

ECOLOGICAL ASSESSMENT

OXBOX ALEC ISSIGONIS WAY OXFORD OX4 2ZY

Client: Oxford Biomedica

Our reference: ECO3231b

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1.0 Introduction

Survey and reporting

- 1.1 This report details the results of a Preliminary Ecological Appraisal (comprising an Extended Phase 1 Habitat, Protected Species Scoping Survey and Preliminary Bat Roost Assessment) of the proposed redevelopment of Oxbox, Alec Issigonis Way, Oxford, OX4 2ZY.
- 1.2 The appraisal was informed by a survey carried out on 3 April 2023.

Application site

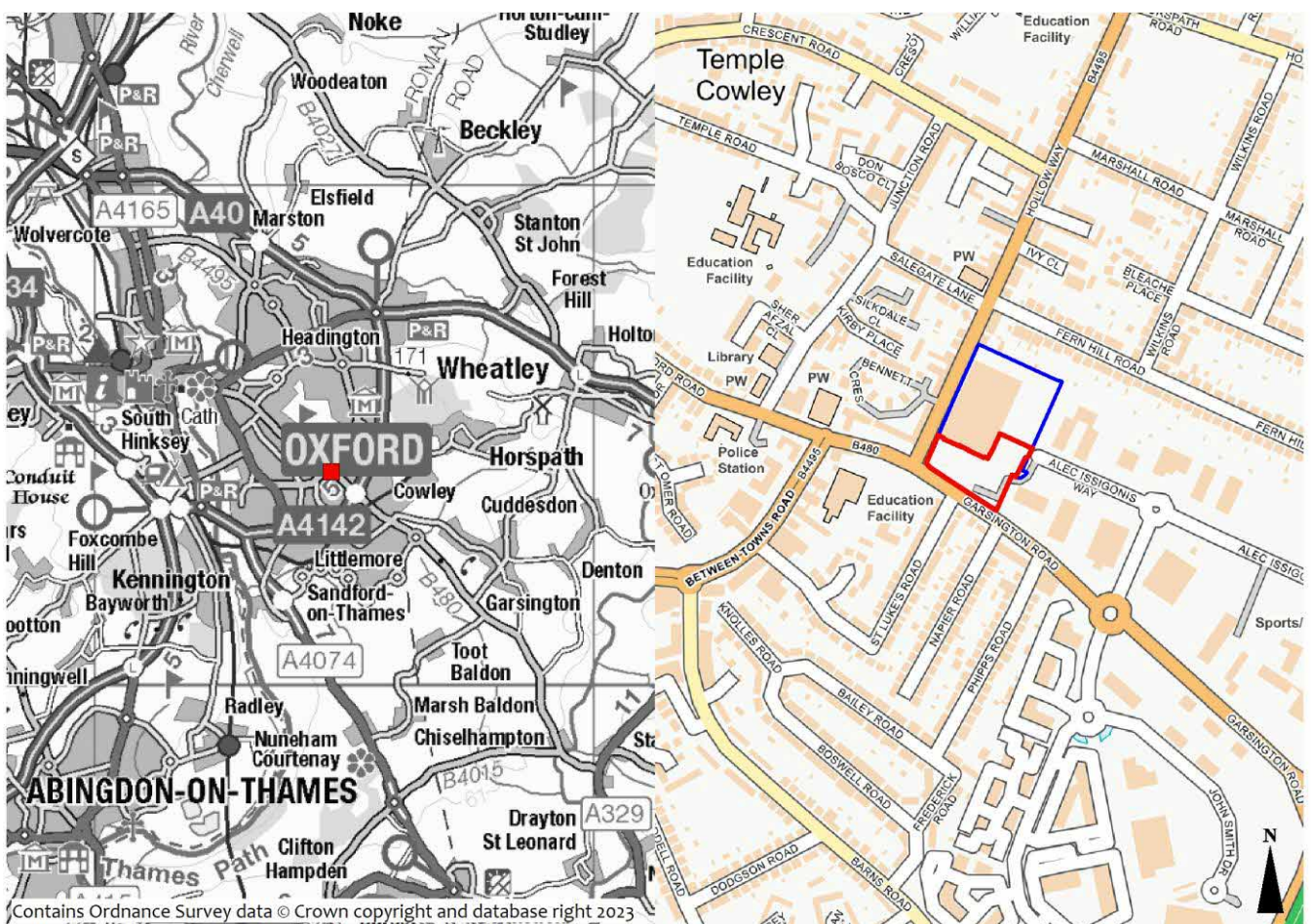
- 1.3 The application site is located in Oxford Business Park, along Alec Issigonis Way, to the west of Cowley (Grid Reference SP54710428; Figure 1).
- 1.4 It comprises a large warehouse, ancillary buildings and structures (cycle shelter, shipping containers and various small outbuildings) and a car park with strips of introduced shrub and amenity grassland.
- 1.5 The total area of the Oxbox facility (only a part of which is within the red line boundary – see below) is approximately 2ha.

