ATC Filton (North Bristol Cadet Super Centre), 2152 Sqn ATC, Pine Grove, Northville, Bristol, BS7 0SL

Ecological Appraisal Report

July 2022

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Ecological Appraisal Report
ATC Filton (North Bristol Cadet Super Centre), 2152 Sqn ATC, Pine Grove, Northville, Bristol, BS7 0SL
for
Wessex RFCA

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This report represents sound industry practice; reports and recommends correctly, truthfully and objectively; is appropriate given the local site conditions; scope of works proposed and resources allocated to us by the client; and avoids invalid, biased, and exaggerated statements.

The author disclaims any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and the author accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Contents

1 EXECUTIVE SUMMARY

1. This report provides information from an ecological appraisal carried out by Hampshire Ecological Services Ltd for Wessex RFCA in connection with a proposal to demolish the existing buildings and construct a new super centre at ATC Filton (North Bristol Cadet Super Centre), 2152 Sqn ATC, Pine Grove, Northville, Bristol, BS7 0SL (approximate Ordnance Survey Grid Reference ST600783). The site location is shown in *Figures 1* and *2*; and a site plan showing the location of the buildings is given in *Figure 3* (see *Section 6*).

2. An ecological appraisal was carried out during the daytime on the 14th April 2022 by Nicola Pyle MCIEEM.

3. The site consists of eleven buildings surrounded mostly by hardstanding with patches of amenity grassland, ornamental planting, shrubs, ruderals and bramble scrub. There are hedges just off site but adjacent to the east boundary. The habitats are shown in the Phase 1 Habitat Survey map given in *Figure 4* (see *Section 6*) with vascular plant species listed in *Appendix C.*

4. The habitats and plant species observed on site are widespread and common; the habitats are of negligible nature conservation value from a botanical perspective.

5. One non-native invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site. This was *Crocosmia* × *crocomiiflora* (Montbretia), which is located next to the north elevation of B5 (*Target Note 17*). It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause any species listed on *Schedule 9* to spread in the wild. Therefore, this will be removed to avoid spreading to the remainder of the site or off-site during site works. Information of the removal of the *Schedule 9* species is given in *Section 5.6.2*.

6. No plant species listed on *Schedule 8* of the *Wildlife and Countryside Act 1981* (as amended) were recorded on the site.

7. The 11 buildings on the site were assessed for their bat roost suitability. Buildings B1, B3, B5, B6 and B8-B11 (*Target Notes 1, 3, 5, 6* & *8-11*) have negligible bat roost suitability. B2 & B4 (*Target Notes 2* & *4*) have moderate bat roost suitability; and B7 (*Target Note 7*) has low bat roost suitability.

8. One dusk and one dawn survey were carried out on B2 & B4, and one dusk survey was carried out on B7. Details of the dates of the surveys, weather and personnel carrying out the surveys is given in *Sections 3.2.2* and *3.2.3*.

9. No bats were observed emerging from or re-entering the buildings. Therefore, they can be demolished without further surveys or constraints regarding bats (subject to any planning constraints).

10. Common pipistrelles were seen commuting and foraging in the vicinity of the buildings and noctules were heard. The results of the surveys are given in full in *Appendix C* and plans illustrating the bat activity (observations only) during the surveys are given in *Figures 5-9* in *Section 6*.

11. All of the trees on site have negligible bat roost suitability. Any trees just off site should be protected (where appropriate) during construction (see *Section 5.6*).

12. The trees and shrubs along the site boundaries provide some foraging habitat for bats. They also link to a network of hedges, tree-lines and strips of woodland providing links into and from the wider landscape in all directions. In addition, the Millennium Green Nature Reserve is on the eastern boundary of the site and also provides high-quality foraging habitat for a number of different species of bat.

13. There is no suitable habitat for dormice around the edges of the site. Therefore, no impacts are anticipated on dormice in the area and no further surveys are currently proposed.

14. No badger setts or evidence of badger activity was found.

15. There is no suitable habitat for nesting birds on site due to the shrubs and brambles being thin and young and not offering enough support or protection for a bird's nest. However, in the unlikely event that any active nests are found prior to or during works, a 5m buffer zone should be established around them and be temporarily fenced off to prevent plant or personnel disturbing the nest until the end of the breeding bird season (or until the nest is no longer in use).

16. There is no suitable foraging and hibernating habitat for reptiles on site. Therefore, no impacts are anticipated on reptiles and no further surveys are proposed.

17. To minimise the impact on the retained trees and hedges, Heras fencing or similar should be used to protect the roots of the trees and bushes during construction. The guidance provided in BS 5837 *Trees in relation to Construction* provides further advice.

18. National Planning Policy Framework (NPPF 2021) states "*opportunities to incorporate biodiversity in and around developments should be encouraged*" as part of the consideration for "*presumption in favour of sustainable development*". Therefore, the following outline enhancements are proposed in order to provide a net gain in biodiversity:
    - Hedgerows will be planted around the edges using the native species in *Section 5.6.3* and under-sown with Emorsgate seed mix EH1 Hedgerow mixture (or equivalent).
    - External lighting will not be installed near to or directed onto any planting carried out following construction to enhance the site so that light disturbance will not be a problem for bats.
    - The site will be enhanced for birds through the provision of three bird boxes as follows:

- one multi-chamber box suitable for house sparrows, such as a Schwegler 1SP sparrow terrace or Vivara Pro WoodStone House Sparrow Nest Box;
- one 28mm hole bird box, such as a Vivara Pro Seville 28mm Woodstone Nest Box, suitable for blue tits and coal tits; and
- one 32mm hole bird box, such as a Vivara Pro Seville 32mm Woodstone Nest Box, suitable for blue tits and great tits.

The proposed bird boxes are summarised in *Table 5.6.5.1*.

- To enhance the site for invertebrates, two insect bricks or boxes (hotels or towers) will be installed. The boxes should be suitable for a range of invertebrates. The boxes will be positioned in a warm sunny spot, preferably on a south-facing wall, close to vegetation but with no vegetation in front of the holes. The boxes in *Table 5.6.6.1* have been chosen so that they form an attractive feature as part of the landscaping for the site.

19. This survey data is valid for a maximum of 12 months. If more than 12 months elapse after completion of all surveys, it may be advisable to conduct further survey work to obtain up-to-date information prior to commencement of construction to ensure protected species compliance.

20. The site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*). None of these will be directly affected by this small-scale development and all links will be maintained.

21. There has been one great crested newt European Protected Species (EPS) licence granted (*c.*1866m north of the site). Due to the distance and lack of commuting habitat, it is unlikely that the current proposals will impact this great crested newt populations.

2 INTRODUCTION

2.1 Purpose of this report

This report provides information from an ecological appraisal carried out by Hampshire Ecological Services Ltd for Wessex RFCA in connection with a proposal to demolish the existing buildings and construct a new super centre at ATC Filton (North Bristol Cadet Super Centre), 2152 Sqn ATC, Pine Grove, Northville, Bristol, BS7 0SL (approximate Ordnance Survey Grid Reference ST600783). The site location is shown in *Figures 1* and *2* in *Section 6*.

2.2 Site description

The site consists of eleven buildings with an alley to the east. A site plan is given in *Figure 3* in *Section 6*.

The site is on the south side of Pine Grove, in the heart of Northville. The immediate surroundings consist of residential housing to the north and west, and the Millennium Green Nature Reserve to the east and south. In the wider landscape, the urban area extends in all directions with small areas of grassland and parks.

2.3 Proposed activities

This survey was carried out in connection with a proposal to demolish the existing buildings and construct a new super centre with a car park.

2.4 Current planning status

Planning permission is being applied for.

2.5 Structure of this report

This report is structured as follows:

- *Section 1* contains the executive summary;
- *Section 2* contains an introduction;
- *Section 3* describes the survey methods;
- *Section 4* describes the results;
- *Section 5* evaluates the findings;
- *Section 6* contains the figures including:
  - *Figure 1* gives aerial photographs showing the site location;
  - *Figure 2* gives an Ordnance Survey map showing the location of the site;
  - *Figure 3* gives a site plan showing the buildings surveyed;
  - *Figure 4* gives a Phase 1 Habitat Survey map for the site; and
  - *Figures 5-9* illustrate the bat activity recorded during the dusk and pre-dawn re-entry surveys.
- *Section 7* gives photographs of the site;
- *Section 8* lists the references;
- *Appendix A* lists key legislation and regulations;
- *Appendix B* gives the target notes;
- *Appendix C* lists vascular plant species recorded on site;
- *Appendix D* lists the proposed seed mix composition;
- *Appendix E* gives the data from the bat activity surveys.

3 METHODS

3.1 Desk study

The *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) was used to search for designated sites on or adjacent to the site including Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. The search area was 5km for SAC and SPA sites and 2km for LNRs, NNRs, Ramsar sites and SSSIs, as specified in Bristol's *Biodiversity Checklist*. The search area is also 500m for Local Wildlife Sites (LWSs) and ancient semi-natural and ancient replanted woodlands.

In addition, the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) was used to search for granted European Protected Species (EPS) licences within 2km of the site.

A data search from the Bristol Biodiversity Information Centre (BBIC) has not been commissioned in relation to this site.

3.2 Field survey

3.2.1 General

An ecological appraisal was carried out on this site. This type of survey is not designed to prove presence or absence of significant or protected species; it is used to highlight habitat that is suitable and to identify where further work to show presence or absence is required. However, in some circumstance's species can be ruled out because there is unsuitable habitat or barriers to inward migration.

Significant species were defined as follows:

- European Protected Species (listed on *Schedules 2* and *5* of the *Conservation of Habitats & Species Regulations 2017)*;
- nationally protected species under *Schedules 1, 5* and *8* of the *Wildlife & Countryside Act 1981*, the *Protection of Badgers Act 1992* (as amended) and the *Deer Act 1991*;
- non-native pest species listed on *Schedule 9* of the *Wildlife & Countryside Act 1981* (as amended);
- species listed as Critically Endangered, Endangered or Vulnerable on the *IUCN Red List*;
- all species listed on the RSPB *Birds of Conservation Concern 2015* as Red or Amber; and
- Nationally Rare or Nationally Scarce species.

3.2.2 Dates, time and weather

An ecological appraisal was carried out during the daytime on the 14th April 2022. The weather was 13ºC and dry with 90% cloud cover and calm (Beaufort scale 0).

Subsequently, bat activity (emergence and re-entry) surveys were carried out on buildings B2 & B4. Details of the dates, weather and times of these surveys are given in *Table 3.2.2.1.*

Table 3.2.2.1. Dates, times and weather conditions during the dusk emergence/ pre-dawn re-entry surveys.

Date	**Building(s)**	**Start time**	**End time**	**Sunset/ sunrise**	**Temperature at start & end (ºC)**	**Wind (Beaufort scale)**	**Cloud Cover (%)**
13/06/2022	B7	21:13	22:58	21:28	15ºC - 13ºC	0	0%
14/06/2022	B2 & B4	03:23	05:08	04:53	10ºC - 10ºC	0	0%
04/07/2022	B2 & B4	21:14	22:45	21:29	17ºC - 15ºC	3	80%

The emergence surveys commenced fifteen minutes before sunset and continued for an hour and a half after sunset (long after bats would have exited). The re-entry survey commenced an hour and a half before sunrise and continued for fifteen minutes after sunrise. The weather was suitable for bat emergence and foraging during all the surveys.

3.2.3 Personnel

The initial survey was carried out by Nicola Pyle MCIEEM who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She has over 15 years of experience in ecological consultancy and is a highly competent ecologist trained in Phase 1 Habitat Survey and protected species surveys. She is a multi-species licence holder and holds a Natural England licence allowing the disturbance and handling of bats for the purposes of survey in all counties of England (current Bat Class Licence Registration number 2015-18259-CLS-CLS).

Personnel carrying out the dusk emergence and pre-dawn re-entry surveys are given in *Table 3.2.3.1*. All surveyors are experienced in carrying out bat surveys using detectors.

Table 3.2.3.1. Personnel carrying out the bat activity surveys.

