.2 There is one statutorily designated conservation area within 2km of the site boundary. Oakwell Park is a Local Nature Reserve (LNR) located 520m east of the site. This site contains a range of habitats including wet woodland and grasslands. The site has been found to support a range of floral and faunal species including bats and birds. The proposed development will not have an effect on this designated area as the site is located more than 500m away, and is separated from the Oakwell Park area by an expanse of residential and commercial properties. There is no habitat connectivity between the site and this designated area.

4.1.3 There are two non-statutorily designated sites within 2km of the site. Hunsworth Little Wood is a Local Wildlife Site (LWS) located 1900m west of the site boundary. Oakwell Park is a LWS located520m east of the site boundary. Both of these sites have been designated due to their range of floral and faunal species. The proposed development will not have an effect on these sites because they are separated from the proposed development by a range of habitats, including residential, urbanized areas. There is no habitat connectivity between the site and these designated wildlife areas.

4.2 On-site Habitat

4.2.1 The amenity grassland, ornamental garden, hard standing and species poor, intact hedgerow offer limited ecological value to local wildlife.

4.3 Potential for Protected Species

4.3.1 Amphibians: The data search revealed records of Common Toad *(Bufo bufo)*, Common Frog *(Rana temporaria)* and Smooth Newt *(Triturus vulgaris)* within 2km of the site. No records of amphibians were recorded within 500m of the site boundary. The data search does not contain the required aquatic water bodies such as ponds to support reptiles during the breeding stages of their life-cycle. The site does not contain the required terrestrial habitat to support amphibians during the over-wintering phase of their life-cycle. The site is unlikely to support amphibian species.

4.3.2 Badgers: The data search revealed records of badger *(Meles meles)* activity within 2km of the site. No records of badger setts or activity were recorded within 500m of the site. The site does not contain the required steep

embankments for badger sett creation, parkland, farmland and hedgerows for foraging and connected linear features for commuting. The site is unlikely to support a badger population or social group.

4.3.3 Barn Owls: The data search did not reveal any records of Barn Owls *(Tyto alba)* within 2km of the site. Barn Owls require a mixed habitat including rough grassland, field margin strips, set aside and ditches/watercourses for hunting. Barn Owls require between 14 and 47 hectares of suitable roosting and hunting habitats, as stated by the *Barn Owl Conservation Trust, barnowltrust.org.uk, accessed April 2018*. The site does not contain the required habitats to support roosting or hunting Barn Owls.

4.3.4 Bats: The data search revealed records of seven bat species within 2km of the site: Soprano Pipistrelle *(Pipistrellus pygmaeus),* Common Pipistrelle *(Pipistrellus pipistrellus),* Unknown Pipistrelle Species *(Pipistrellus sp.),* Leisler's Bat *(Nyctalus leisleri),* Noctule *(Nyctalus noctula),* Daubenton's Bat *(Myotis daubentoni)* and Unknown Bat Species (Vespertilionidae). Common Pipistrelle was recorded within 500m of the site. The site contains a number of roosting opportunities for bat species. The site has the potential to support roosting bats.

4.3.5 Dormice: The data search did not reveal any records of Dormice *(Muscardinus avellanarius)* within 2km of the site. Dormice are usually found in deciduous broadleaved woodland habitats, and are vulnerable to habitat fragmentation and disturbance. Dormice are found primarily in the south of England. Dormice populations have plummeted in recent years, with their range in the UK shrinking rapidly and population numbers continuing to decline. West Yorkshire is outside of their known habitat range, as stated in the *Dormouse Conservation Handbook, second edition, written by Paul Bright, Pat Morris and Tony Mitchell-Jones, 2006*. The site does not contain the required habitats to support Dormice; it is unlikely Dormice are present on site.

4.3.6 Nesting Birds: The data search revealed records of 30 bird species within 2km of the site, including four Schedule 1 listed species. Species within 2km include: Swallow *(Hirundo rustica)*, Brambling *(Fringilla montifringilla)* and Fieldfare *(Turdus pilaris)*. No records of bird species were obtained within 500m of the site boundary. The site contains some vegetated areas; however the site does not contain the required scrub and hedgerows to support nesting birds. It is unlikely birds are nesting in the vegetation on site. The trees provide some nesting opportunities for bird species; however no evident holes were seen within the trees on site, limiting nesting opportunities.

4.3.7 Otters: The data search revealed records of Otter *(Lutra lutra)* within 2km of the site. No records of Otter were obtained within 500m of the site boundary. The site does not contain the required fast flowing water bodies to support Otters. The site is unlikely to support an Otter population.

4.3.8 Reptiles: The data search did not reveal any records of reptiles within 2km of the site. The site does not contain the required mosaic of habitats to support reptiles. There are no tussocky grassland areas on site for reptiles. The site is unlikely to support reptile populations.

4.3.9 Water Voles: The data search did not reveal any records of Water Vole *(Arvicola amphibious)* within 2km of the site boundary. The site does not contain the required aquatic habitats to support Water Vole. It is unlikely Water Voles are present on site.

4.3.10 White Clawed Crayfish: The data search did not reveal any records of White-Clawed Crayfish within 2km of the site. White-clawed Crayfish: White Clawed Crayfish require slow flowing water bodies, high quality water of pH 6.8-8.6, rocks, debris, rubble or submerged vegetation for breeding purposes. White Clawed Crayfish are limited in their range as they are unable to travel significant distances over terrestrial habitats as stated in *Guidance on Habitat for White-clawed Crayfish and its Restoration by Stephanie Peay, July 2002.* The site is unlikely to support White-Clawed Crayfish.

*The absence of any signs of or features considered valuable for supporting protected species, can **not** be considered evidence that these species are absent from a site, or that these species will not occupy the site in the future. It must therefore always be recommended that work be conducted with care and vigilance. Should any protected species be encountered during work (please see **Appendix 9**), work should stop immediately and JCA or Natural England contacted.*

4.4 Bat Records

4.4.1 Seven species of bat have been recorded within 2km of the site; three bat species have been recorded within 500m of the site.

4.4.2 The West Yorkshire Ecology data search revealed records of six bat species within 2km of the site. There was no obvious correlation between the records, with records varying in date recorded and location. Records of bat activity and roost records were obtained from urban areas as well as rural areas. The majority of roost records were pipistrelle species, obtained from urban areas south of Birkenshaw. Numerous roost records were also obtained around Gomersal village centre.