Details of proposed works

- 1.6 A minor planning application – described as a “Two-storey side extension to existing Oxbox facility, relocation of fire escape, additional car parking, cycle store, and associated infrastructure and building work” is to be submitted to the council.
- 1.7 No trees will be removed to facilitate the development.

Figure 1 – Site location plan

(The application site is shown in red and other land within the Oxbox facility in blue)



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, Natural England's Priority Habitat Inventory GIS dataset for England, and Natural England's Ancient Woodland Inventory for sites within the zone of influence of the survey area (considered to be a maximum of 1km in this case).
- 2.2 In addition, species records (on Natural England's MAGIC website¹) were accessed, and aerial photographs and Ordnance Survey maps were studied for features of interest.

Extended Phase 1 Habitat and Protected Species Scoping Survey

- 2.3 An Extended Phase 1 Habitat and Protected Species Scoping Survey was undertaken. This comprised a walkover survey of the development site and the classification of habitats following the descriptions provided within the Joint Nature Conservancy Council 'Handbook for Phase 1 Habitat Survey' (NCC 1990, JNCC 1993). An assessment of the site in terms of its suitability for notable or protected species was carried out and any features of note were described.

Preliminary Bat Roost Assessment

- 2.4 The preliminary bat roost assessment comprised a survey of the building, and any trees to be affected by the proposals, for bats, signs of bats and features potentially suitable for use by roosting bats, and an assessment of the surrounding habitat in terms of its suitability for commuting and foraging bats.
- 2.5 The 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.
- 2.6 Buildings are classified according to their suitability for use by roosting bats. Classification is 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 commuting routes (e.g. ponds, streams, woodland, large gardens, hedgerows)
- 2.7 The categories used to classify buildings and trees and the survey effort required to determine the presence or absence of bats (as per the Bat Conservation Trust's Bat Survey Guidelines², referred to by Natural England in their standing advice to planning officers) are described in Table 1, and factors affecting habitat suitability in Table 2.

¹ <https://magic.defra.gov.uk/>

² Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn) Bat Conservation Trust

Table 1 – Description of the categories used to assess a building or tree’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	Confirmed	Bats or evidence of bats found.	Surveys would be required to establish the status of the roost. Generally three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August (two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey).
	High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August. Two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey.
	Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only i.e. irrespective of species conservation status, which is established after presence is confirmed).	Two surveys, comprising one dusk emergence and a separate pre-dawn re-entry survey between May and September (one of the surveys needs to be carried out between May and the end of August).
	Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation)	One dusk emergence or pre-dawn re-entry survey between May and the end of August (but only if features will be affected by the proposals).
		A tree of sufficient size and age to contain features but with none seen from the ground or features seen with only very limited roosting potential	May not be required for trees with low roost suitability (dependent on case-specific conditions) as a precautionary approach to tree works can be taken to minimise the risk of harming bats.
	Negligible	Negligible habitat features on site likely to be used by roosting bats.	No further surveys required.

Table 2 – Habitat suitability scale for commuting and foraging bats

	Habitat Suitability	Description
Suitability of habitat for commuting and foraging	High	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts
	Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water
	Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated 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.
	Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats

Surveyor details

- 2.8 The survey was undertaken by Ryan Davies BSc (hons) ACIEEM (senior ecologist) and Justine Whitehead BSc (hons) (assistant ecologist) of GS Ecology Ltd.
- 2.9 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-CL08) and a Natural England WML A34 Level 2 bat survey licence.

3.0 Results

Desk study

Statutory sites of importance for nature conservation and Ancient woodland

- 3.1 There is one statutory site of importance within 1km of the application site. Lye Valley is a Site of Special Scientific Interest (SSSI), designated for its rare fenland plants, including the grass of Parnassus (*Parnassia palustris*), 900m north of the application site.
- 3.2 There are no areas of woodland listed on Natural England’s Ancient Woodland Inventory within 1km of the application site. The closest such area is located approximately 1.4km north-east.

Nearby ponds

- 3.3 There is one pond within 250m of the development site. The pond is located approximately 150m east from the application site shown on ordnance survey (1:25,000 scale) maps.

Protected and notable species records

- 3.4 Within 1km of the site there are three 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 1km of the development site

Distance and direction from the development site	Species affected	Breeding site	Year licence was issued
0.7km North-east	Common pipistrelle	No	2011
1.2km North	Brown long-eared bat, common pipistrelle	No	2015
1.5km South	Common pipistrelle	No	2009

Surrounding land use

- 3.5 The application site is located in Oxford Business Park, along Alec Issigonis Way, to the west of Cowley.
- 3.6 Directly adjacent to the site on the east are other commercial units belonging to Oxford business park. Adjacent to the site on the north and west are a mix of residential and commercial buildings. South of the site is Elmthorpe Convent, and Our Lady’s Catholic Primary School. Within their ownership is small grass field, with scattered trees.
- 3.7 North-west of the application site approximately 300m is a grassland field, which is used for as sports pitches. North-east of the site, approximately 350m, is Hollow Way recreation ground, a grassland field with scattered small trees.
- 3.8 The nearest patch of woodland is located approximately 600m north-west of the site, which is part of Cowley Marsh Nature Reserve.
- 3.9 The habitats surrounding the site are therefore of “low” suitability for commuting and foraging bats (see Table 2).