Date	Building	Surveyors			
13/06/22	B7	Jess Dangerfield	Aurora Gonzalo-Tarodo	-	-
14/06/22	B2 & B4	Jess Dangerfield	Eleanor Hewins	Laura Boggeln	Hazel Atashroo
04/07/22	B2 & B4	Jess Dangerfield	Eleanor Hewins	Lewis Hillier	Sam Davis

This report was reviewed by John Poland CEnv MCIEEM CBiol MSB, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), a Chartered Environmentalist (CEnv), a Chartered Biologist (CBiol) and multi-species licence holder with 20 years of experience in ecological consultancy and Victoria Russell MCIEEM who is also a full member

of the CIEEM and multi-species licence holder with over 23 years of experience in ecological consultancy.

All staff adhere to the Chartered Institute of Ecology and Environmental Management's (CIEEM) *Code of Professional Conduct*.

3.2.4 Botanical surveys - Phase 1 Habitat Survey

The botanical surveys in this report are based on the Phase 1 Habitat Survey methodology (Joint Nature Conservation Committee 2003) and involve the following elements: habitat mapping using a set of standard colour codes to indicate habitat types on a Phase 1 Habitat Survey map; and descriptions of habitats and features of ecological or nature conservation interest relating to locations on the Phase 1 Habitat Survey map.

Basic Phase 1 Habitat Survey methods are described in detail in Joint Nature Conservation Committee (JNCC, 2003). Limits to the method are discussed in Cherrill & McClean (1999).

Plant species lists were compiled for the various habitat types on the site. Subjective estimates of the relative abundance of species were added to the plant species list using a DAFOR scale. The DAFOR scale ranks species according to their relative abundance in a given parcel of land as follows: d – dominant, a – abundant, f – frequent, o – occasional, r – rare. The terms 'abundant' and 'rare' are used by convention and apply only to relative-abundance within the recorded area. It does not mean that species are 'rare' in the general sense.

Plant nomenclature in this report follows Poland & Clement (2009) for native, naturalised and garden species of vascular plant. Plant names in the text are given with scientific names first, followed by the English name in brackets.

3.2.5 Animal surveys

General

The habitat was assessed to determine whether or not it is suitable for those protected vertebrates that occur in the region. Initial surveys do not usually confirm species presence or absence, but obvious signs and incidental sightings of protected species would have been noted had they been encountered.

An assessment was made of the likelihood of protected vertebrates using the site. Taking into consideration the geographical region and habitat type, species and groups that might be encountered are:

- bats;
- dormice;
- [redacted]
- nesting birds; and
- reptiles.

According to aerial photographs (GoogleEarth™) and online Ordnance Survey 1:25,000 maps, there are no ponds within 500m or rivers on or adjacent to the site, therefore great crested newt, otter and water vole are not considered further.

Details of initial survey methods for each of the relevant species that might have been encountered are given below and an overview of the legal protection of the species and groups is provided in *Appendix A*.

Bats

General

The survey for bats concentrated on identifying foraging opportunities and potential roost locations or hibernation sites.

Building assessment

Because bats are crevice-dwelling mammals it is often difficult to thoroughly inspect buildings for bats and evidence of bats without a destructive search, which is not generally legal, practical or acceptable. Examples are where bats roost between the roofing felt and tiles, around window frames and behind barge boards. These areas cannot be inspected, but a surveyor would know that bats might roost here because there are places where bats could gain entry. A pipistrelle bat is small enough to fit into a match box and can roost in gaps just 14-20mm wide.

The building was assessed for its **bat roost suitability** according to the following factors that influence the likelihood of bat roosting:

- Surrounding habitat: whether there are potential flight-lines and bat foraging areas nearby.
- Construction detail: the type and construction of architectural features such as voids, barge boards, soffit boxes, lead flashing, cavity walls and hanging tiles that could be used by roosting bats. Some construction details and materials are more favourable to bat occupation than others.
- Building condition: whether the building has no roof or has a sound roof without any potential bat access points.
- Internal conditions: bats favour sheltered locations with a stable temperature regime, protection from the elements and little wind/light/rain penetration.
- Potential bat access points: whether there is flight and crawl access.
- Potential roosting locations: the presence of bat-accessible voids, cracks and crevices.

The risk of bat roosts being present will be lower where structures have:

- Urban setting with little greenspace.
- Heavy disturbance.
- Small, cluttered roof void (particularly for brown long-eared).
- Modern construction with few gaps or crevices that bats can fly or crawl through (although pipistrelles may still be present).
- Prefabricated of steel or sheet materials.
- Active industrial premises.

The above list provides generic criteria and there are exceptions to consider. For example, pipistrelle roost sites are often found in modern housing estates and therefore the absence of bats from such locations should not always be assumed.

Tree assessment

Detailed surveys of individual trees along the boundaries were not carried out. However, features such as holes and crevices that could be used by roosting bats were noted and their overall bat roost suitability was assessed. If any mature trees are subsequently to be removed or if tree surgery (*e.g.* crown-lifting) is required, then a bat survey at an appropriate time of year may be required.

Following the internal and external inspections, the building and trees are assigned a level of suitability for being used by roosting bats. This is based on the criteria in *Table 3.2.5.1* (Collins, 2016).

Table 3.2.5.1. Bat Roost Suitability.

Suitability	**Description of roosting habitats**	**Description of commuting and foraging habitats**
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure/tree 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).	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) or a patch of scrub.
Moderate	A structure/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)	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure/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.	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. The site is close to and connected to known roosts.

<u>Assessment of commuting and foraging habitat</u>

Bats use a variety of habitats for foraging, in particular hedgerows, woods and water bodies, and roost in a range of structures including buildings, trees, bridges and caves. Areas that could be used for foraging were noted.

Dormice

The site was assessed for habitat with the potential to support dormice. Habitats typically suitable for dormice include:

- deciduous woodland, with a dense understory, species-rich shrub-layer and thick ground cover;
- continuous, thick, wide hedgerows over 4m high with connections to nearby suitable woodland;
- hazel or sweet chestnut coppice; or
- thick continuous areas of scrub, particularly bramble, close to hedgerows or woodlands.

Birds

Habitat that might be used by nesting birds was identified. Different bird species use buildings, trees and shrubs, undergrowth or even open fields to nest. The suitability of the site for use by a range of bird species was assessed, giving consideration to factors such as cover, food, disturbance and other habitat requirements.

Widespread species of reptile

The site was assessed for widespread species of reptile, with particular attention paid to those features that could be used as basking areas (*e.g.* south-facing slopes), hibernation sites (*e.g.* banks, walls, piles of hardcore) and opportunities for foraging (rough grassland and scrub). The site was assessed for its suitability for each of the four widespread reptile species which have broadly similar habitat requirements. However, more specific requirements include the following (Beebee & Griffiths 2000):

- common lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to walls and pastures, although one of their favoured habitats is rough grassland;
- slow-worms (*Anguis fragilis*) use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land;
- grass snakes (*Natrix natrix*) have broadly similar requirements to common lizards with a greater reliance on ponds and wetlands, where they prey on common frogs; and
- adders (*Vipera berus*) use a range of fairly open habitats with some cover, but are most often found in dry heath.

Reptile activity is highly seasonal; they hibernate over the winter (October to March) and are active over the summer months. They become increasingly active as temperatures increase in spring, and in most years they are fully active by mid-April. Reproduction varies between species, but generally

peaks in mid-summer when reptiles are at their most active. In late September/ October, activity begins to decrease as reptiles seek frost-free refuges for hibernation.

4 RESULTS

4.1 Desk study

4.1.1 Designated sites

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby. These are listed in *Table 4.1.1.1.*

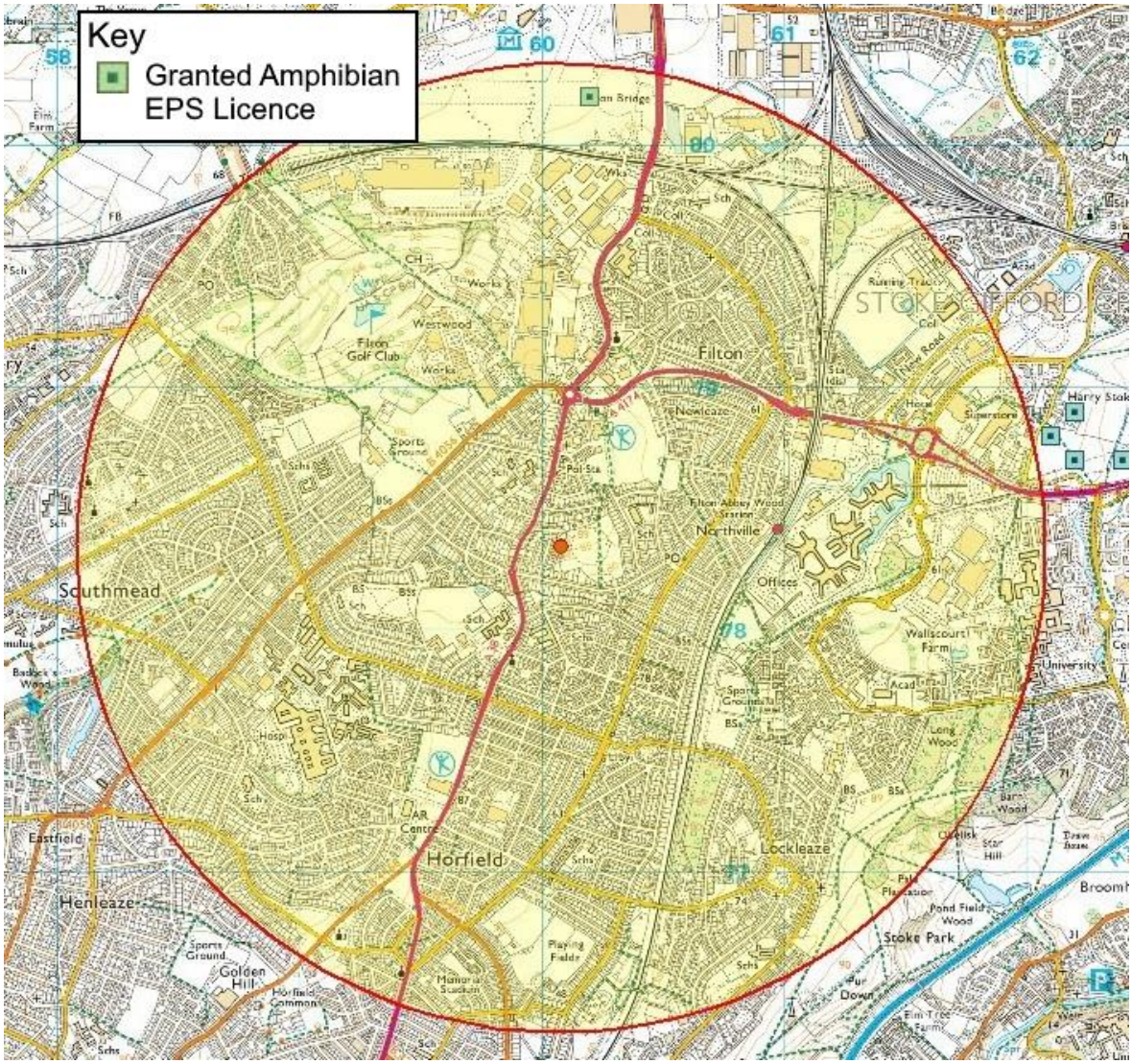
Table 4.1.1.1. Statutory designated sites; non-statutory designated sites and ancient semi-natural and ancient replanted woodlands within the designated search areas of the site.

Level of designation	**Designation**	**Name**	**Distance & direction from site**
International	SPA	-	-
	Ramsar	-	-
	SAC	-	-
National	SSSI	Pen Park Hole	*c.*1711m north-west
	NNR	-	-
County	LNR	Badocks Wood	*c.*1740m west
Local	LWS	-	-
	Ancient woodland	-	-

4.1.2 European Protected Species

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there has been one granted European Protected Species (EPS) licence within 2km of the site. This licence (*c.*1866m north of the site) allows the destruction of a breeding site and resting place of great crested newts. It was granted on the 13th August 2018. The location is shown in *Figure 4.1.2.1.*

Figure 4.1.2.1. Location of sites with granted EPS licences within 2km of the site. The site location is shown by a red dot.



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4.2 Habitats and plant species

4.2.1 Habitats

The site contains eleven buildings surrounded mostly by hardstanding with patches of amenity grassland, ornamental planting, shrubs, ruderals and bramble scrub. There are hedges adjacent to the east boundary, just outside the boundary.