4.4.3 The West Yorkshire Bat Group data search revealed records of seven bat species within 2km of the site boundary: Leisler's Bat, Noctule, unknown Pipistrelle Species, Nathusius' Pipistrelle, Common Pipistrelle, Lesser Horseshoe and unknown bat species. Records of grounded bats, bat roosts and bat activity have been obtained within 2km of the site. The records were spread across a range of habitats including urban areas, farmland and woodland

habitats. 22 bat roosts have been recorded within 2km of the site, including Leisler's Bat roosts, Common Pipistrelle roosts, unknown Pipistrelle species roosts and unknown bat species roosts. Within 500m of the site boundary a maternity roost of Common Pipistrelle, two unknown bat species roosts, and two unknown Pipistrelle species roosts have been recorded. Records have also been obtained of Pipistrelle bat activity within 500m of the site.

4.5 Invasive Species

4.5.1 Himalayan Balsam was found to be present on site. Please refer to **Appendix 1, Phase 1 Habitat Map** for locations of Himalayan Balsam found on site during the time of the survey.

4.5.2 Invasive plant species are those plants listed under Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended) or described on the Non-Native Species Secretariat (NNSS) website. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or cause the spread of Invasive Plant Species in the wild and therefore it is a legal obligation to remove them.

4.6 Bat Scoping Results

4.6.1 The ornamental garden, amenity grassland and hedgerows on site provide limited roosting opportunities for bat species.

4.6.2 The main care home building and scattered trees provide roosting and foraging opportunities for bat species. Please refer to **Section 3.5** for further details.

4.6.3 The bat scoping survey highlighted a number of features in the site suitable for supporting roosting/foraging/commuting bats (add in description of features present).

4.6.4 This site has **high potential for supporting roosting bat species.** Please see **Table 9** below for the guidelines used for assessing the roosting potential of a site. Please note these guidelines are applied using the professional judgement of the licensed bat worker undertaking the assessment.

Table 9: Guidelines used for assessing the bat roosting suitability of a site *(taken from the BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).*

Roosting Suitability	Roosting Features Present
Negligible	No visible features on the site likely to be used by roosting bats. No signs of bats found during the initial assessment.

Low	A structure with one or more potential roosting opportunities that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough shelter, protection, surrounding habitats, or the appropriate conditions to be used on a regular basis by larger numbers of bats e.g. unlikely to support hibernation or maternity roosts. A tree of sufficient size and age to contain features suitable for bat roosting, but with no features seen from the ground. No signs of bat use found during the initial assessment.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The feature(s) are unlikely to support a roost of high conservation status. Signs (potential signs) of bat use found during the initial assessment.
High	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The features have the potential to support large colonies of bats (e.g. maternity or hibernation) for long periods of time. Signs of bat use present.

5. Conclusions and Recommendations

5.1 After conducting a thorough site investigation and a detailed Desktop Study, we consider **Holme House, Oxford Road** to contain some habitats of negligible to low ecological value, and some habitats of moderate to high ecological value (please see **Section 3.5**).

5.2 After conducting a thorough Bat Roost Potential survey and a detailed Desktop Study, we consider **Holme House, Oxford Road** to have a moderate to high potential for supporting foraging and roosting bats.

5.3 The site is not situated within influencing distance of any nature conservation sites of either statutory or non-statutory designation.

5.4 Habitats present on site include: scattered mixed trees, hedgerow, hard standing, amenity grassland, ornamental garden and buildings.

5.5 The amenity grassland, hard standing, ornamental garden and hedgerow on site provide limited ecological value, and have negligible bat roosting potential.

5.6 Himalayan Balsam was found to be present on site during the time of the survey.

Based on the findings outlined in this report the following recommendations are made:

As the care home building on site has been considered to have a high potential of supporting bat roosting sites, we recommend that dawn/dusk emergence surveys should be carried out to establish the absence/presence of roosting bats at **Holme House.**

Dawn and dusk bat surveys are conducted between May until September, and are used to determine whether bats are currently roosting at a site. It can also give you an indication of the level of bat activity at a survey site and any specific foraging patterns. Dawn surveys are started around 1.5 hours before sunrise, when swarming behaviour can be observed around roost sites. Dusk surveys are started around 30 minutes before sunset and up to 2 hours after, and look for the emergence of bats from their roost sites. If bats are then confirmed to be roosting on the site, a **Bat Mitigation Licence** may be applied for from Natural England, and a mitigation plan devised so development causes as little impact on local bat populations as possible. It is recommended at **Holme House, Oxford Road** that **three** surveys are required on the main care home building. Please refer to **Appendix 5** for bat survey calendar.

As the care home building on site has been considered to have a high potential of supporting bat roosting sites, **three** emergence/re-entry surveys will be required, with **five** of surveyors to cover all aspects of the building. **Three**

surveys should be carried out between May and September, with at least **two** surveys carried out between May and August when bats are most active.

All of the trees on site have been assessed for Bat Roosting Potential. This assessment can be found in **Section 3.5.4: Tree Assessment.** Any trees with low, moderate or high bat roosting potential will need additional emergence/re-entry surveys prior to removal. Please see **Appendix 2, Bat Roosting Potential Plan** for locations of trees with bat roosting potential.

A **Biodiversity Enhancement Plan** is recommended in order to ensure the development does not have a significant impact on local biodiversity, wildlife and habitat connectivity. Recommendations for faunal boxes and wildlife friendly lighting should be provided within the **Biodiversity Enhancement Plan**. This should then be implemented post construction, during the landscaping phase of the development, prior to the dwellings being occupied.

JCA Ltd. can provide these and other ecological surveys if required, please do not hesitate to contact us for further information.

5. References

Guidelines for surveys and report writing:

British Standards Institute (BSI), (2013) *BS 42020:2013, Biodiversity - Code of practice for planning and development*. London.

Chartered Institute of Ecology and Environmental Management (CIEEM), (2015) *Guidelines for Ecological Report Writing*. Winchester.

Joint Nature Conservation Committee (JNCC), (2010) *Handbook for Phase 1 habitat survey: A technique for environmental audit*.

Websites:

Advice on protected species is consolidated at:
Environmental management: Wildlife and habitat conservation - GOV.UK (2016) *Gov.uk*. Available at: https://www.gov.uk/topic/environmental-management/wildlife-habitat-conservation (Accessed: 21 September 2016).

Magic Map Application (2016) *Magic.defra.gov.uk*. Available at: http://magic.defra.gov.uk/MagicMap.aspx (Accessed: 21 September 2016).

The RSPB (2016). Available at: http://www.rspb.org.uk/ (Accessed: 21 September 2016).

Surveys and mitigation plans: protected species - Detailed guidance (2015) *Gov.uk*. Available at: https://www.gov.uk/guidance/surveys-and-mitigation-plans-protected-species (Accessed: 21 September 2016).

Within this detailed guidance on surveys and mitigation information is available on the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

Wildlife licences: when you need to apply - Detailed guidance (2014) *Gov.uk*. Available at: https://www.gov.uk/guidance/wildlife-licences (Accessed: 21 September 2016).