Habitats within the Oxbox Facility

- 3.10 The Oxbox Facility comprises a large warehouse, its associated car park, and strips of introduced shrubs and amenity grassland.
- 3.11 A Phase 1 habitat map and associated target notes are provided in Appendix 1, and photographs provided in Appendix 2.
- 3.12 A brief description of each habitat is given below:
- 3.13 **Buildings** – see below.
- 3.14 **Hardstanding** – Oxbox is surrounded by hardstanding to the north, east, and south, including the car park to the south of the building.
- 3.15 Within the application site there are also some raised what appear to be former shrub beds that have been filled with stones and no longer host any plants.
- 3.16 **Amenity grassland** – To the north of Oxbox is a strip of amenity grassland, with lines of Scot's pine and Turkey oak above. Within this grassland there were two mammal holes with a diameter of 25cm. The holes were overgrown and one was filled with leaf litter. These are likely to have once been a fox earth [REDACTED] but at the time of the survey they were disused. These holes are outside of the application site boundary.
- 3.17 **Bare ground** – There is a strip of gravel / bare ground along the western site boundary adjacent that is being colonised by grasses.
- 3.18 **Introduced shrub** – There are a number of borders with introduced shrubs and garden planting – the majority of which are located within the application site. Species in these areas include cherry laurel, cotoneaster, pyracantha, dog wood, buddleia, and hellebores.
- 3.19 **Scattered trees** – There is a line of trees above the amenity grassland at the northern boundary (Scot's pine and a non-native oak) these trees have a diameter at breast height (DBH) of approximately 35cm (Scot's Pine) and 20cm (oak).
- 3.20 There are a number of young scattered Norway maples within the application site, with 16 planted in the southern car park and a single Norway maple planted in the southern boundary (beyond the boundary fence there is a line of introduced scrub with scattered broadleaved and coniferous trees). All the trees in the southern car park have a DBH of between 15 and 25cm.

Building survey - preliminary bat roost assessment

- 3.21 Oxbox is a large warehouse and office building. The walls are brick with a metal frame above them in places.
- 3.22 The building has two separate hipped roofs which are covered with a mix of corrugated metal and transparent UVPC. Both roofs extend over the eaves. The building does not have soffit boxes but does have fascia plates below the roof. The roof is in good condition and there are no gaps where bats could roost.
- 3.23 In the northern corner are 10 swift bricks attached to the walls and on the western elevation there are 2 woodcrete bat boxes, and 4 woodcrete bird boxes.
- 3.24 Internally Oxbox has no loft spaces, roof voids or eaves level cupboards.
- 3.25 No bats or signs of bats were observed inside or outside of Oxbox, and it has no features potentially suitable for use by roosting bats.
- 3.26 Oxbox is assessed as having “negligible” potential to host roosting bats (see Table 2).

4.0 Assessment and recommendations

Survey constraints

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

Statutory sites of importance for nature conservation and Ancient Woodland

- 4.2 There is one statutory site of importance within 1km of the application site. This is Lye Valley, a Site of Special Scientific Interest, which is located approximately 900m north of the application site.
- 4.3 There are no areas of woodland listed on Natural England's Ancient Woodland Inventory within 1km of the application site, the closest such site is located approximately 1.4km north-east.
- 4.4 These sites will not be affected by the proposals.

Priority Habitats

- 4.5 The Secretary of State periodically publishes a list of habitats that are of principal importance for the conservation of biodiversity in England under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act. The list currently comprises 56 habitats, referred to as "priority habitats" in the National Planning Policy Framework (NPPF).
- 4.6 Paragraph 179 of the NPPF reads:
"To protect and enhance biodiversity and geodiversity, plans should [...] promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity"
- 4.7 As such where priority habitats are found they should be protected from the adverse impacts of development.
- 4.8 The habitats to be affected by the proposal - buildings, and hardstanding are not "priority habitats".

Bats

- 4.9 All species of bats receive special protection under UK law and 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), deliberately or recklessly to 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 addition, many bat species are "priority species" as defined in the NPPF (see Paragraph 179 of the NPPF above). As such where priority species are found they should be protected from the adverse impacts of development

Site status

- 4.11 No bats or signs of bats were found inside or outside of Oxbox and the building has no features potentially suitable for use by roosting bats Oxbox is therefore assessed as having "negligible" potential to host roosting bats, it is considered very unlikely that bats will roost within the building.
- 4.12 Furthermore, none of the trees on the site have features potentially suitable for use by roosting bats.

4.13 There should therefore be no bat related constraints to the proposals.

Great Crested Newts

Legislation and ecology

- 4.14 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).
- 4.15 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.
- 4.16 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.
- 4.17 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

- 4.18 There is one pond shown on ordnance survey (1:25,000 scale maps) within 500m of the application site, located approximately 150m east.
- 4.19 The Naturespace “Impact Risk Map³” shows the site as being partially located within an “Amber zone”, which is described as “suitable habitat – great crested newts are likely to be present”.
- 4.20 The application site (which is almost entirely hardstanding) is very unlikely to host any GCN, the pond is separated from the application by hardstanding, and there are no other nearby ponds. GCN will therefore not be a constraint to the proposals.
- 4.21 Further information about GCN is given in Appendix 6.