The amenity grassland (*Target Note 12*) has a sward dominated by the grass *Lolium perenne* (Perennial Rye-grass) with an abundance of *Bellis perennis* (Daisy). Also present are the forbs *Plantago lanceolata* (Ribwort Plantain), *Potentilla erecta* (Tormentil)*Ranunculus repens* (Creeping Buttercup), *Taraxacum officinale* agg. (Dandelion) and *Veronica chamaedrys* (Germander Speedwell), as well as some *Myosotis sylvatica* (Wood Forget-me-not). There are also small amounts of the shade and disturbance tolerant herbs *Anthriscus sylvestris* (Cow Parsley), *Galium aparine* (Cleavers), *Geranium robertianum* (Herb-Robert), *Geum urbanum* (Wood Avens), *Lamium*

purpureum (Red Dead-nettle), *Medicago lupulina* (Black Medick), *Senecio jacobaea* (Common Ragwort) and *Urtica dioica* (Common Nettle).

The ruderal vegetation (*Target Note 13*) is composed of the occasional *Geranium molle* (Dove's-foot Crane's-bill), *Geranium robertianum* (Herb-Robert) and *Taraxacum officinale* agg. (Dandelion) with smaller amounts of *Carex pendula* (Pendulous sedge), *Hyacinthoides* × *massartiana* (Hybrid Bluebell), *Picris echioides* (Bristly Oxtongue), *Rumex obtusifolius* (Broad-leaved Dock) and *Sonchus oleraceus* (Smooth Sow-thistle).

There is ornamental planting mixed with native species (*Target Note 14*) by the north elevation of building 5 and the east elevations of buildings 3 and 11. These areas have a varying mixture of small amounts of *Crocosmia* × *crocomiiflora* (Montbretia), *Pentaglottis sempervirens* (Green Alkanet) and *Viola riviniana* (Common Dog-violet) with the ornamental tree *Cordyline australis* (Caggabe Palm).

There is a small group of shrubs adjacent to the east elevation of building 5 (*Target Note 15*). These include *Buddleja davidii* (Butterfly-bush) and *Cornus sanguinea* (Dogwood) with immature *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash). Growing over the fence and wall to the east of building 5, is the evergreen creeper *Hedera helix* (Ivy). Growing below the shrubs is small amounts of the shade-tolerant herb *Arum maculatum* (Lords-and-Ladies).

Adjacent to the south elevation of building 1 is a patch of thin *Rubus fruticosus* agg. (Bramble) scrub (*Target Note 16*).

Adjacent to the east of the site, just off the site, are two hedges comprised of *Crataegus monogyna* (Hawthorn) with the evergreen creeper *Hedera helix* (Ivy) dominating the field-layer (*Target Notes 18* & *19*). The southern section of the hedge also contains smaller amounts of *Corylus avellana* (Hazel) and *Prunus spinosa* (Blackthorn) and *Acer pseudoplatanus* (Sycamore) saplings.

A Phase 1 Habitat Survey map showing the location of the various habitats is given in *Figure 4* (see *Section 6*).

4.2.2 Plant species

One non-native invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site. This is *Crocosmia* × *crocomiiflora* (Montbretia), which is located next to the north elevation of B5. (*Target Note 17*).

Vascular plant species recorded from each habitat type (along with relative abundance) are given in *Appendix C*.

4.3 Protected vertebrates

4.3.1 Bats

Bat roost suitability of buildings

Eleven buildings on the site were assessed for their bat roost suitability: B1, B2, B3, B4, B5, B6, B7, B8, B9, B10 & B11. The construction details and photographs of the buildings are summarised in *Tables 4.3.1.1 – 4.3.1.3.*

Table 4.3.1.1. Summary of the buildings' construction details.

Type/Name	**B1**	**B2**	**B3**	**B4**
Description	A single-storey wooden building with a flat roof.	A single-storey brick building with a corrugated metal sloped roof.	A single-storey timber portacabin with a pitched, corrugated metal roof.	A single-storey breeze block building with a pitched, concrete tile roof.
No. of storeys	1	1	1	1
Roof type	Flat	Sloped	Pitched	Pitched
Roof cladding	Unknown	Corrugated metal	Corrugated metal	Concrete tile
Ridge	N/A	N/A	N/A	Concrete tile
Wall type	Wooden with render	Brick	Timber	Breeze block
Exterior	Rotting render	-	Soffits	Soffits
Photos	North elevation 	North elevation 	North elevation 	North elevation 

	East elevation 	East elevation 	East elevation 	East elevation 
	South elevation 	South elevation 	South elevation 	South elevation 
	West elevation 	West elevation – obstructed by vegetation	West elevation 	West elevation 
Building dimensions	*c.*14.0m wide x *c.*9.0m long	*c.*4.3m wide x *c.*4.0m long	*c.*15.0m wide x *c.*8.7m long	*c.*9.9m wide x *c.*5.6m long

Roof void description	Vaulted ceiling	Vaulted ceiling	Uncluttered and floor lined with fibreglass insulation	Uncluttered and floor lined with fibreglass insulation
Frame	Unknown	Wooden frame	Wooden frame and ridge beam	Wooden frame and ridge beam
Roof lining	Unknown	Foil insulation	None	Bitumen roofing felt
Roof void dimensions	*c.*14.0m wide x *c.*9.0m long 	*c.*4.3m wide x *c.*4.0m long 	*c.*15.0m wide x *c.*8.7m long 	*c.*9.9m wide x *c.*5.6m long 
Roof void height	N/A	N/A	*c.*0.5m	*c.*0.5m
Potential roosting locations	None	In the cavity wall through gaps in the external brickwork.	None	Against the ridge beams in the roof void. Holes in the soffits and areas where the bitumen roof lining has ripped could allow bats to access the roof void.
Bat evidence	None	None	None	None
Bat suitability	**Negligible**	**Moderate**	**Negligible**	**Moderate**
Further surveys needed?	No	Yes, two dusk emergence and/ or dawn re-entry surveys	No	Yes, two dusk emergence and/ or dawn re-entry surveys

Table 4.3.1.2. Summary of the buildings' construction details.

Type/Name	**B5**	**B6**	**B7**	**B8**
Description	A single-storey concrete panel building with a pitched, corrugated asbestos roof.	A single-storey timber portacabin with a pitched roof.	A single-storey breeze block building with a pitched, tiled roof.	A single-storey concrete rendered building with a pitched, corrugated metal roof.
No. of storeys	1	1	1	1
Roof type	Pitched	Pitched	Pitched	Pitched
Roof cladding	Corrugated asbestos	Felt	Tile	Corrugated metal
Ridge	Asbestos	Felt	Tile	Metal
Wall type	Concrete panel	Timber	Breeze block	Concrete rendered
Exterior	Climbing plants	-	-	Rendered walls
Photos	North elevation – no access as adjacent to B4	North elevation 	North elevation 	North elevation 

	East elevation 	East elevation 	East elevation 	East elevation 
	South elevation 	South elevation 	South elevation 	South elevation 
	West elevation 	West elevation 	West elevation – obstructed by vegetation	West elevation – obstructed by vegetation
Building dimensions	*c.*8.4m wide x *c.*15.2m long	*c.*13.2m wide x *c.*19.3m long	*c.*9.2m wide x *c.*3.5m long	*c.*4.3m wide x *c.*4.7m long

Roof void description	Vaulted ceiling	Vaulted ceiling	Open to rafters	Vaulted ceiling
Frame	Wooden beams and ridge beam	Unknown – ceiling boarded over	Wooden beams and ridge beam	Wooden beams
Roof lining	Wooden sarking	Unknown – ceiling boarded over	Bitumen roofing felt	Unknown – ceiling boarded over
Roof void dimensions	N/A – vaulted ceiling 	N/A – vaulted ceiling 	N/A – open to the rafters 	N/A – vaulted ceiling 
Roof void height	N/A – vaulted ceiling	N/A – vaulted ceiling	N/A – open to the rafters	N/A – vaulted ceiling
Potential roosting locations	None	None	Gaps in the soffits allowing bat access into the roof void.	None
Bat evidence	None	None	None	None
Bat suitability	**Negligible**	**Negligible**	**Low**	**Negligible**
Further surveys needed?	No	No	Yes, one dusk emergence survey	No

Table 4.3.1.3. Summary of the buildings' construction details.

Type/Name	**B9**	**B10**	**B11**
Description	A single-storey breeze block building with a pitched, corrugated metal roof.	A single-storey timber building with a pitched, bitumen felt roof.	A single-storey timber portacabin with a pitched, bitumen felt roof.
No. of storeys	1	1	1
Roof type	Pitched	Pitched	Pitched
Roof cladding	Corrugated metal	Bitumen felt	Bitumen felt
Ridge	Metal	Bitumen felt	Bitumen felt
Wall type	Breeze block	Timber	Timber
Exterior	-	-	-
Photos	North elevation 	North elevation 	North elevation 

	East elevation 	East elevation 	East elevation 
	South elevation 	South elevation 	South elevation 

	West elevation – obstructed by vegetation	West elevation 	West elevation 
Building dimensions	*c.*2.9m wide x *c.*5.0m long	*c.*15.0m wide x *c.*8.7m long	*c.*7.5m wide x *c.*10.2m long
Roof void description	Open to rafters	Vaulted ceiling	Vaulted ceiling
Frame	Wooden beams and ridge beam	Unknown – boarded ceiling	Unknown – boarded ceiling
Roof lining	Wooden sarking	Unknown – boarded ceiling	Unknown – boarded ceiling
Roof void dimensions	N/A – open to the rafters 	N/A – vaulted ceiling 	N/A – vaulted ceiling 

Roof void height	N/A – open to the rafters	N/A – vaulted ceiling	N/A – vaulted ceiling
Potential roosting locations	None	None	None
Bat evidence	None	None	None
Bat suitability	**Negligible**	**Negligible**	**Negligible**
Further surveys needed?	No	No	No

Buildings with bat roost suitability

The majority of the roof of B2 appears well-sealed and in good condition. However, there are a few potential bat access points into the cavity wall that could provide potential roosting locations for bats. The locations and details of potential bat access points are illustrated in *Images 4.3.1.1 – 4.3.1.2*.

Image 4.3.1.1. Location of potential bat access points on the east elevation of B2.

Image 4.3.1.2. Location of potential bat access points on the south elevation of the B2.

The majority of the roof of B4 appears well-sealed and in good condition. However, there are a few potential bat access points into the roof void that could provide potential roosting locations for bats. The locations and details of potential bat access points are illustrated in *Images 4.3.2.1 – 4.3.2.2*.

Image 4.3.2.1. Location of potential bat access points on the east elevation of B4.

Image 4.3.2.2. Location of potential bat access points on the west elevation of the B4.

The majority of the roof of B7 appears well-sealed and in good condition. However, there are a few potential bat access points into the roof void that could provide potential roosting locations for bats. The locations and details of potential bat access points are illustrated in *Images 4.3.3.1 – 4.3.3.2*.

Image 4.3.3.1. Location of potential bat access points on the east elevation of B7.

Image 4.3.3.2. Location of potential bat access points on the south elevation of the B7.

Buildings with negligible bat roost suitability

B1, B3, B5, B6, B8, B9, B10, and B11appear well-sealed and in good condition. Due to the absence of these potential access points, and suitable roosting locations, these buildings are classed as having negligible suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

Bat roost suitability of trees

All of the trees on site have negligible bat roost suitability.

Bat activity surveys (dusk emergence & pre-dawn re-entry)

No bats were observed emerging from or re-entering buildings B2, B4 & B7.

Common pipistrelles and noctule bats were recorded flying in the vicinity of the buildings and on the site indicating the weather was suitable for bat activity on all occasions. The full data from the activity surveys (dusk emergence and pre-dawn re-entry surveys) is given in *Appendix E* and plans illustrating the bat activity (observations only) during the surveys are given in *Figures 5-9* in *Section 6*.

Commuting and foraging habitat

The trees and shrubs along the site boundaries provide some foraging habitat for bats. They also link to a network of hedges, tree-lines and strips of woodland providing links into and from the wider landscape in all directions. In addition, the Millennium Green Nature Reserve is on the eastern boundary of the site and provides high-quality foraging habitat for a number of different species of bat.