Within this detailed guidance on licensing information is available on licences for the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

As well as:

- Non-native Bumblebee species
- Deer
- Freshwater fish
- Invertebrates
- Mink, coypu, muskrat and grey squirrel
- Plants

Species specific information:

Badgers:

Natural England, (2007) *Badgers and Development: A Guide to Best Practice and Licensing*.

Bats:

Bat Conservation Trust, (2007) *Bats, Development & Planning in England*. London.

Mitchell-Jones, A. and McLeish, A. (ed.). (2004) *Bat Workers' Manual*. 3rd ed. JNCC.

Dormice:

Bright, P., Morris, P. and Mitchell-Jones, A. (1996) *The dormouse conservation handbook*. Peterborough: English Nature.

Great crested newts:

Langton, T., Beckett, C. and Foster, J. (2001) *Great Crested Newt Conservation Handbook*. Halesworth: Froglife.

Otters:

Natural England, (2007) *Species Information Note SIN006, Otter: European protected species*.

Reptiles and Amphibians:

Baker, J., Beebee, T., Buckley, J., Gent, T. and Orchard, D. (2011) *Amphibian Habitat Management Handbook*. 1st ed. Bournemouth: Amphibian and Reptile Conservation.

Edgar, P., Foster, J. and Baker, J. (2010) *Reptile Habitat Management Handbook*. 1st ed. Bournemouth: Amphibian and Reptile Conservation.

English Nature, (2004). *Reptiles: guidelines for developers*. Peterborough.

Gent, T. and Gibson, S. (ed.) (2003) *Herpetofauna Workers Manual*. Bournemouth: JNCC.

Water voles:

Natural England, (2008) *Water voles - the law in practice. Guidance for planners and developers*.

White-clawed crayfish:

Peay, S. (2002) *Guidance on Habitat for White-clawed Crayfish and its Restoration.* Kendal: English Nature

Bat Mitigation Guidelines (Jan. 2004). A. J. Mittchell-Jones. English Nature.

Bat Survey Guidelines: Good Practice Guidelines (2007). Bat Conservation Trust (BCT).

Bat Workers Manual (3rd Edition 2004). A. J. Mitchell-Jones & A. P. McLeish. Joint Nature Conservation Committee (JNCC).

Websites:

Bat Conservation Trust (BCT). <http://www.bats.org.uk/>

Google Maps. **<**http://maps.google.co.uk/**>**

Multiple-Agency Geographic Information for the Countryside (MAGIC). <http://www.magic.gov.uk/>

National Biodiversity Network (NBN) Gateway. <data.nbn.org.uk>

Natural England. < http://www.naturalengland.org.uk/>

Nature on the Map. Natural England. <www.natureonthemap.org.uk>

Relevant Legislation:

Wildlife and Countryside Act 1981 <http://jncc.defra.gov.uk/page-3614>

The Conservation of Habitats and Species Regulations 2017
<https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

Countryside and Rights of Way Act 2000
<http://www.legislation.gov.uk/ukpga/2000/37/pdfs/ukpga_20000037_en.pdf?view=interweave>

Relevant Legislation:

Wildlife and Countryside Act 1981, (c. 69) (as amended). Available at:
http://www.legislation.gov.uk/ukpga/1981/69 (Accessed: 21 September 2016)

Countryside and Rights of Way Act 2000 (c.37). Available at:
http://www.legislation.gov.uk/ukpga/2000/37/contents (Accessed: 21 September 2016)

The Conservation of Habitats and Species Regulations 2017. Available at:
https://www.legislation.gov.uk/uksi/2017/1012/contents/made
(Accessed: 08/01/2018)

Conservation of natural habitats and of wild fauna and flora Council Directive (92/43/EEC) (The Habitats Directive) (as amended) Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043 (Accessed: 21 September 2016)

Protection of Badgers Act 1992 (c. 51). Available at: http://www.legislation.gov.uk/ukpga/1992/51/contents (Accessed: 21 September 2016)

The Hedgerow Regulations 1997 (No. 1160). Available at:
http://www.legislation.gov.uk/uksi/1997/1160/contents/made (Accessed: 21 September 2016)

Appendices

Appendix 1: Phase 1 Habitat Map

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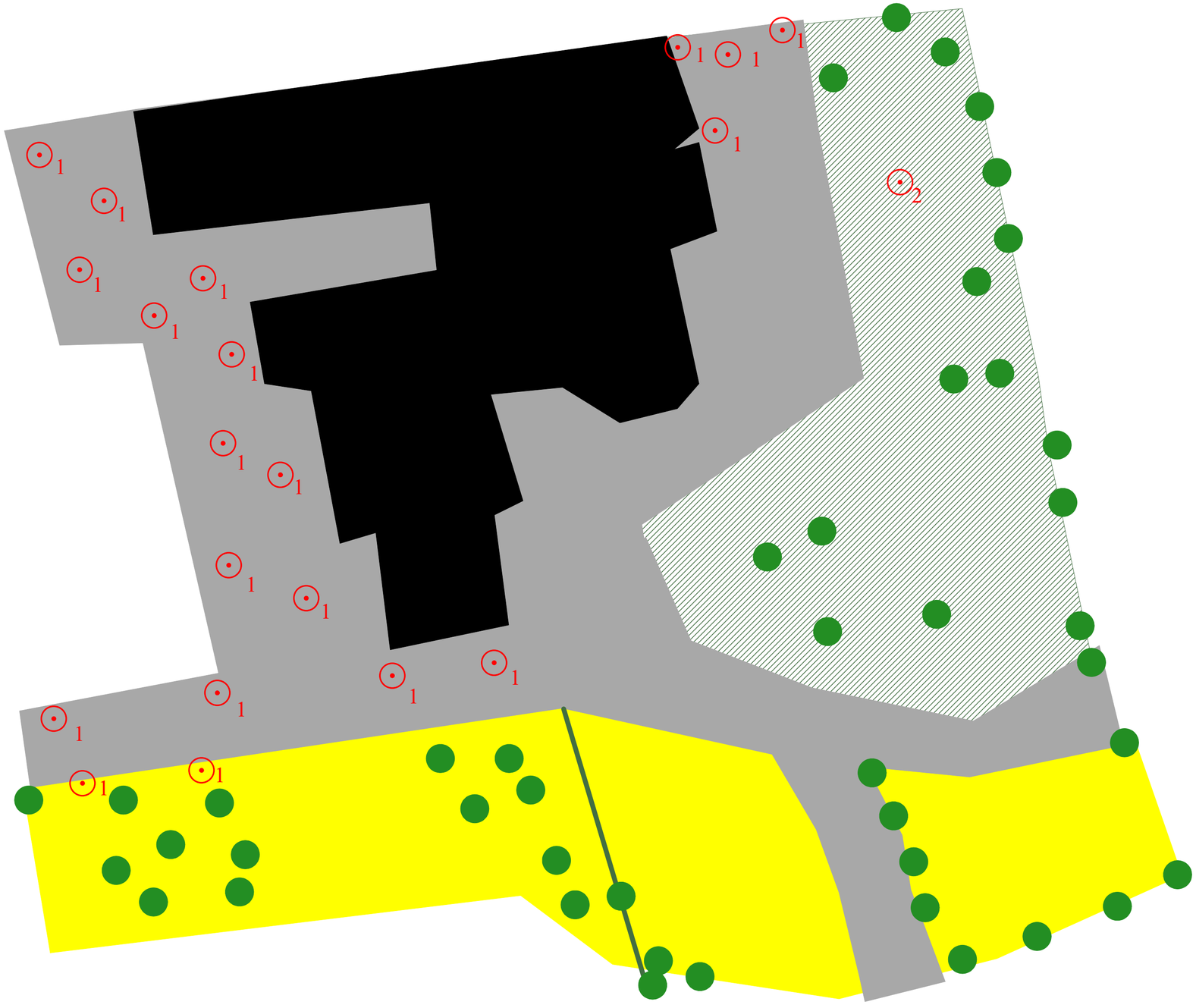