Badger

- 4.22 The legislation relating to the protection of badgers is mainly contained within the Protection of Badgers Act 1992 ('The Act'), with some protection also given under the 1981 Wildlife and Countryside Act [as amended]. The Act fully protects badgers and their setts and makes it an offence to kill, injure or take a badger, to cruelly ill-treat a badger or to interfere with a badger sett (defined “any structure or place that displays signs indicating current use by a badger.”)

³ 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/

4.23 There are two mammal holes with a diameter of 25cm at the north of the Oxbox facility (outside of the application site - see Target Notes 4 and 6). The holes were overgrown, one was filled with leaf litter and did not appear to extend more than 1m underground. These are likely to have once been a fox earth [REDACTED] but at the time of the survey they were disused. There were also three mammal-runs that ran along the perimeters of the facility - two along the northern boundary and one along the western boundary.

[REDACTED]

need to be excluded under licence to Natural England.

[REDACTED]

Other protected species

4.26 The proposals will not have any adverse effect on other protected species, such as dormouse or reptiles as the habitats to be affected by the proposals (buildings, hardstanding) are unsuitable or sub-optimal for use by these species.

Landscaping and ecological enhancements

4.27 Paragraph 180 of the NPPF reads:

“[...] opportunities to improve biodiversity in and around developments should be integrated as part of their design [..]”

4.28 It is therefore recommended that new planting comprises predominantly native and wildlife-friendly species.

4.29 It is also recommended that the existing bird and bat boxes are monitored and reviewed and, depending on the results of the review, consideration is given to providing additional ones.

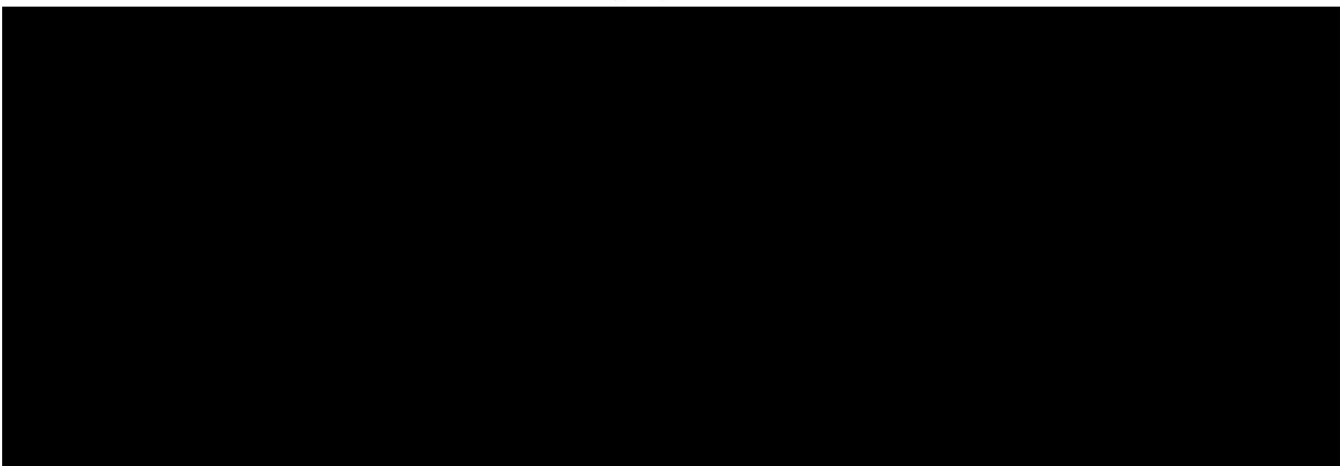
5.0 Summary

Habitats

- 5.1 The application site comprises a large warehouse, cycle shelter, shipping containers, and external buildings, with an associated car park, with scattered trees, introduced shrub, bare ground and amenity grassland.
- 5.2 These habitats are of very limited ecological value and are not “priority habitats” and there should be no habitat-related constraints to the proposals.

Bats

- 5.3 No bats or signs of bats were found during the survey of Oxbox, the building has no features suitable for use by roosting bats and it is assessed as having “negligible” potential to host a bat roost. In addition, none of the trees within or adjacent to the site had features suitable for use by roosting bats.
- 5.4 The proposed works are therefore very unlikely to have any adverse impact upon bats and there should be no bat related constraints to the proposals.



Other protected species

- 5.7 It is considered unlikely that the other protected species such as GCN, or dormice will be affected by the proposals.
- 5.8 If the recommendations given in this report – regarding planting new trees and introduced shrub areas are adhered to there should be no other ecological constraints to the proposals.