Bats follow linear landscape features such as lines of trees, hedges, buildings and waterways in order to commute from their roost sites to their feeding grounds. Likewise they use these features to navigate between feeding areas and alternative roosts.

4.3.2 Dormice

There is no suitable habitat for dormice on site and there are no publicly available dormouse records within 2km of the site.

4.3.4 Birds

There is no suitable habitat for nesting birds on site due to the shrubs and brambles being thin and young and not offering enough support or protection for a bird's nest.

4.3.5 Widespread species of reptile

The grassland on site is mown short and although the brambles and hedges offer some limited habitat for foraging reptiles this is isolated due to the surrounding habitat and unlikely to support reptiles.

5 INTERPRETATION AND EVALUATION

5.1 Constraints on the survey

5.1.1 Constraints on survey data

Detailed searches often result in the discovery of evidence of bats. However, although such surveys can identify the presence of bats it is more difficult to prove absence due to the crevice-dwelling nature of these elusive mammals. Bat droppings may be missed where there is debris to obscure them (and also, very old droppings generally crumble away to dust).

B6, B10 & B11 did not have a loft hatch therefore the roof void was inaccessible. However, this is not thought to have altered the results.

5.1.2 Constraints on the mitigation, compensation and enhancement measures

There is a limit to the amount of enhancement measures that are possible (and reasonable) under the current plans for a single-storey replacement building.

As the buildings either have negligible bat roost suitability or have been surveys and had no bats emerging and/ or re-entering them, no mitigation or compensation measures are needed.

5.2 Survey report expiry

This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapse it may be advisable to conduct further survey work to obtain up-to-date information to advise work, thereby ensuring protected species compliance.

Survey data supporting licence applications must be up-to-date *i.e.* have been conducted within the current or most recent optimal survey season (May to August for bats). Therefore, if surveys show bats are present and licensable work is delayed until, during or after the next survey season, updated survey(s) will be required to support an application.

Given the mobility of bats, it is recommended that a walkover of the site to update the survey information is undertaken prior to the development commencing, if this does not occur before the end of July 2023.

5.3 Legal context

Habitat has been identified on site that is suitable for protected species. Different species are afforded different levels of protection; as detailed in *Appendix A.*

The site is not designated for its wildlife interest at an international, national or local scale.

5.4 Potential impacts of the proposed development

5.4.1 Desk study

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*). None of these will be directly affected by this small-scale development and all links will be maintained.

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there has been one great crested newt European Protected Species (EPS) licence granted (*c.*1866m north of the site). Due to the distance and lack of connecting habitat, it is unlikely that the current proposals will impact this great crested newt population.

5.4.2 Habitats and plants

The habitats and plant species observed on site are widespread and common and as such have no conservation importance from a botanical point of view.

One non-native, invasive plant species that is listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site. This is *Crocosmia* × *crocomiiflora* (Montbretia), which is located next to the northern elevation of B5.

Crocosmia × *crocomiiflora* (Montbretia) primarily spreads via corms and rhizomes. Rhizome fragments only require a small fragment with a single corm (food source) to grow. Therefore, it can create new colonies elsewhere if broken and moved in contaminated soil. If undisturbed it can form dense stands which can cover large areas. This shades out and outcompetes native plants. There are various options for its removal including hand-pulling, excavation (hand tools or mechanical) and herbicide application.

It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause any species listed on *Schedule 9* to spread in the wild. Therefore, this will be removed to avoid spreading to the remainder of the site or off-site during site works. Information of the removal of the *Schedule 9* species is given in *Section 5.6.2*.

5.4.3 Bats

Buildings with bat roost suitability

No bats were recorded emerging from or re-entering buildings B2, B4 or B7. Therefore, they can be demolished without further survey or constraints regarding bats (subject to any planning constraints).

Buildings with negligible bat roost suitability

No bats or evidence of bats was found during the initial survey and the buildings B1, B3, B5, B6, B8, B9, B10 & B11 have negligible bat roost suitability. Therefore, they can be demolished without further survey or constraints regarding bats (subject to any planning constraints).

Bat roost suitability of trees

All of the trees on site have negligible bat roost suitability. Any trees just off the site should be protected (where appropriate) during construction (see *Section 5.6*).

Foraging and commuting habitat

There is good quality foraging habitat for bats on and adjacent to the site. Therefore, it is likely that bats are using the site for foraging and/or commuting. Retaining and enhancing connectivity the (*e.g*. hedges) around the edges of the site will help minimise any potential impact to bat populations in the local area.

Changes in lighting can affect foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained vegetation (particularly the trees and shrubs), and security lights should operate on a timer, to avoid any negative impact on bats.

Any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) onto retained vegetation, particularly the trees and shrubs. The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.

5.4.4 Dormice

There is no suitable habitat for dormice around the edges of the site. Therefore, no impacts are anticipated on dormice in the area and no further surveys are proposed.

5.4.5 Badger

Areas within 30m of development activities are usually searched for setts (where access is possible) as former guidelines suggest badgers and their setts could be disturbed by work using heavy machinery within 30m of a badger sett, light machinery within 20m, and light work (such as digging) within 10m.

As no badger setts were found on site, development works are free to proceed without further regard to this species, although if a badger sett is subsequently discovered within 30m of the proposed works then it may require a licence from Natural England to proceed. Guidance to what may be classed as disturbance to a badger (when occupying a sett) can be found at:
https://www.gov.uk/guidance/badgers-protection-surveys-and-licences.

5.4.6 Birds

There is no suitable habitat for nesting birds on site.

However, in the unlikely event that any active nests are found prior to or during works, a 5m buffer zone should be established around them and be temporarily fenced off to prevent plant or personnel disturbing the nest until the end of the breeding bird season (or until the nest is no longer in use).

5.4.7 Widespread species of reptile

There is no suitable foraging and hibernating habitat for reptiles on site. Therefore, no impacts are anticipated on reptiles and no further surveys are proposed.

5.5 Further survey

No further surveys are proposed.

5.6 Outline mitigation & enhancement measures

5.6.1 General

From July 2021, the Government published the revised National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021). The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in 2019. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

It also states "*opportunities to incorporate biodiversity in and around developments should be encouraged*" as part of the consideration for "*presumption in favour of sustainable development*".

The updated National Planning Policy Framework (NPPF) also states (paragraph 170) that:
"*Planning Policies and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*"

The updated Planning Policy Guidance (PPG) for the Natural Environment, updated in July 2019 states (paragraph 020) that:
"*Net gain in planning describes an approach to development that leaves the natural environment in a measurably better state than it was beforehand*."

The updated PPG provides examples of how biodiversity net gain can be achieved. Measures suggested include "creating new habitats" and "enhancing existing habitats".

It is proposed that the enhancements to provide biodiversity net gain will also be in the form of the following:

- removing *Schedule 9* species;

- planting to enhance the site for wildlife;
- lighting restrictions (for both bats and other wildlife);
- bird nesting provision; and
- invertebrate bricks or boxes.

These enhancements are detailed in the following sections.

All proposed enhancement measures are subject to supplied plans.

5.6.2 Schedule 9 species

General

To comply with the law, the *Schedule 9* species listed in *Section 5.2.4* will be controlled and eradicated so not to cause the plant to spread on this or other sites as a result of earth moving, soil/rubble removal or other operations.

Crocosmia × *crocosmiiflora* (Montbretia)

For the removal of *Crocosmia* × *crocosmiiflora* (Montbretia), two main options exist; mechanical removal and chemical treatment. The options depend on the timescale of the works. Herbicide treatment must be completed by appropriately qualified contractors and should take place prior to any earth-moving operations.

Alternatively (especially if there is a short timescale), then the plant and soil containing corms and rhizomes can be scraped down to a minimum of 50cm. In addition, 2-3m of soil around the visible area must be removed. Any soil which contains this species is classed as controlled waste and must be disposed of appropriately. It will be disposed of in one of the following ways:

- in landfill as controlled waste;
- buried on site at a depth of 2m; or
- used to form a bund on site, where it can be treated with herbicide or buried.

5.6.3 Planting

New hedges will be planted around the edges of the site. These will consist of a mixture of native species such as *Acer campestre* (Field Maple), *Carpinus betulus* (Hornbeam), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Fagus sylvatica* (Beech), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Viburnum lantana* (Wayfaring-tree) and *Viburnum opulus* (Guelder-rose). These species will provide a mixture of leaf shapes and colours through the seasons. In addition, the hedges will contain *Ilex aquifolium* (Holly) and *Taxus baccata* (Yew) to provide an evergreen component for the winter months, and to provide a contrast to the colours of the other plants during the spring, summer and autumn.

All new hedges will be under-sown with Emorsgate seed mix EH1 Hedgerow mixture (or equivalent). This will provide cover for wildlife such as hedgehogs as well as providing an attractive feature while the new hedges become established.

5.6.4 Lighting

Changes in lighting can affect foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto the new roosts (particularly their exit points) and retained vegetation (particularly the shrubs). Any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) near to or directly onto the roost entrances and vegetation so that light disturbance is not a problem. This is because lighting can impact bat populations directly by disturbing roosts and reducing their foraging area, or indirectly by severing commuting routes from roosts. Therefore, the following (modified from *Bats and lighting in the UK* (ILP 2018)) should be undertaken:

- **Aim of light** The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any retained vegetation. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats, as well as people and other wildlife.

For any security lighting, the following should also apply:

- **Power** It is rarely necessary to use a lamp of greater than 2000 lumens (150W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.
- **Movement sensors** Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed.
- **Timers** If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.
- **Alternatives** The requirement for security lighting in each instance should be carefully considered and only used where absolutely necessary to deter crime.

The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.

5.6.5 Birds

To maximise the number of species of bird attracted, three different types of bird boxes will be placed in various locations within the site. It is not advisable to place many boxes with identical dimensions, because individuals of the same species would not tolerate each other's presence, especially in built-up areas with limited food resources. The proposed bird boxes are summarised in *Table 5.6.5.1.*

Table.5.6.5.1. Bird boxes to be erected within the site with additional details on positioning to increase chances of occupancy.

Type (example)	Typical species	No.	Height	Additional information
Vivara Pro WoodStone House Sparrow Nest Box 	House sparrows	2	≥ 2m	• Either incorporate into the build structure or mount on sturdy building. Do not fix onto fences or garden sheds due to its weight. • Position out of direct sunlight (below eaves on the north elevation), away from windows and in a straight line. • Should be in an open area so that it is less accessible to predators and birds are not obstructed as they leave the nest. • Avoid mounting in close proximity to other integrated bird (or bat boxes) *i.e.* on the same elevation/ wall.
Vivara Pro Seville 28mm Woodstone Nest Box 	Blue tits, coal tits	1	2-4m	• Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly. • Chances of occupation can be increased by positioning boxes near vegetation.
Vivara Pro Seville 32mm Woodstone Nest Box 	Blue tits, great tits	1	2-4m	• Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly. • Chances of occupation can be increased by positioning boxes near vegetation.

5.6.6 Invertebrates

To enhance the site for invertebrates, two insect bricks or boxes (hotels or towers) will be installed. The boxes should be suitable for a range of invertebrates. The boxes will be positioned in a warm sunny spot, preferably on a south-facing wall, close to vegetation but with no vegetation in front of the holes. Bee-friendly and insect friendly plants will be located nearby so that the bees and insects using the boxes have food. Lavender, honeysuckle and buddleia are all pollinator-friendly plants.

The boxes have been chosen so that they form an attractive feature as part of the landscaping for the site. Solitary bees are non-aggressive and as such are suitable for gardens with pets and children.

Details of possible insect boxes are given in *Table 5.6.6.1.*

Table 5.6.6.1. Examples of insect boxes to be erected within the development site.