Appendix 1: Phase 1 Habitat Map

TITLE: Address: Holme House, Oxford Road, Gomersal, West Yorkshire, BD19 4LA.

JCA Ref: 13931/JB

NOT TO SCALE	PAPER SIZE : A3

KEY

- Scattered broad-leaved trees
- Ornamental garden
- A — Amenity grassland
- H — Hard standing
- Buildings
- Hedgerow, intact species poor
- Target note

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Appendix 2: Bat Roosting Potential Plan

Appendix 2: Bat Roosting Potential Plan

ADDRESS: Holme House, Oxford Road, Gomersal, West Yorkshire, BD19 4LA.
JCA REF: 13931/JB

NOT TO SCALE	PAPER SIZE : A2

KEY

- High Bat Roosting Potential
- Moderate Bat Roosting Potential
- Low Bat Roosting Potential
- Negligible Bat Roosting Potential

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Appendix 3: Photographic Evidence

Photo 1: Internal view of ceiling, where loft floor has collapsed

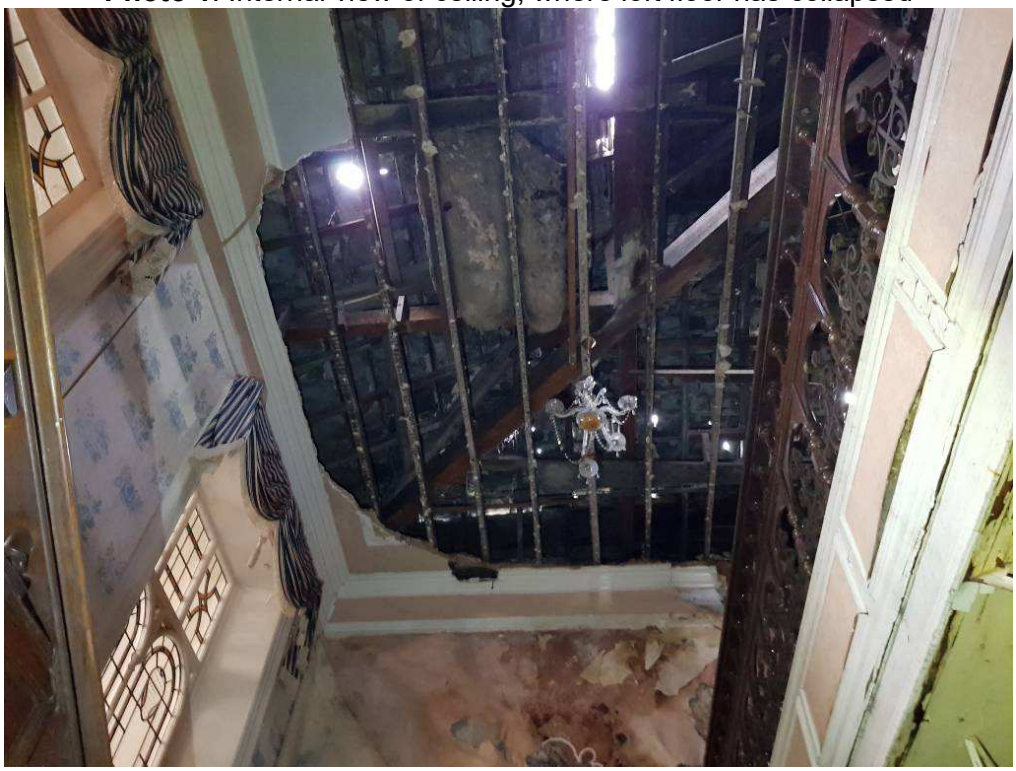


Photo 2: Internal view of walls and under staircase sections

Photo 3: Internal view of ground floor room, ceiling has partially collapsed

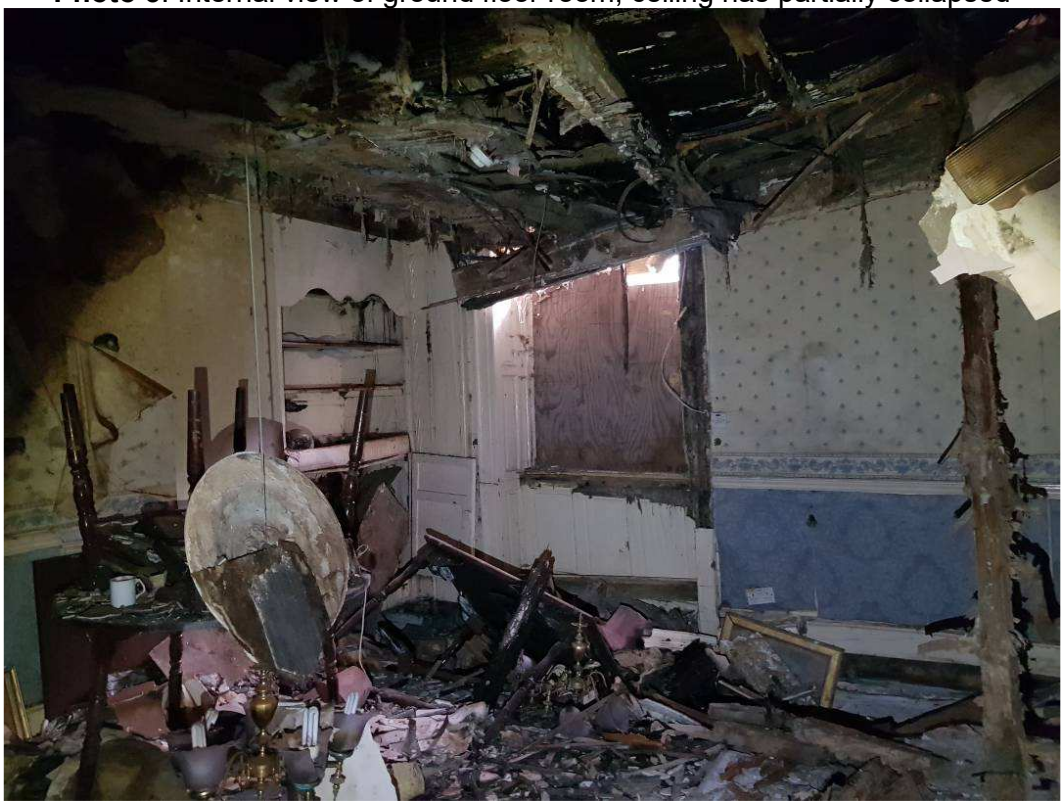


Photo 4: Feeding remains found within care home building

Photo 5: Internal view on ground floor room

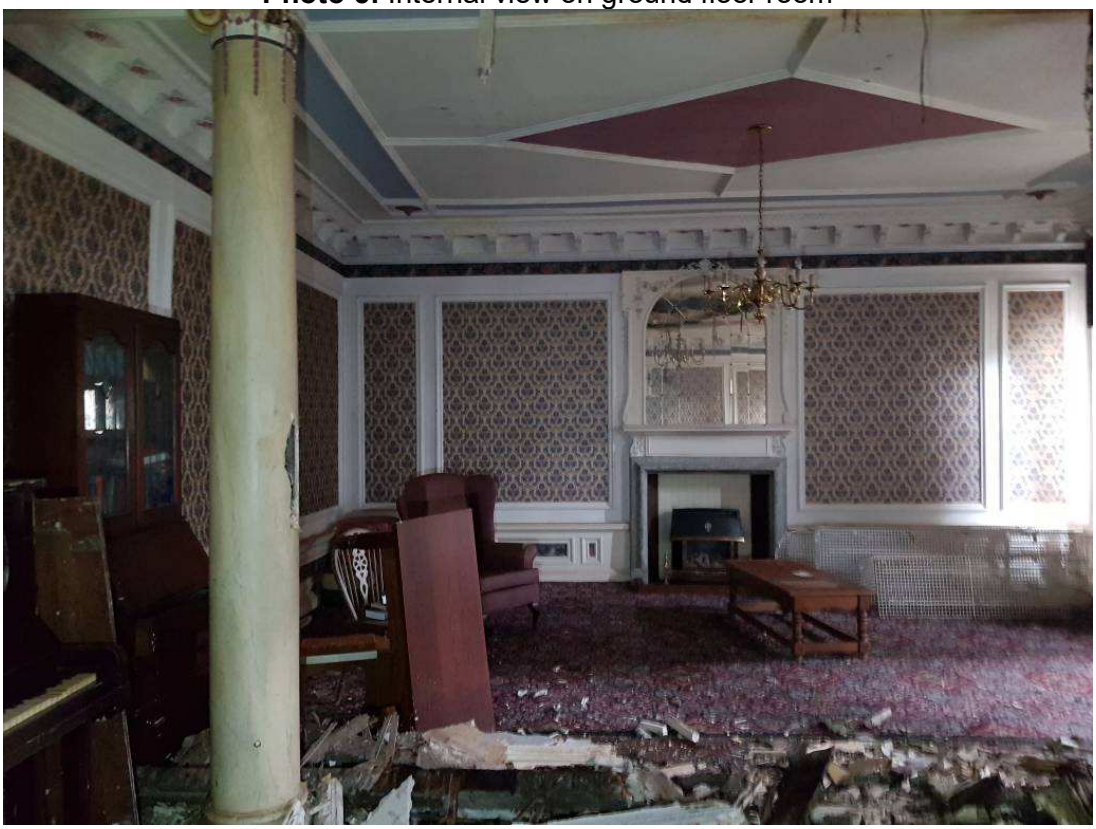


Photo 6: Internal view of first floor bathroom area