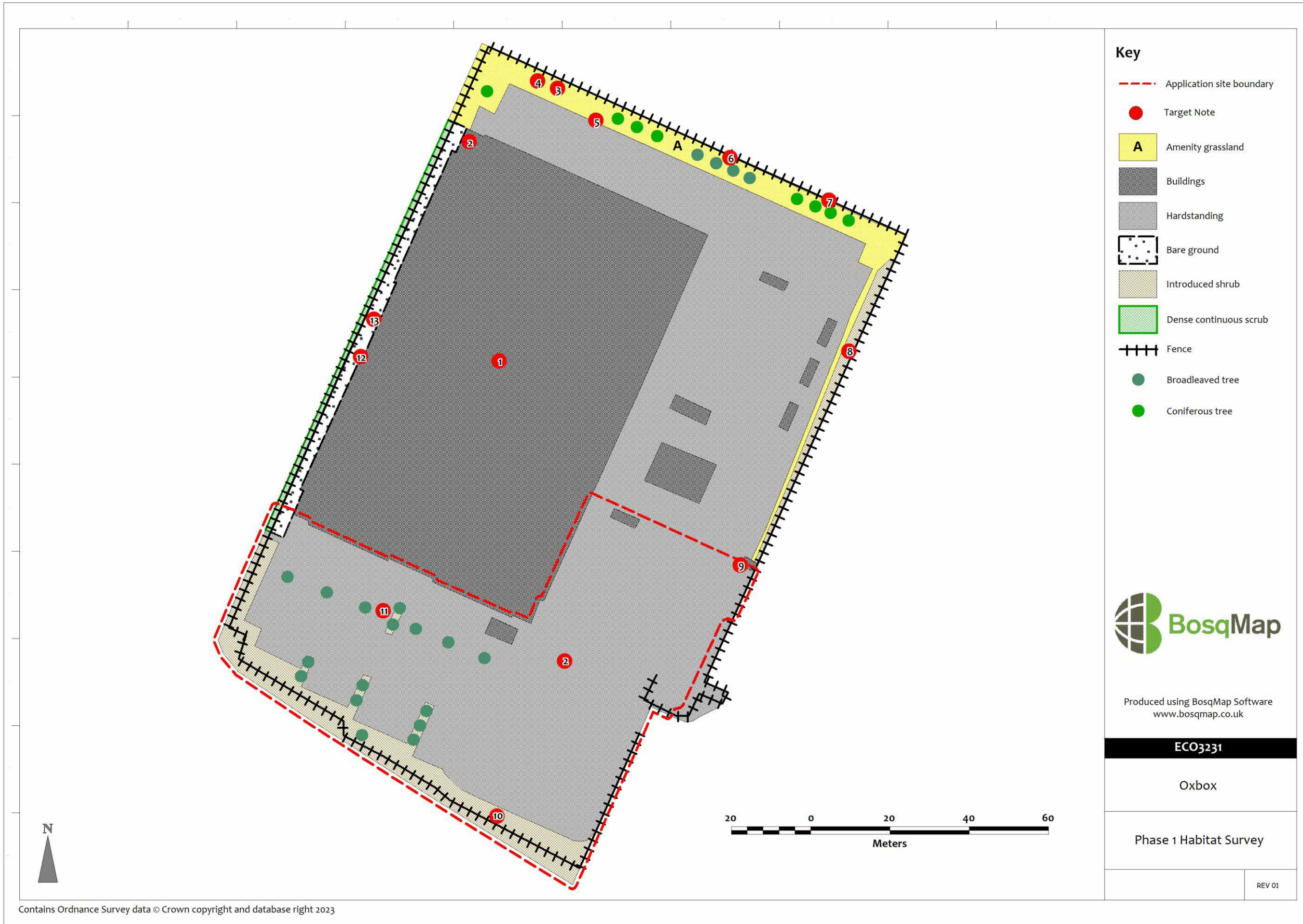
Ecological enhancements

- 5.9 It is recommended that new planting comprises predominantly native and wildlife-friendly species.
- 5.10 It is also recommended that the existing bird and bat boxes are monitored and reviewed and, depending on the results of the review, consideration is given to providing additional ones.