Type	**Species**	**Height**	**Additional information**
Bee Brick 	Solitary bees	>1m from the ground	The Bee Brick should be positioned in a warm sunny spot, in a south-facing wall, with no vegetation in front of the holes
BeePot Bee Hotel 	Solitary bees	>1m from the ground	The BeePot should be positioned in a warm sunny spot, preferably on a south-facing wall, with no vegetation in front of the holes
Insect Tower 	Butterflies, solitary bees, lacewings and ladybirds	>1m from the ground	The different sections of the Insect Tower have been designed to provide a habitat for a variety of insect species. Suitable for mounting on buildings, tress or fences.
Urban Bee Nester 	Solitary bees and a range of other insects	Between 0.75m and 1.5m above ground	The selected canes and the holes are the optimum size for solitary bees but other insects may overwinter in the nester.
Urban Insect Hotel 	A wide range of insects	Between 0.75m and 1.5m above ground	Adding natural materials such as drilled canes, hollow stems or bark in the triangular spaces will encourage more insects to the hotel.
Bee and Bug Biome 	A wide range of insects	>1m from the ground	Best placed near vegetation. Provides plenty of nooks and crannies for insects such as ladybirds, earwigs and lacewings.

5.7 Requirement for Natural England licences

5.7.1 European Protected Species (EPS) licences

A bat European Protected Species (EPS) licence or Bat Mitigation Class Licence (formerly Bat Low Impact Class Licence, if qualifying) site registration from Natural England is not necessary before the buildings are demolished. In the unlikely event that bats are found, work will stop immediately and a bat licence will be applied for.

A licence permits activities that may otherwise be offences under the *Conservation of Habitats & Species Regulations 2017*, such as the destruction of roost sites.

Evidence is required from surveys in order to gather enough information about populations to support a licence application.

Survey data supporting licence applications must be up-to-date *i.e.* have been conducted within the current or most recent optimal survey season (May to September for bats and April to October for dormice). Therefore, if licensable work is delayed until, during or after the next survey season, updated survey(s) will be required to support an application.

Natural England takes a minimum of 30-60 working days to process licence applications following receipt of all the relevant documentation. This includes an application form, and a Method Statement. The latter includes a detailed mitigation strategy to eliminate or reduce impacts.

It is not possible to apply for a licence until full planning permission has been granted and any conditions relating to wildlife fulfilled, although Local Planning Authorities usually request the information prior to determining a planning application request. Additional time will be required where any revisions to a proposed mitigation strategy are necessary to obtain the licence.

5.7.2 Protection of Badgers Act (1992) licences

As no setts have been identified within (or close to) the site boundary, a licence is currently not required.

6 FIGURES

Figure 1. Aerial photographs showing the location of the site.

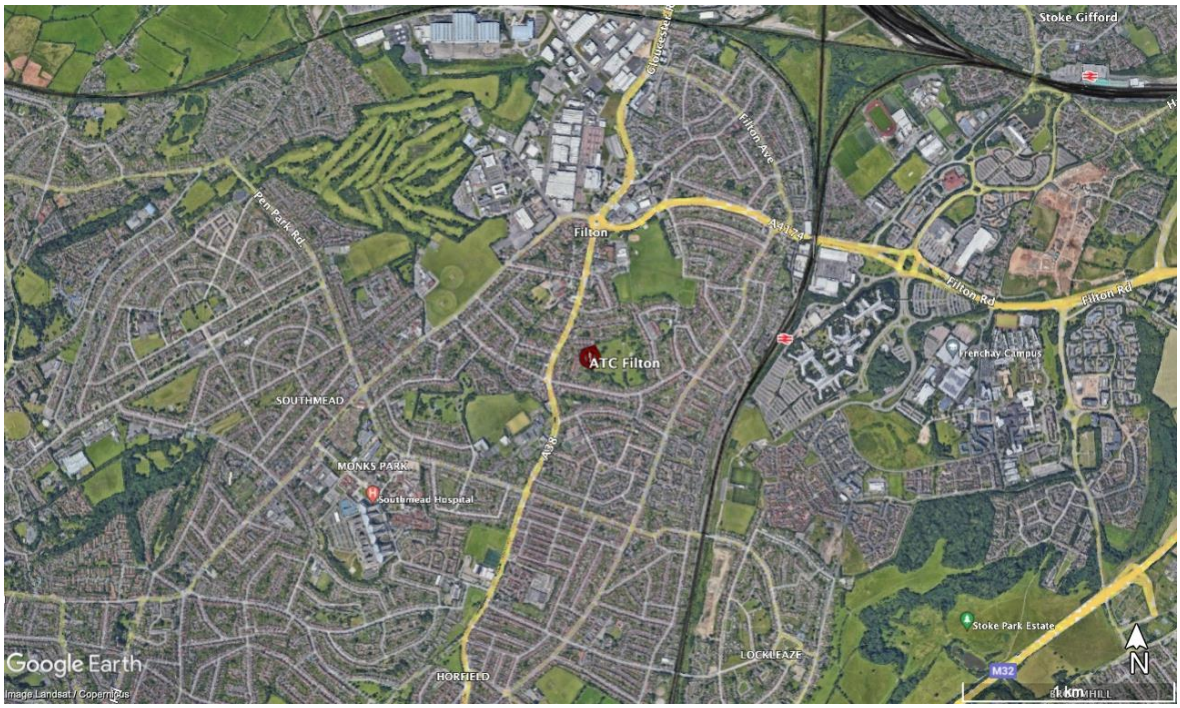

Figure 2. Ordnance Survey map showing the location of the site (as indicated by the red arrow).

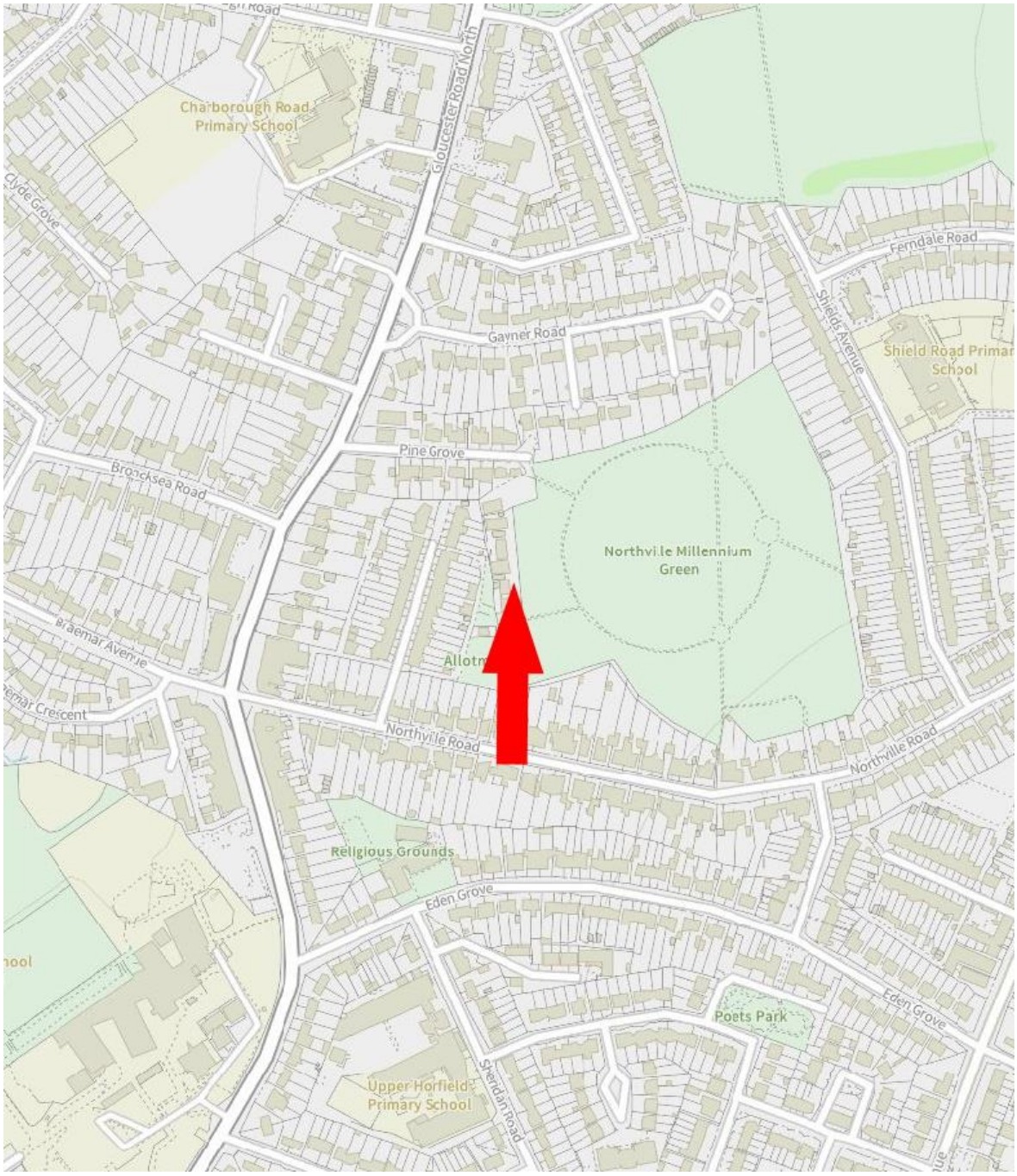

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Figure 3. Plan showing the buildings surveyed.

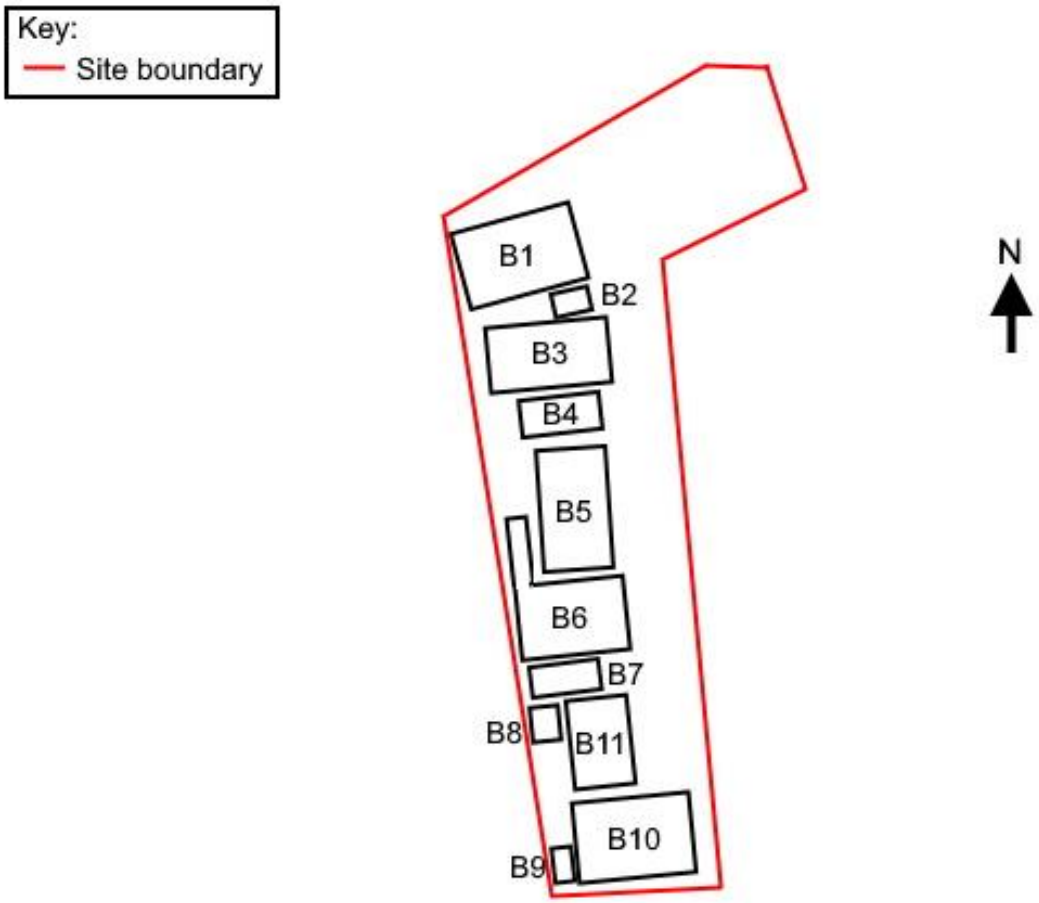


Figure 4. Phase 1 Habitat Survey map.