Photo 7: Internal view of first floor windowsill

Photo 8: Internal view of staircase leading to first floor

Photo 9: Internal view of ceiling, with fibreglass membrane present

Photo 10: Internal view of loft space

Photo 11: Internal view of loft timbers

Photo 12: External view of main entrance to care home building

Photo 13: External view of care home and ornamental garden areas

Photo 14: Ornamental garden habitat on site

Photo 15: Amenity grassland and orchard area on site

Photo 16: Trees on site with Ivy cover

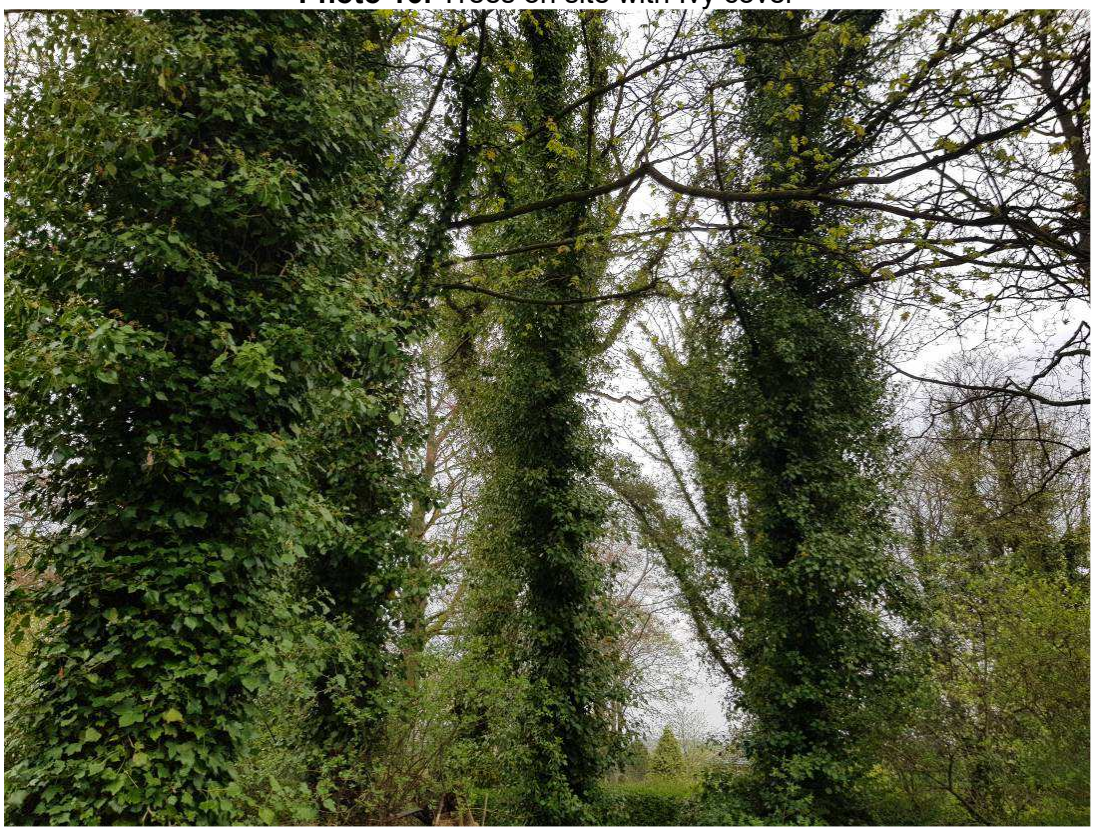


Photo 17: Log pile and rubbish present on site

Photo 18: Cobbled areas present on site, showing Himalayan Balsam growth

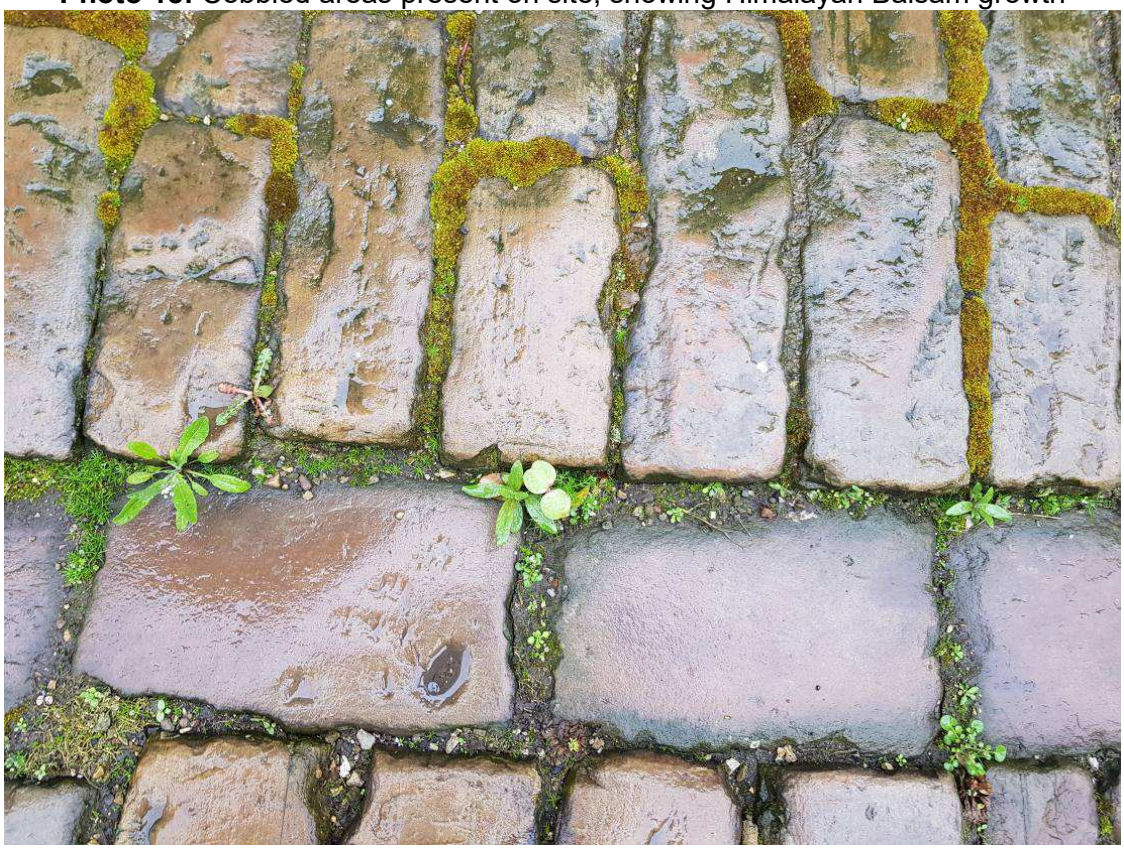


Photo 19: Orchard and amenity grassland areas on site

Photo 20: Path leading to adjacent buildings

Photo 21: External view of care home building

Photo 22: External view of care home building

Appendix 4: Data Search

Table 10: West Yorkshire Ecology's records of protected and notable species within a 2km radius of the site.

Taxon Group	Common Name	Scientific Name	Number of Records	Latest Record
Amphibian	Common Toad	*Bufo bufo*	1	2007
Amphibian	Common Frog	*Rana temporaria*	5	2005
Amphibian	Smooth Newt	*Triturus vulgaris*	5	2004