Appendix 1 - Extended Phase 1 Habitat Map and Target Notes

Target Notes

- (1) Oxbox is a large warehouse and office with a metal frame and cladding. The walls are cavity brick and corrugated metal. The roof is a series of pitches, which are clad with corrugated metal, and UVPC in some places. The roof extends over the eaves.
- (2) The building is surrounded by hardstanding, including a car parking area to the south.
- (3) Amenity grassland strip with a line of scots pine and non native oaks above. Species within the grassland include: geranium (*Geranium spp.*), cleavers (*Galium aparine*), spear thistle (*Cirsium vulgare*), wood avens (*Geum urbanum*), birdseye speedwell (*Veronica chamaedrys*), ivy (*Hedera helix*), dandelion (*Taraxacum officinale*), ribwort plantain (*Plantago lanceolata*), daisy (*Bellis perennis*), ragwort (*Jacobaea vulgaris*), broadleaved dock (*Rumex obtusifolius*), meadow buttercup (*Ranunculus acris*), nettle (*Urtica dioica*), and bramble (*Rubus fruticosus*).
[REDACTED]
- (5) Partially excavated mammal hole
[REDACTED]
- (7) Lines of trees oversailing amenity grassland below along northern boundary. Trees include scots pine and non native oak.
- (8) Introduced shrubs along eastern boundary of the site, with a small strip of amenity grassland. Species include: Cherry laurel (*Prunus laurocerasus*), pyracanthas (*Pyracanthas spp.*), cotoneaster (*Cotoneaster spp.*).
- (9) Guard house by eastern entrance. Unsuitable for use by roosting bats.
- (10) Non-native shrub border.
- (11) Scattered broadleaved (Norway maple - *Acer platanoides*) trees across southern car park.
- (12) Attached to the western elevation of the building are 2 woodcrete bat boxes, and 4 woodcrete bird boxes.
- (13) A mosaic of bare ground, gravel, and grass adjacent to the building. Beyond the metal palisade fencing is a mix of shrubs and scrub including species such as elder (*Sambucus nigra*), laurel, ivy, with Lawson cypress (*Chamaecyparis lawsoniana*) above.
- (14) 10 externally mounted swift bricks on the northern corner of Oxbox.



- Key**
- Application site boundary
 - Target Note
 - A Amenity grassland
 - Buildings
 - Hardstanding
 - Bare ground
 - Introduced shrub
 - Dense continuous scrub
 - Fence
 - Broadleaved tree
 - Coniferous tree



Produced using BosqMap Software
www.bosqmap.co.uk

ECO3231
Oxbox
Phase 1 Habitat Survey
REV 01

Contains Ordnance Survey data © Crown copyright and database right 2023

Appendix 2 – Photographs

Photos 1 and 2 – Oxbox viewed from the south and east.



Photos 3 and 4 – Oxbox viewed from the north and internally.



Photos 5 and 6 – The swift bricks, bat, and bird boxes mounted externally onto Oxbox.



Photos 7 and 8 – Disused mammal holes in the grassland strip to the north



Photo 9 – Bare ground west of Oxbox. Photo 10 – Introduced shrub borders surrounding the car park.



Appendix 3 – 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 2010, 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)	Rhinolophidae
Bats, Typical (all species)	Vespertilionidae
Butterfly, Large Blue	Maculinea arion
Cat, Wild	Felis silvestris
Dolphins, porpoises and whales (all species)	Cetacea
Dormouse	Muscardinus avellanarius
Frog, Pool	Rana lessonae
Lizard, Sand	Lacerta agilis
Moth, Fisher’s Estuarine	Gortyna borelii lunata
Newt, Great Crested (or Warty)	Triturus cristatus
Otter, Common	Lutra lutra
Snail, Lesser Whirlpool Ram’s-horn	Anisus vorticulus
Snake, Smooth	Coronella austriaca
Sturgeon	Acipenser sturio
Toad, Natterjack	Bufo calamita
Turtles, Marine	Caretta caretta
	Chelonia mydas
	Lepidochelys kempii
	Eretmochelys imbricata
	Dermochelys coriacea

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

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

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.

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 4 – 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