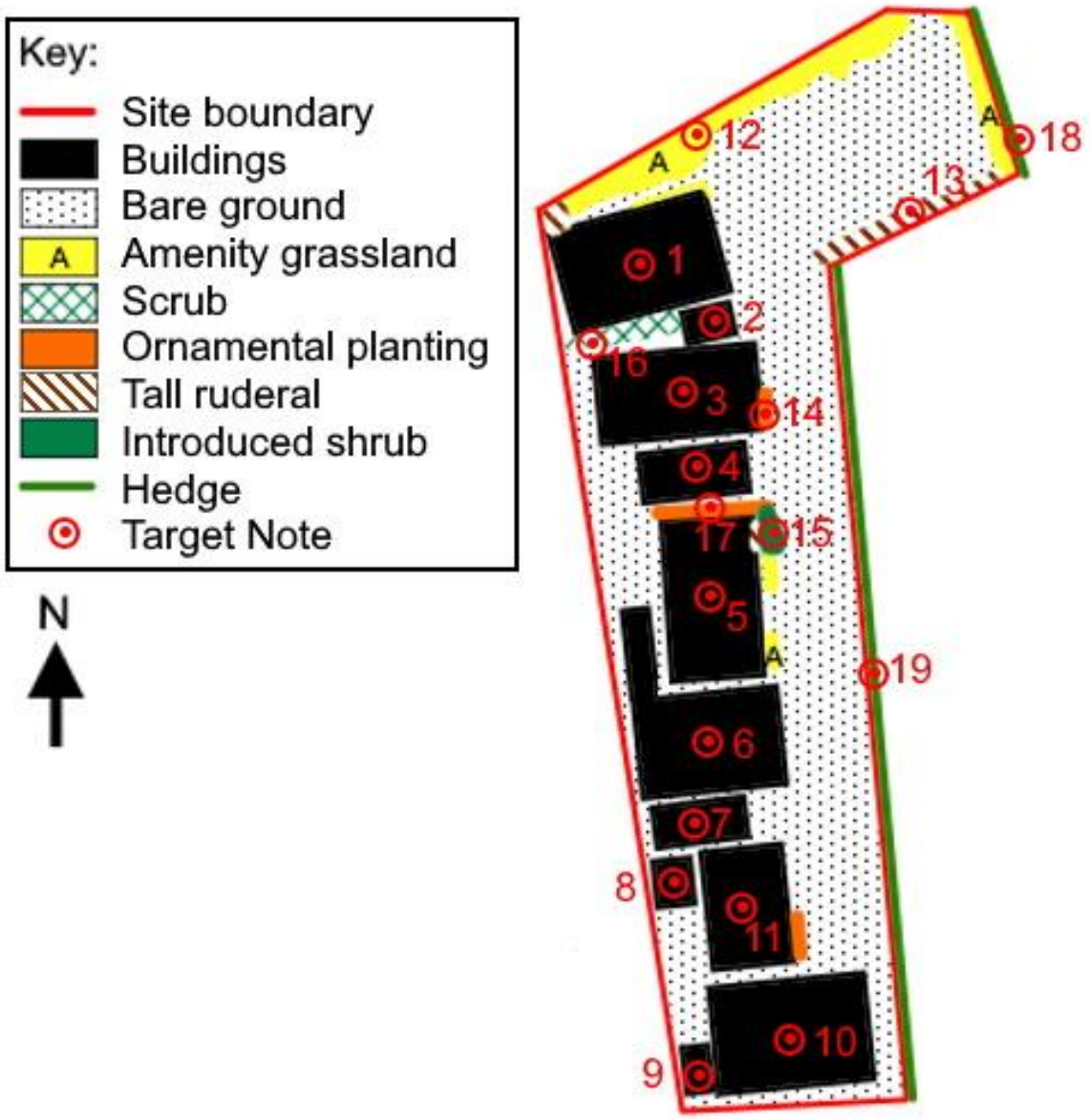


Figure 5. Plan showing bat activity (observations only) for the survey carried out on B2 on the 14th June 2022. Arrows show direction of flight (where known).

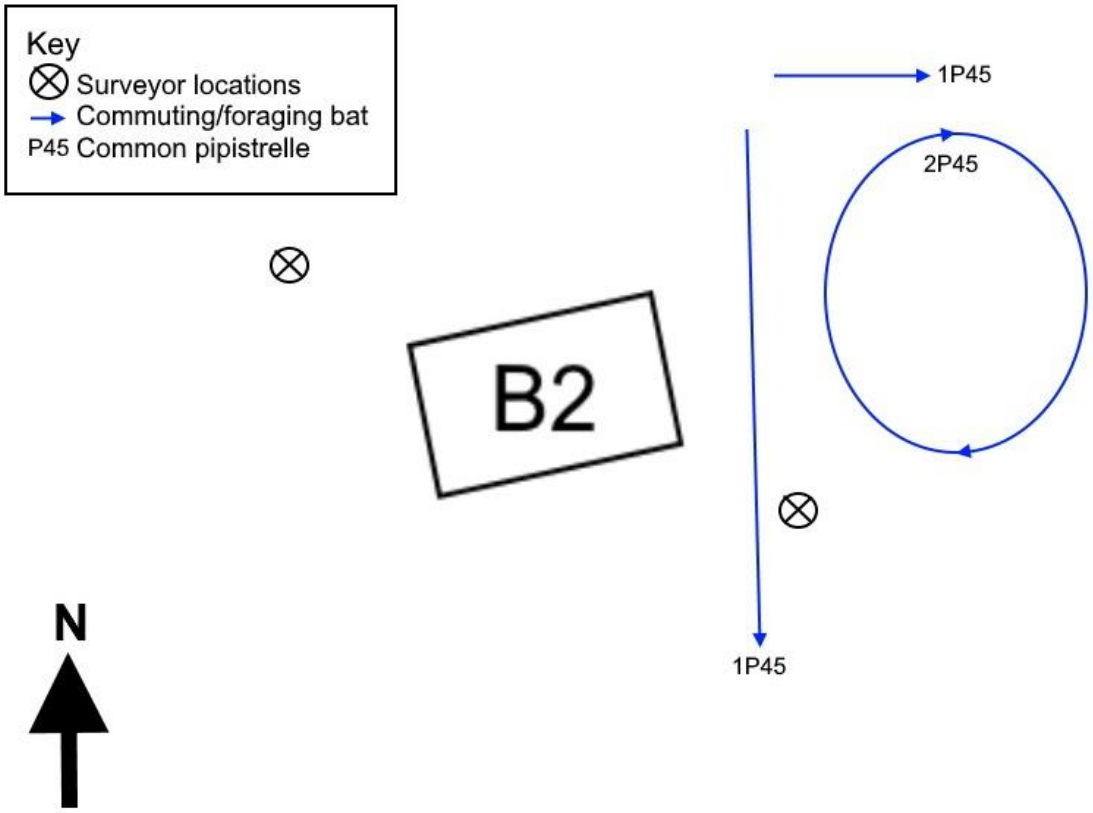


Figure 6. Plan showing bat activity (observations only) for the survey carried out on B2 on the 4th July 2022. Arrows show direction of flight (where known).

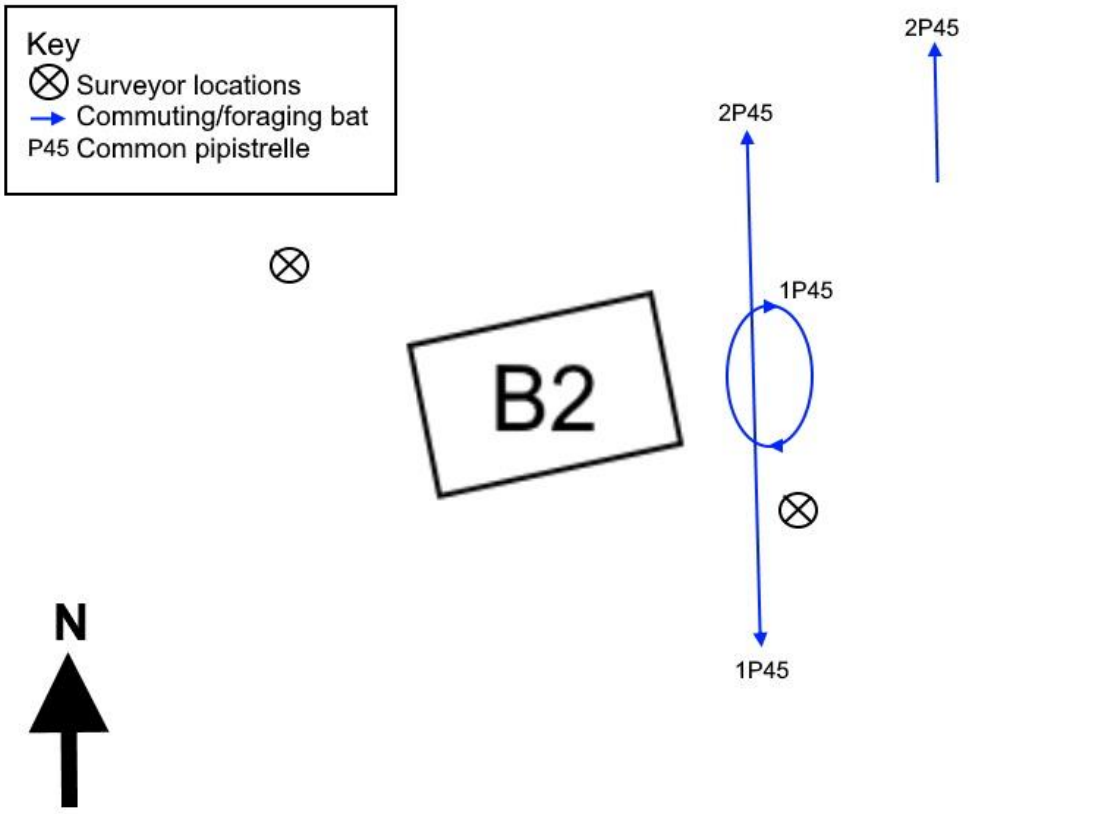


Figure 7. Plan showing bat activity (observations only) for the survey carried out on B4 on the 14th June 2022. Arrows show direction of flight (where known).

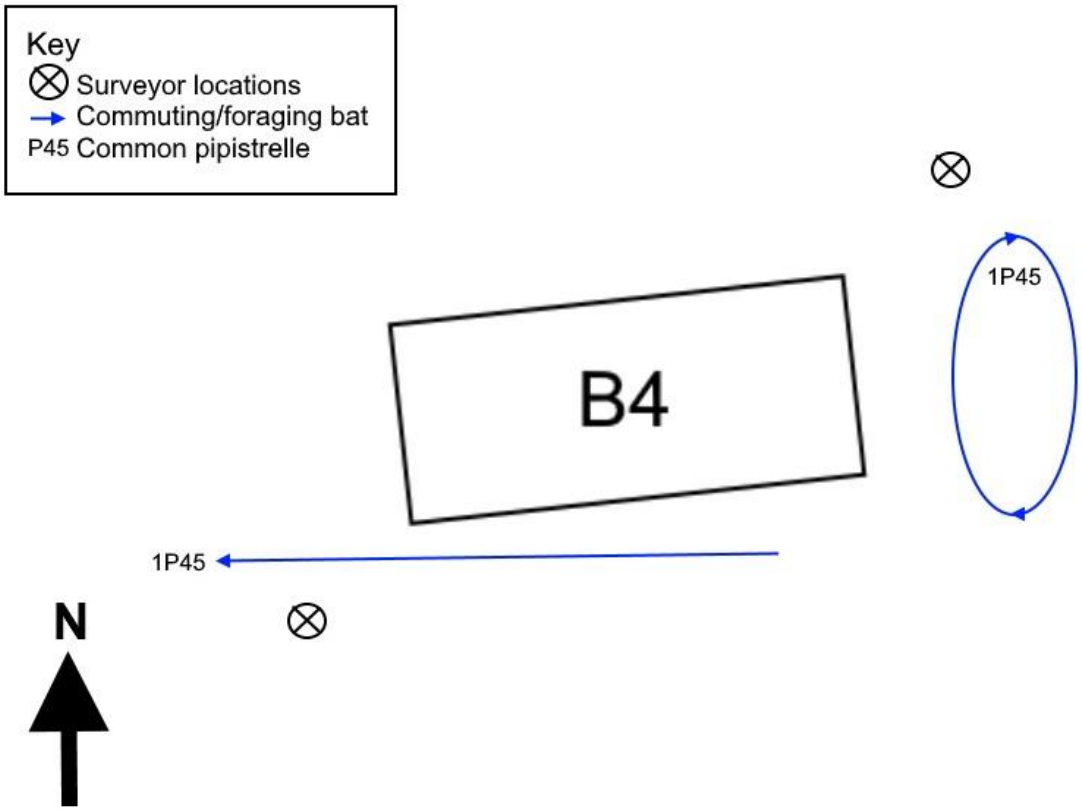


Figure 8. Plan showing bat activity (observations only) for the survey carried out on B4 on the 4th July 2022. Arrows show direction of flight (where known).