Bird	Kingfisher	*Alcedo atthis*	1	2008
Bird	Mallard	*Anas platyrhynchos*	2	2008
Bird	Meadow Pipit	*Anthus pratensis*	1	1988
Bird	Swift	*Apus apus*	3	1988
Bird	Goldfinch	*Carduelis carduelis*	4	1988
Bird	House Martin	*Delichon urbica*	2	1988
Bird	Yellowhammer	*Emberiza citrinella*	3	1988
Bird	Reed Bunting	*Emberiza schoeniclus*	1	1988
Bird	Kestrel	*Falco tinnunculus*	3	1988
Bird	Brambling	*Fringilla montifringilla*	1	2007
Bird	Swallow	*Hirundo rustica*	2	1988
Bird	Common Gull	*Larus canus*	1	1988
Bird	Lesser Black-Backed Gull	*Larus fuscus*	1	1988
Bird	Black-Headed Gull	*Larus ridibundus*	2	1988
Bird	Spotted Flycatcher	*Muscicapa striata*	1	1988
Bird	Willow Tit	*Parus montanus*	1	1988
Bird	House Sparrow	*Passer domesticus*	3	1988
Bird	Tree Sparrow	*Passer montanus*	2	1988
Bird	Grey Partridge	*Perdix perdix*	1	1988
Bird	Willow Warbler	*Phylloscopus trochilus*	2	2007
Bird	Green Woodpecker	*Picus viridis*	1	2007
Bird	Dunnock	*Prunella modularis*	2	2007
Bird	Dunnock	*Prunella modularis*	3	2007
Bird	Whinchat	*Saxicola rubetra*	1	1988
Bird	Starling	*Sturnus vulgaris*	2	1988
Bird	Whitethroat	*Sylvia communis*	1	1988
Bird	Redwing	*Turdus iliacus*	1	1988
Bird	Song Thrush	*Turdus philomelos*	3	1988
Bird	Fieldfare	*Turdus pilaris*	1	1988
Bird	Mistle Thrush	*Turdus viscivorus*	2	1988