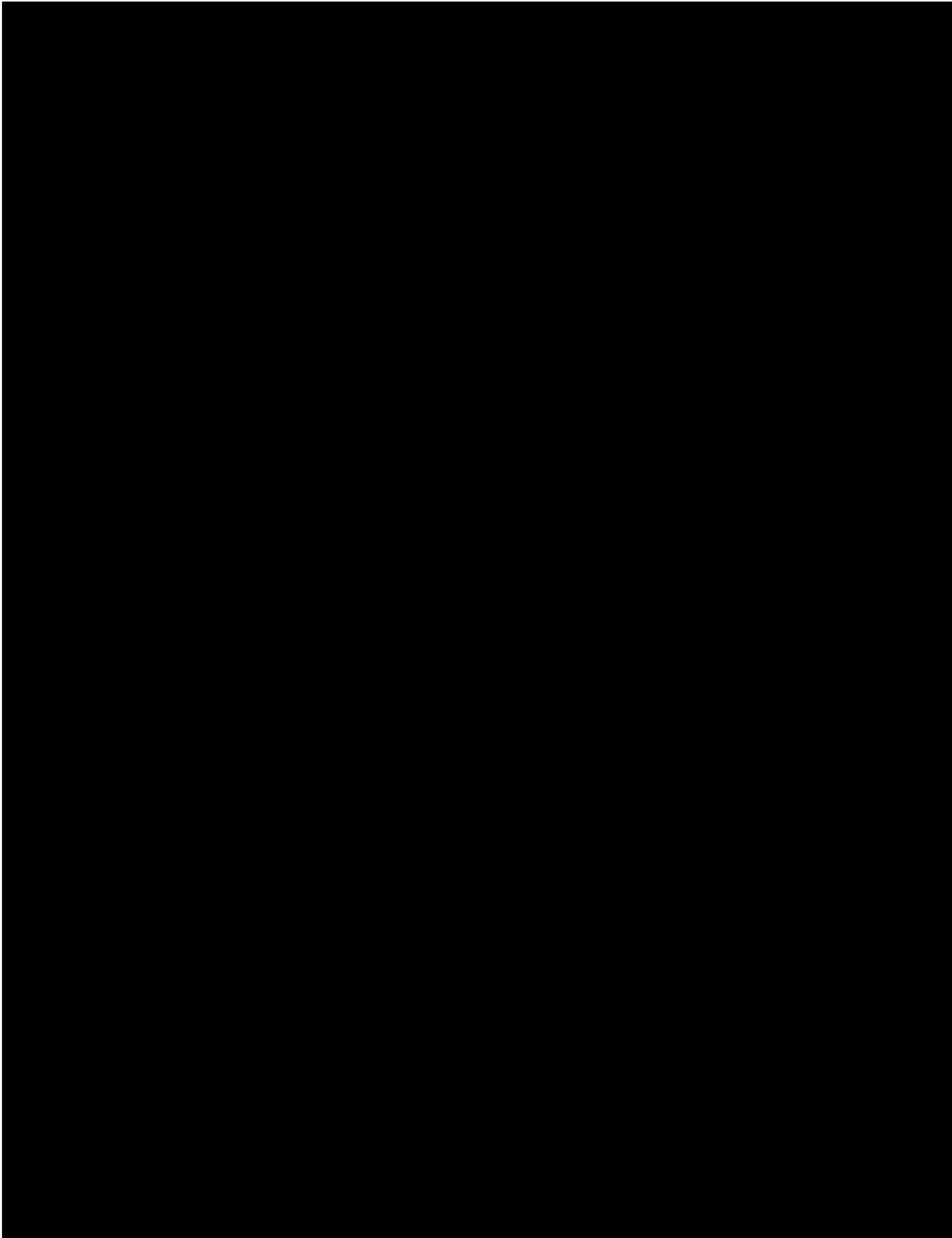
species) in maternity roosts. Once the young have stopped suckling, and the baby is independent, bats tend to disperse and use other roosts. Maternity roosts are particularly vulnerable to disturbance, as bats may have come from a wide geographical area, and have a strong tradition of returning to the same roost year after year.

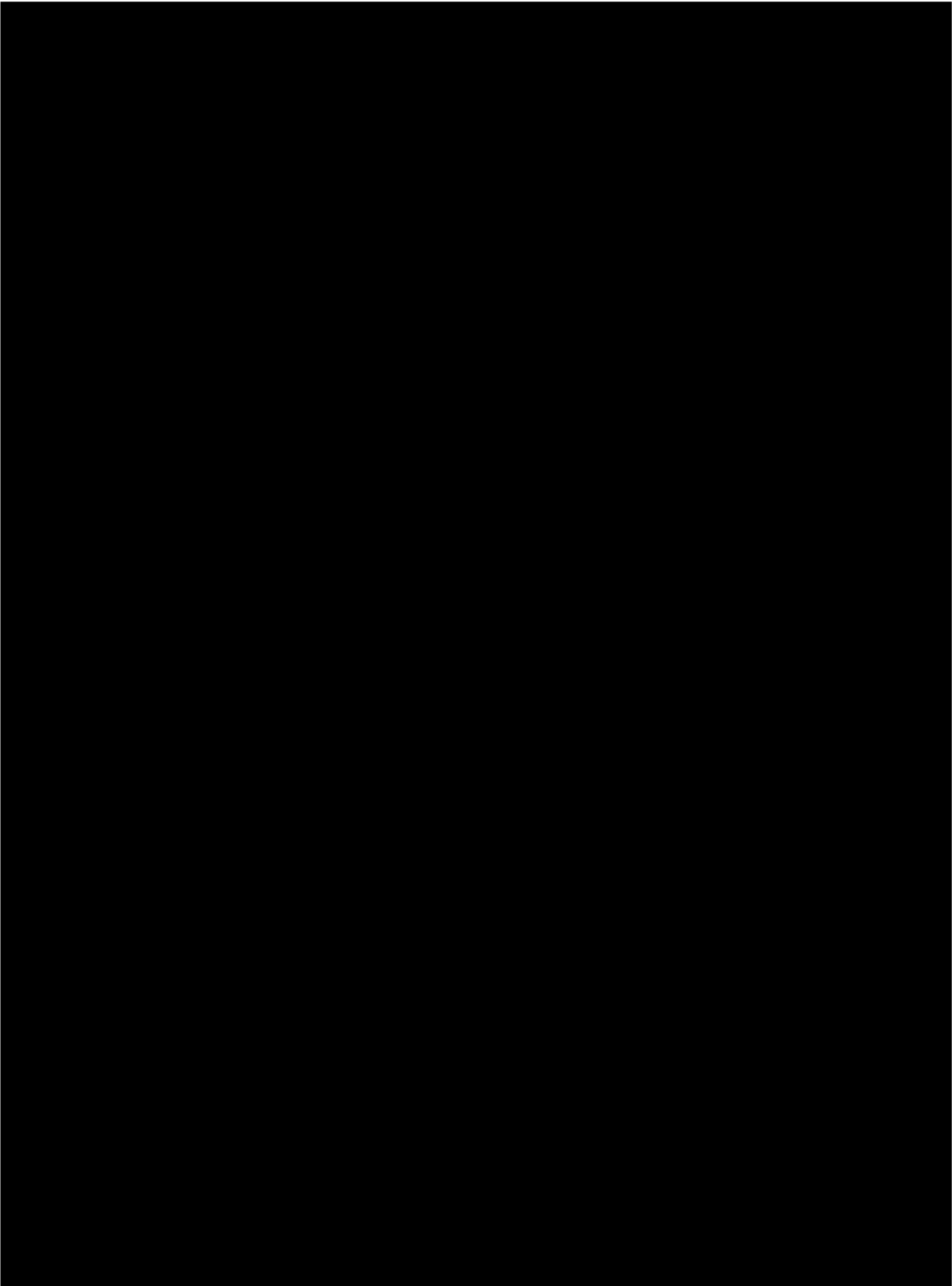
During the late summer and early autumn males occupy mating roosts which are visited by several females. After mating some species gather together at swarming sites to fatten up prior to hibernation.