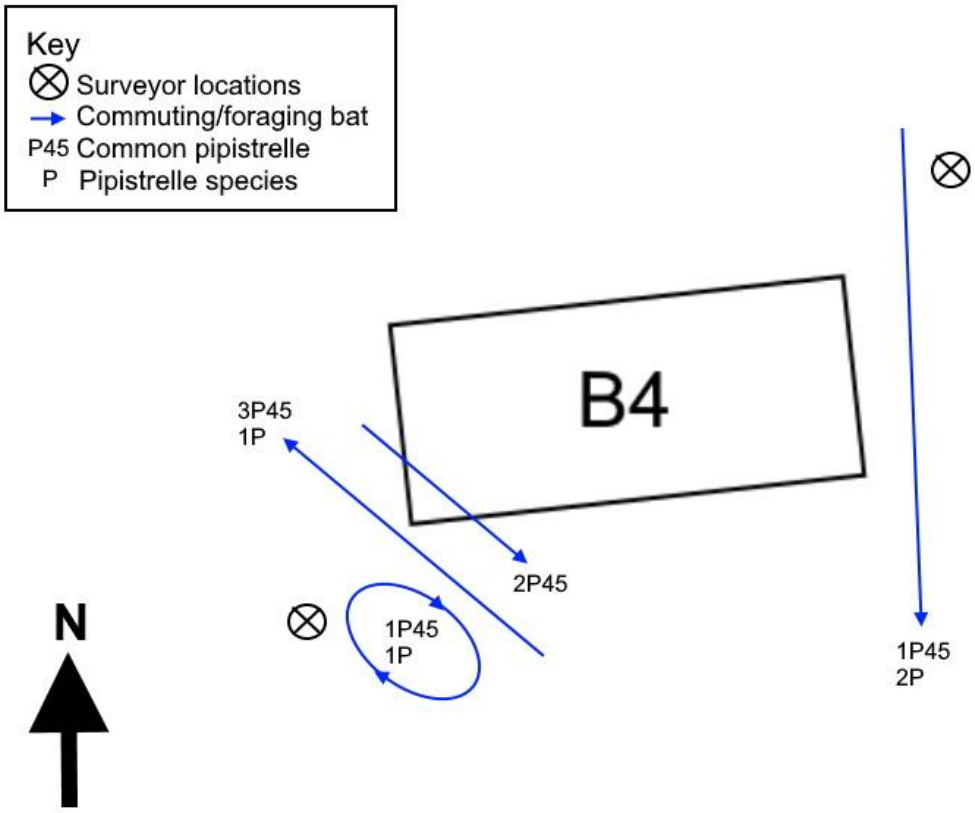
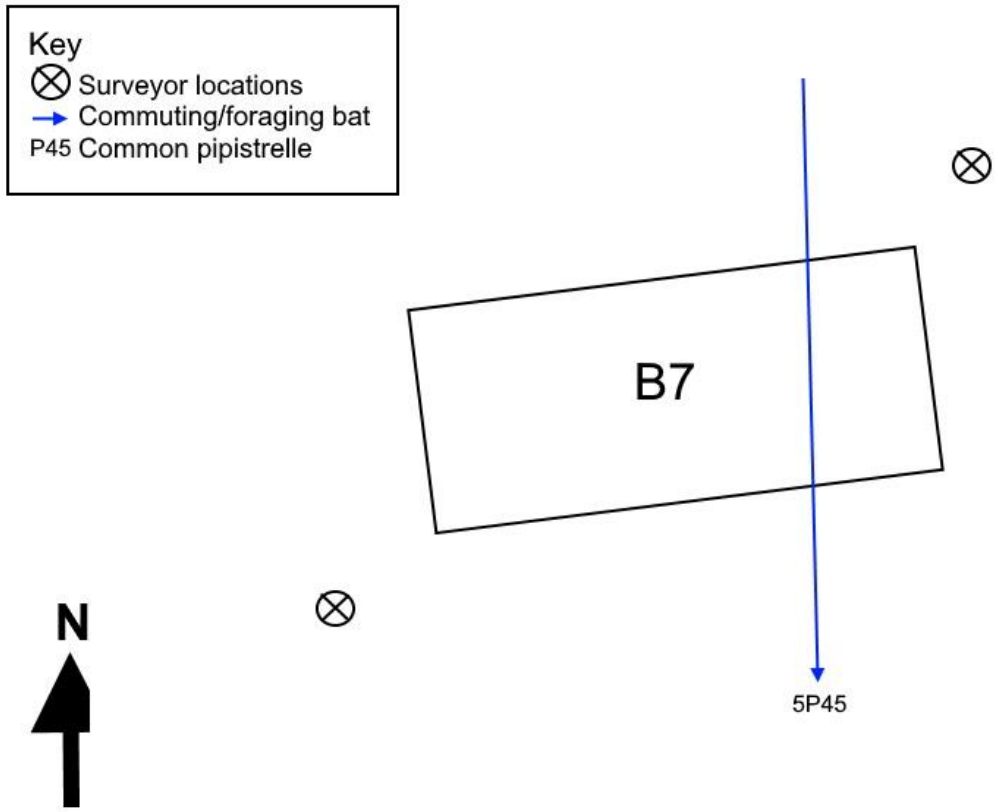


Figure 9. Plan showing bat activity (observations only) for the survey carried out on B7 on the 13th June 2022. Arrows show direction of flight (where known).



7 PHOTOGRAPHS

*Photo 1. Amenity grassland (*Target Note 12*) along the north boundary of the site (facing west).*

*Photo 2. Example of the ornamental planting by the buildings (*Target Note 14*).*

*Photo 3. Hedge at the north end of the east boundary (*Target Note 18*).*

*Photo 4. Access track along the east side of the site with the buildings on the right and the adjacent hedge (*Target Note 19*) on the left (facing south).*

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9 APPENDIX A: PROTECTED SPECIES LEGISLATION

9.1 General

This section briefly describes the legal protection afforded to the protected species identified in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

9.2 Bats

All species of British bat are listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act). This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European protected species listed on *Schedule 2* of the *Conservation of Habitats & Species Regulations 2017* which gives them full protection under *Regulation 43*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat (in such a way as to be likely to significantly affect: (i) the ability of a significant group of bats to survive, breed or rear/nurture their young; or (ii) the local distribution or abundance of the species concerned);
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present (bats tend to reuse the same roost).

Several species of bat are included as a Priority Species in the UK Biodiversity Action Plan (UKBAP - JNCC (2003)) and also as species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRoW Act.

All species of British bat are also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

9.3 Dormice

Dormouse (*Muscardinus avellanarius*) is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receives full protection under *Section 9*. This species is also listed as a European Protected Species on *Schedule 2* of the *Conservation of Habitats & Species Regulations*

2017, which gives it full protection under *Regulation 43*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

9.4 Badger

Badger (*Meles meles*) is protected in Britain under the *Protection of Badgers Act 1992* (as amended) and *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended).

The legislation affords protection to badgers and badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

Guidance to what may be classed as disturbance to a badger (when occupying a sett) can be found at: https://www.gov.uk/guidance/badgers-protection-surveys-and-licences

9.5 Birds

9.5.1 Birds - general protection

All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the CRoW Act.

The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

9.5.2 Birds - specially protected species

Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The protection was extended by the CRoW Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

9.6 Widespread species of reptile

Common lizard (*Zootoca vivipara*), grass snake (*Natrix natrix*), slow-worm (*Anguis fragilis*), and adder (*Vipera berus*) are listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1)*. This protection was extended by the CRoW Act.

Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

9.7 European Protected Species Licences

Where it is necessary to carry out an action that could result in an offence under the *Conservation of Habitats & Species Regulations 2017* it is possible to apply for a European Protected Species (EPS) licence from Natural England. Licences are only issued where Natural England are satisfied that three derogation tests are met. These are that the activity is for **imperative reasons of overriding public interest**, that there must be **no satisfactory alternative** and that **favourable conservation status of the species must be maintained**.

Consideration of these three derogation tests was previously left to Natural England as part of their deliberations on whether to grant a licence for the development activity after a planning consent has been issued. However, the regulations now require that **all** public bodies, *i.e.* **Local Planning Authorities** (LPAs), have regard to the requirements of the European Habitats Directive when carrying out their functions. As a result, LPAs **must** address the three derogation tests when considering a planning application that could impact upon any European Protected Species (EPS).

9.8 National planning context

9.8.1 General

Surveys should be completed in line with Natural England's *Standing Advice for Local Authorities* (http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/default.aspx), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (*i.e.* in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

In addition to the above, *Section 40* of the *Natural Environment and Rural Communities Act* (2006) imposes a new duty on all public authorities to have regard for biodiversity.

9.8.2 National Planning Policy Framework (NPPF)

From the 20th July 2021, the Government published the revised National Planning Policy Framework. The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in June 2019. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

- an economic objective;
- a social objective; and
- an environmental objective.

The environmental objective is to "*contribute to protecting and enhancing our natural*, *built and historic environment*; *including making effective use of land*, *helping to improve biodiversity*, *using natural resources prudently*, *minimising waste and pollution*, *and mitigating and adapting to climate change*, *including moving to a low carbon economy"*.

Planning policies and decisions should contribute to and enhance the natural and local environment by "*protecting and enhancing valued landscapes*, *sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*" and "*minimising impacts on and providing net gains for biodiversity*, *including by establishing coherent ecological networks that are more resilient to current and future pressures*".

If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted.

Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

It states that "*development whose primary objective is to conserve or enhance biodiversity should be supported*; *while opportunities to incorporate biodiversity improvements in and around developments should be encouraged*, *especially where this can secure measurable net gains for biodiversity*".

It should be noted that the "*presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in*

combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site".

The NPPF also encourages "*minimising impacts on and providing net gains for biodiversity*, *including by establishing coherent ecological networks that are more resilient to current and future pressures*" and aims to "*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*". This applies to non-statutory designated sites including Sites of Importance for Nature Conservation (SINCs) and equivalent county wildlife sites.

Early engagement with all necessary stakeholders, including expert bodies, is encouraged by the NPPF.

10 APPENDIX B: TARGET NOTES

Target Note 1. A single-storey wooden building with a flat roof. This building has negligible bat roost suitability.

Target Note 2. A single-storey brick building with a sloped, corrugated metal roof. This building has moderate bat roost suitability.

Target Note 3. A single-storey timber portacabin with a pitched, corrugated metal roof. This building has negligible bat roost suitability.

Target Note 4. A single-storey breeze block building with a pitched, concrete tile roof. This building has moderate bat roost suitability.

Target Note 5. A single-storey concrete panel building with a pitched, corrugated asbestos roof. This building has negligible bat roost suitability.

Target Note 6. A single-storey timber portacabin with a pitched, felt roof. This building has low bat roost suitability.

Target Note 7. A single-storey breeze block building with a pitched, tiled roof. This building has negligible bat roost suitability.

Target Note 8. A single-storey concrete rendered building with a pitched, corrugated metal roof. This building has negligible bat roost suitability.

Target Note 9. A single-storey breeze block building with a pitched, corrugated metal roof. This building has negligible bat roost suitability.

Target Note 10. A single-storey timber building with a pitched, bitumen felt roof. This building has negligible bat roost suitability.

Target Note 11. A single-storey timber portacabin with a pitched, bitumen felt roof. This building has negligible bat roost suitability.