Fern	Water Fern	*Azolla filiculoides*	1	1905
Flowering Plant	Narrow-Leaved Bitter-Cress	*Cardamine impatiens*	1	1905
Flowering Plant	New Zealand Pigmyweed	*Crassula helmsii*	1	2009
Flowering Plant	Canadian Waterweed	*Elodea canadensis*	1	2007
Flowering Plant	Spindle	*Euonymus europaeus*	2	2009
Flowering Plant	Giant Hogweed	*Heracleum mantegazzianum*	1	2009
Flowering Plant	Bluebell	*Hyacinthoides non-scripta*	7	2015
Flowering Plant	Floating Pennywort	*Hydrocotyle ranunculoides*	1	2007
Flowering Plant	Pale St. John's-Wort	*Hypericum montanum*	1	2007
Flowering Plant	Indian Balsam	*Impatiens glandulifera*	5	2015
Insect - Beetle	Gyrinus natator	*Gyrinus natator*	1	1905
Insect - Butterfly	Small Heath	*Coenonympha pamphilus*	1	2007
Insect - Butterfly	Wall	*Lasiommata megera*	2	2007
Insect - Moth	Scarce Vapourer	*Orgyia recens*	1	2007
Insect - Moth	Cinnabar	*Tyria jacobaeae*	2	2007
Terrestrial Mammal	Hedgehog	*Erinaceus europaeus*	2	2013
Terrestrial Mammal	Brown Hare	*Lepus europaeus*	1	1905
Terrestrial Mammal	Otter	*Lutra lutra*	1	2006
Terrestrial Mammal	Weasel	*Mustela nivalis*	1	1905
Terrestrial Mammal	American Mink	*Mustela vison*	1	1905
Terrestrial Mammal	Daubenton's Bat	*Myotis daubentoni*	2	2010
Terrestrial Mammal	Leisler's Bat	*Nyctalus leisleri*	5	2009
Terrestrial Mammal	Noctule	*Nyctalus noctula*	7	2015
Terrestrial Mammal	Common Pipistrelle	*Pipistrellus pipistrellus*	26	2016
Terrestrial Mammal	Soprano Pipistrelle	*Pipistrellus pygmaeus*	4	2014

Terrestrial Mammal	Pipistrelle Bat species	*Pipistrellus sp.*	3	2007
Terrestrial Mammal	Grey Squirrel	*Sciurus carolinensis*	1	2007
Terrestrial Mammal	Vesper Bat species	*Vespertilionidae*	16	2010

Appendix 5: Site Map

Figure 1: Google Maps image of **Holme House, Oxford Road**, showing the survey site in relation to the surrounding landscape and habitats. Red asterisk* indicates location of the site. © **Google**

Appendix 6: Bat Survey Calendar

Figure 2: Survey timings calendar (taken from BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary ecological appraisal - fieldwork												
Preliminary roost assessment – structures[a]												
Emergence/re-entry survey for maternity or summer roosts[b]												
Emergence/re-entry[c] survey for transitional roosts[b]												
Emergence survey for mating roosts[b]												
Hibernation survey – structures[a]												
Preliminary ground level roost assessment - trees[d]												
Potential roost feature (PRF) inspection survey - trees												
Ground level bat activity survey – transects and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey												
Back-tracking survey												
Trapping survey[e]												
Radio tagging and tracking survey[e]												

= optimal period = sub-optimal period

= weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October surveys are not acceptable in Scotland.

[a] Not including trees

Appendix 7: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.

Appendix 8: Protected Species Information

The following species are protected under EU law, such as the Conservation (Natural Habitats, &c.) Regulations (2010):

- All UK bat species
- Dormouse
- Great Crested Newt and Natterjack Toad
- Large Blue Butterfly
- Otter
- Pine Marten
- Polecat
- Scottish Wild Cat
- Smooth Snake and Sand Lizard
- Various aquatic and plant species

These species are afforded the highest protection in the UK. Under this protection it is an offence to; deliberately capture, injure or kill any wild animal of a European protected species; deliberately disturb wild animal of any such species; deliberately take or destroy the eggs of such an animal, or damage or destroy a breeding site or resting place of such an animal.
In addition to this it is an offence to be in possession of, or to control, transport, sell or exchange, or to offer for sale or exchange, a European Protected species.

The following species are protected under UK law, such as the Wildlife and Countryside Act 1981:

- Badger
- Nesting birds
- Red Squirrel
- Reptiles (Adder, Common lizard, Grass snake, Slow worm)
- Water Vole
- White Clawed Crayfish
- Various bird species i.e. Barn Owl
- Various plant species

Therefore under this protection it is an offence to; kill, injure or take any of the above species.

Nesting birds are only protected during the breeding season whilst on their nest. In addition to the adults being protected, the eggs, young and nest itself whilst in use are protected.

The Wildlife and Countryside Act 1981 also contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales (e.g. Japanese Knotweed and Himalayan Balsam).