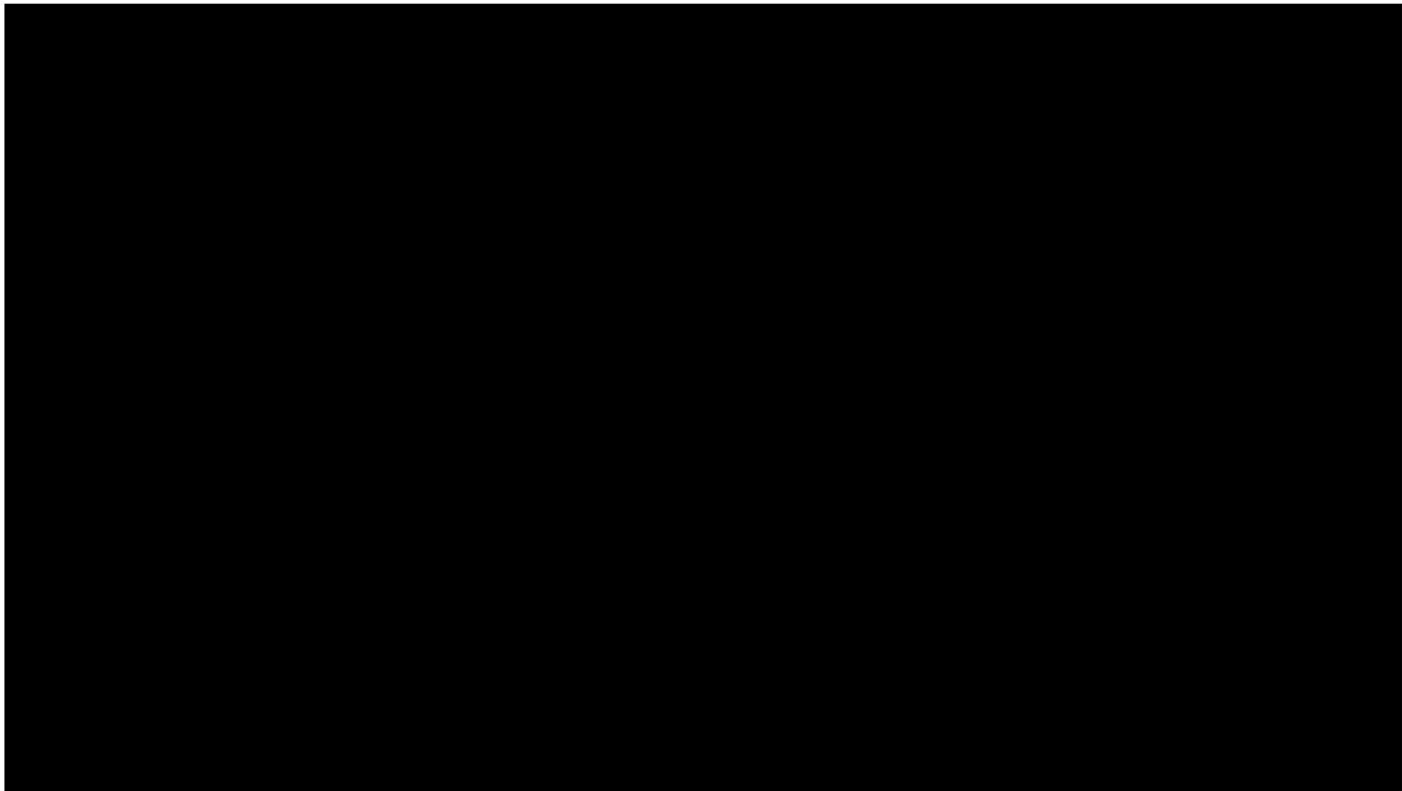
Habitat associations

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 6 - 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 7 – 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

Protected species surveys, e.g. badgers, dormouse, great crested newts

Bat surveys in Oxfordshire, Berkshire, Hampshire, London and Southern England

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