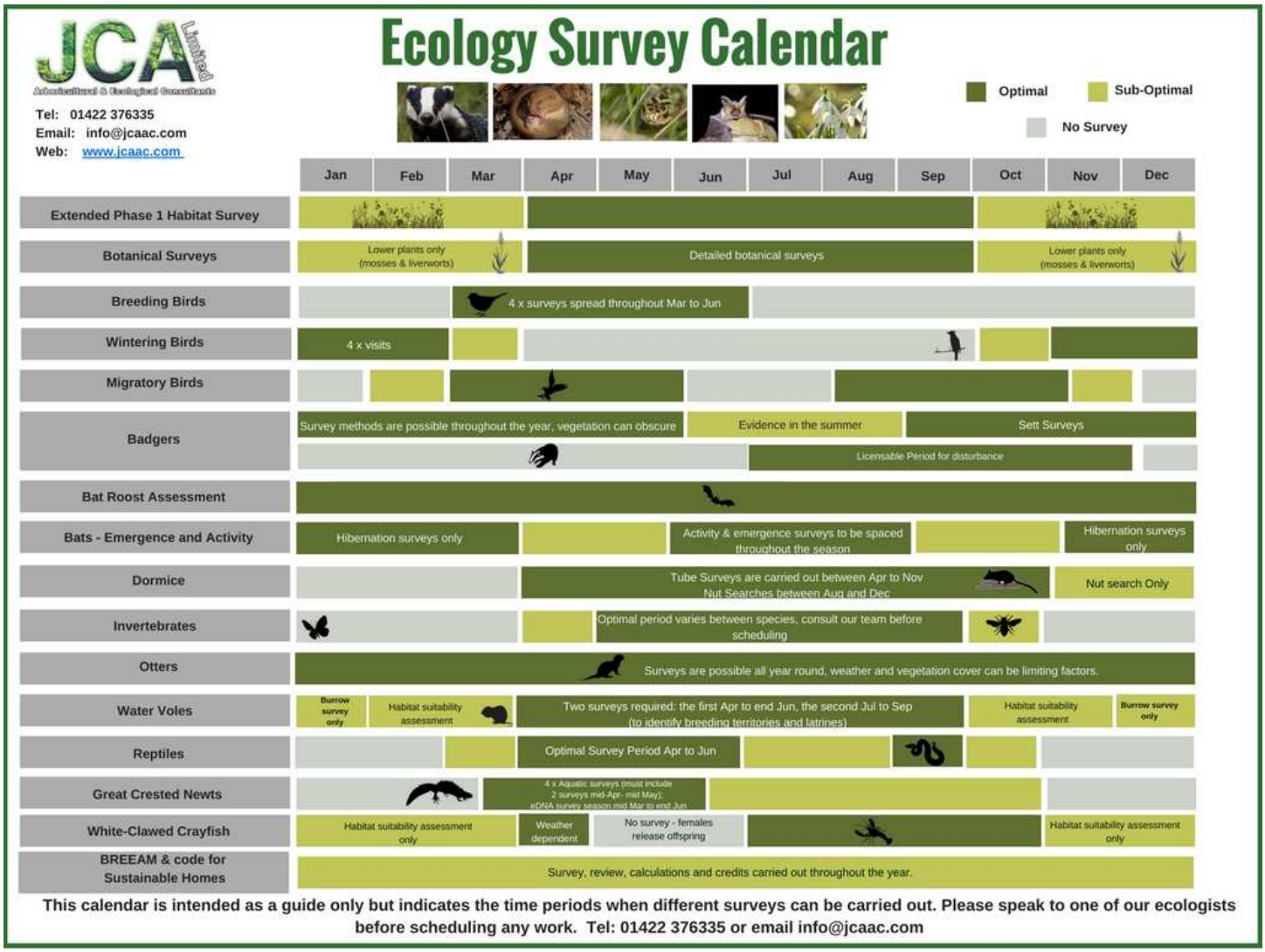
Badgers are protected under The Protection of Badgers Act 1992. Under this legislation it is an offence to; take, injure, kill, or cruelly ill-treat a badger; interfere with a badger sett; sell or possess a live badger; or mark or ring a badger.

The following habitat types are protected under UK Law:

- Habitats that are used by protected species
- Habitats that fall within designated sites
- Hedgerows
- Individual trees/woods can be protected under Tree Preservation Orders

Appendix 9: Survey Calendar

Figure 3: Survey calendar for protected species and habitat surveys.



Appendix 10: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.* Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites *BSc (Hons), HND (Arboriculture).* Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Arboriculture

Toby Parsons *Cert. Arb. (RFS), Tech. Cert. (Arbor.A).* Toby joined JCA after spending 6 years working as a senior climber for various Arboricultural contractors in the East Midlands and the South-West. He has gained the Level 2 Certificate in Arboriculture (RFS) and an Arboricultural Technicians Certificate. Toby is LANTRA certified in Professional Tree Inspection.

Scott Reid *ND* *(Arboriculture and Forestry).* Scott joined JCA after working with other consultancy companies in the south of England. He specialises in trees in relation to development and holds a National Diploma, various NPTC qualifications and is currently studying for his Level 4 Diploma in Arboriculture.

Andrew Bussey. Andrew joined JCA having spent 12 years working as a tree surgeon for various private companies and a Local Authority. He has various NPTC qualifications, is QTRA qualified and is currently studying for his Arboricultural Technicians Certificate.

Phil Humeniuk *FdSc (Arboriculture).* Phil joined JCA having spent 3 years working for various tree surgery companies and as a Tree Officer for a Local Authority. He also has several years experience working as a consultant both for JCA and for another consultancy. Phil obtained his foundation degree in Arboriculture at the University of Central Lancashire and has various NPTC's and is LANTRA certified in Professional Tree Inspection.

Emily Wilde *FdSc (Arboriculture).* Emily joined JCA having previously worked for various private tree surgery and consultancy companies over the past 8 years. She initially obtained a ND in Forestry & Arboriculture, followed by a FdSc in Arboriculture at Askham Bryan College, York. Emily has various NPTC certificates and is QTRA qualified.

Mick Eltringham *ND (Forestry).* Mick joined JCA after spending 12 years working in the industry for various private companies in the north and south of England. He has also spent the last five years working as a consultant for two canopy research projects in the Amazon Rainforest, working with Oxford University and the University of Arizona. He has various NPTC Qualifications.

Charles Cocking *(FdSc Arboriculture).* Charles joined JCA in January 2014 as an Apprentice having previously worked for the company on a part time basis during 2013. Charles obtained his Foundation Degree in Arboriculture at Askham Bryan College, York, and is now part of our qualified Arboricultural consultancy team.

Consulting Staff: Ecology

David Bodenham *BSc Ind (Hons) Zoology, MSc Biodiversity and Conservation.* David joined JCA as an addition to the expanding ecology department. An advocate of evidence based conservation, he studied Zoology (Ind) at University and moved onto an MSc in Biodiversity and Conservation where he gained the myriad of skills needed as an ecologist. With over 7 years of experience, David specialises in bat and amphibian ecology.

Jenny Butler *Bsc (Hons) Environmental Science.* Jenny joined JCA's ecology department in 2017, bringing with her a bachelor degree in Environmental Science from Bangor University. Jenny has previously worked as an Environmental Consultant for an Agri- Environment company and as a freelance ecological consultant. Jenny specialises in great crested newt and bat ecology.

Amanda Beck *Cert He in Field Ecology, StudentCIEEM* Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and Liverpool and as a trainee Ecologist in South Wales. Amanda has extensive practical experience in surveying for botanical, amphibians, terrestrial and marine mammals along with invertebrate research work. She has practical experience in habitat management and creation and is a CIEEM student member.

Administrative Staff

Sue Guest Administrative Team Leader.
Catherine Cocking Accounts Manager.
Lisa Hampson Marketing Manager.
Simeon Haigh *BSc (Hons).* IT Director
Lorraine Spink Administrative Assistant

The information which we have prepared and provided is true. We confirm that the opinions expressed are our true and bona fide opinions.

Signed

.....

Jenny Butler *Bsc (Hons) Environmental Science*
3rd May 2018

Proofread by

.....
Amanda Beck *Cert He in Field Ecology, StudentCIEEM*
3rd May 2018

For and on behalf of ***JCA Ltd***

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ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

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- British Standard 5837 Surveys
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- Arboricultural Method Statements (AMS)

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- Tree Safety Surveys
- Specialist Decay Detection
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Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

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