Target Note 12. Amenity grassland formed of a sward dominated by the grass *Lolium perenne* (Perennial Rye-grass) with an abundance of *Bellis perennis* (Daisy). Also present are the forbs *Plantago lanceolata* (Ribwort Plantain), *Potentilla erecta* (Tormentil)*Ranunculus repens* (Creeping Buttercup), *Taraxacum officinale* agg. (Dandelion) and *Veronica chamaedrys* (Germander Speedwell), as well as some *Myosotis sylvatica* (Wood Forget-me-not). There is also small amounts of the shade and disturbance tolerant herbs *Anthriscus sylvestris* (Cow Parsley), *Galium aparine* (Cleavers), *Geranium robertianum* (Herb-Robert), *Geum urbanum* (Wood Avens), *Lamium*

purpureum (Red Dead-nettle), *Medicago lupulina* (Black Medick), *Senecio jacobaea* (Common Ragwort) and *Urtica dioica* (Common Nettle).

Target Note 13 Ruderal vegetation with typical waste ground vegetation. Composed of the occasional *Geranium molle* (Dove's-foot Crane's-bill), *Geranium robertianum* (Herb-Robert) and *Taraxacum officinale* agg. (Dandelion) with smaller amounts of *Carex pendula* (Pendulous sedge), *Hyacinthoides* × *massartiana* (Hybrid Bluebell), *Picris echioides* (Bristly Oxtongue), *Rumex obtusifolius* (Broad-leaved Dock) and *Sonchus oleraceus* (Smooth Sow-thistle).

Target Note 14. Ornamental planting with a varying mixture of small amounts of the herbs *Crocosmia* × *crocomiiflora* (Montbretia), *Pentaglottis sempervirens* (Green Alkanet) and *Viola riviniana* (Common Dog-violet) with the ornamental tree *Cordyline australis* (Caggabe Palm).

Target Note 15. Mixture of small shrubs including *Buddleja davidii* (Butterfly-bush) and *Cornus sanguinea* (Dogwood) with immature *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash). Growing over the fence and wall to the east of building 5, is the evergreen creeper *Hedera helix* (Ivy). Growing below the shrubs is small amounts of the shade-tolerant herb *Arum maculatum* (Lords-and-Ladies).

Target Note 16. A patch of *Rubus fruticosus* agg. (Bramble) scrub.

Target Note 17. Non-native, invasive plant species *Crocosmia* × *crocomiiflora* (Montbretia) listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended).

Target Note 18. Hedge just off site but adjacent to the edge of the site comprised of *Crataegus monogyna* (Hawthorn) with the ever-green creeper *Hedera helix* (Ivy) crawling across the field-layer.

Target Note 19. Hedge just off site but adjacent to the edge of the site comprised of *Crataegus monogyna* (Hawthorn) with smaller amounts of *Corylus avellana* (Hazel) and *Prunus spinosa* (Blackthorn). There are also some *Acer pseudoplatanus* (Sycamore) saplings. The ever-green creeper *Hedera helix* (Ivy) is crawling across the field-layer.

11 APPENDIX C: PLANT SPECIES LISTS

Species	TN 12	TN 13	TN 14	TN 15	TN 16	TN 18	TN 19
Woody species							
Acer pseudoplatanus (Sycamore)	-	-	-	R	-	-	R
Buddleja davidii (Butterfly-bush)	-	-	-	R	-	-	-
Cordyline australis (Caggabe Palm)	-	-	R	-	-	-	-
Cornus sanguinea (Dogwood)	-	-	-	R	-	-	-
Corylus avellana (Hazel)	-	-	-	-	-	-	O
Crataegus monogyna (Hawthorn)	-	-	-	-	-	D	D
Fraxinus excelsior (Ash)	-	-	-	R	-	-	-
Hedera helix (Ivy)	O	-	-	O	-	A	A
Hypericum androsaemum (Tutsan)	R	-	-	-	-	-	-
Prunus spinosa (Blackthorn)	-	-	-	-	-	-	O
Rubus fruticosus agg. (Bramble)	O	-	-	-	D	-	-
Herbs							
Anthriscus sylvestris (Cow Parsley)	R	-	-	-	-	-	-
Arum maculatum (Lords-and-Ladies)	-	-	-	O	-	-	-
Bellis perennis (Daisy)	F	-	-	-	-	-	-
Carex pendula (Pendulous sedge)	-	R	-	-	-	-	-
Crocosmia × crocomiiflora (Montbretia)	-	-	R	-	-	-	-
Galium aparine (Cleavers)	R	-	-	-	-	-	-
Geranium molle (Dove's-foot Crane's-bill)	-	O	-	-	-	-	-
Geranium robertianum (Herb-Robert)	R	O	-	-	-	-	-
Geum urbanum (Wood Avens)	R	-	-	-	-	-	-
Hyacinthoides × massartiana (Hybrid Bluebell)	-	R	-	-	-	-	-
Lamium purpureum (Red Dead-nettle)	R	-	-	-	-	-	-
Lolium perenne (Perennial Rye-grass)	F	-	-	-	-	-	-
Medicago lupulina (Black Medick)	R	-	-	-	-	-	-
Myosotis sylvatica (Wood Forget-me-not)	O	-	-	-	-	-	-
Narcissus pseudonarcissus (Daffodil)	R	-	-	-	-	-	-
Pentaglottis sempervirens (Green Alkanet)	-	-	R	-	-	-	-
Picris echioides (Bristly Oxtongue)	-	R	-	-	-	-	-
Plantago lanceolata (Ribwort Plantain)	O	-	-	-	-	-	-
Potentilla erecta (Tormentil)	O	-	-	-	-	-	-
Ranunculus repens (Creeping Buttercup)	O	-	-	-	-	-	-
Rumex obtusifolius (Broad-leaved Dock)	-	R	-	-	-	-	-
Senecio jacobaea (Common Ragwort)	R	-	-	-	-	-	-
Sonchus oleraceus (Smooth Sow-thistle)	-	R	-	-	-	-	-
Taraxacum officinale agg. (Dandelion)	O	O	-	-	-	-	-

Urtica dioica (Common Nettle)	R	-	-	-	-	-	-
Veronica chamaedrys (Germander Speedwell)	O	-	-	-	-	-	-
Viola riviniana (Common Dog-violet)	-	-	R	-	-	-	-
D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare							

12 APPENDIX D: SEED MIX COMPOSITION

EH1	
Species	**Common Name**
Wild Flowers	
Alliaria petiolate	Garlic Mustard
Arctium minus	Lesser Burdock
Centaurea nigra	Common Knapweed
Chaerophyllum temulum	Rough Chervil
Galium album	Hedge Bedstraw
Geum urbanum	Wood Avens
Lathyrus sylvestris	Narrow-leaved Everlasting-pea
Leucanthemum vulgare	Oxeye Daisy
Primula veris	Cowslip
Prunella vulgaris	Selfheal
Saponaria officinalis	Soapwort
Silene dioica	Red Campion
Silene latifolia	White Campion
Silene vulgaris	Bladder Campion
Torilis japonica	Upright Hedge-parsley
Grasses	
Agrostis capillaris	Common Bent
Anthoxanthum odoratum	Sweet Vernal-grass
Brachypodium sylvaticum	False Brome
Cynosurus cristatus	Crested Dogtail
Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Slender-creeping Red-fescue
Poa nemoralis	Wood Meadow-grass

13 APPENDIX E: DUSK EMERGENCE SURVEY AND PRE-DAWN RE-ENTRY SURVEY DATA

13.1 B2

Date	**14/6/2022**			
Temp	**10.0ºC at start and 10.0ºC at the end**			
Weather	**Dry with 0% cloud cover and calm (Beaufort scale 0)**			
Ecologists	**Jess Dangerfield and Laura Boggeln**			
Observer	**Time**	**No.**	**Species**	**Observation**
-	03:23		-	Ecologists commenced observations
JD	03:33	1	Common pipistrelle	Heard not seen
LB	03:52	1	Common pipistrelle	Foraging to the east of the building
JD, LB	04:02	1	Noctule	Heard not seen
LB	04:03	1	Common pipistrelle	Foraging in the car park
LB	04:05	1	Common pipistrelle	Commuting east over the car park
LB	04:09	1	Common pipistrelle	Foraging in the car park
Date	**04/07/2022**			
Temp	**17ºC at start and 15ºC at the end**			
Weather	**Day and warm with 80% cloud cover and a light breeze (Beaufort scale 3)**			
Ecologists	**Eleanor Hewins and Jess Dangerfield**			
Observer	**Time**	**No.**	**Species**	**Observation**
-	21:14		-	Ecologists commenced observations
-	21:29		-	Sunset
EH	21:48	1	Common pipistrelle	Heard but not seen
EH	22:00	1	Common pipistrelle	Foraging north over the car park
EH	22:04	1	Common pipistrelle	Foraging north over the car park
EH	22:09	1	Common pipistrelle	Foraging over the track
EH	22:11	1	Noctule	Heard but not seen
EH	22:15	1	Common pipistrelle	Commuting south down the track
EH	22:19	1	Noctule	Heard but not seen
JD	22:21	1	Pipistrelle sp.	Heard but not seen
EH	22:23	1	Common pipistrelle	Commuting north up the track
JD	22:27	1	Pipistrelle sp.	Heard but not seen
EH	22:36	1	Common pipistrelle	Commuting north up the track
-	22:59		-	Ecologists ceased observations

13.2 B4

Date	**14/6/2022**			
Temp	**10.0ºC at start and 10.0ºC at the end**			
Weather	**Dry with 0% cloud cover and calm (Beaufort scale 0)**			
Ecologists	**Eleanor Hewins and Hazel Atashroo**			
Observer	**Time**	**No.**	**Species**	**Observation**
-	03:23		-	Ecologists commenced observations
EH, HA	03:52	1	Common pipistrelle	Heard not seen
EH	04:03	1	Common pipistrelle	Foraging over the track
HA	04:04	1	Common pipistrelle	Commuting west past B4
EH	04:07	1	Common pipistrelle	Heard not seen
HA	04:14	1	Common pipistrelle	Heard not seen
HA	04:18	1	Common pipistrelle	Heard not seen
EH	04:19	1	Common pipistrelle	Briefly heard but not seen
HA	04:21	1	Common pipistrelle	Heard not seen
HA	04:28	1	Common pipistrelle	Heard not seen
-	04:53		-	Sunrise
-	05:08		-	Ecologists ceased observations
Date	**04/07/2022**			
Temp	**17ºC at start and 15ºC at the end**			
Weather	**Day and warm with 80% cloud cover and a light breeze (Beaufort scale 3)**			
Ecologists	**Lewis Hillier and Sam Davis**			
Observer	**Time**	**No.**	**Species**	**Observation**
-	21:14		-	Ecologists commenced observations
-	21:29		-	Sunset
SD	22:09	1	Pipistrelle sp.	Heard but not seen
LH	22:15	1	Noctule	Heard but not seen
SD	22:16	1	Noctule	Heard but not seen
LH	22:21	1	Pipistrelle sp.	Commuting north-west past the south-west corner of B4
SD	22:21	1	Common pipistrelle	Commuting south down the track
LH	22:22	1	Pipistrelle sp.	Heard but not seen
LH	22:23	1	Pipistrelle sp.	Foraging to the south-west of B4
LH	22:23	1	Noctule	Heard but not seen
SD	22:24	1	Noctule	Heard but not seen
LH	22:26	1	Common pipistrelle	Commuting north-west past the south-west corner of B4
LH	22:27	1	Common pipistrelle	Commuting north-west past the south-west corner of B4
LH	22:34	1	Common pipistrelle	Commuting north-west past the south-west corner of B4

SD	22:34	1	Noctule	Heard but not seen
LH	22:36	1	Common pipistrelle	Commuting south-west past the south-west corner of B4
SD	22:38	1	Pipistrelle sp.	Commuting north up the track
LH	22:39	1	Common pipistrelle	Foraging to the south-west of B4
SD	22:41	1	Pipistrelle sp.	Commuting north up the track
LH	22:45	1	Common pipistrelle	Foraging south-east past the south-west corner of B4
-	22:59		-	Ecologists ceased observations

13.3 B7

Date	**13/6/2022**			
Temp	**15.0ºC at start and 13.0ºC at the end**			
Weather	**Dry and sunny with 0% cloud cover and calm (Beaufort scale 0)**			
Ecologists	**Jess Dangerfield and Aurora Gonzalo-Tarodo**			
Observer	**Time**	**No.**	**Species**	**Observation**
-	21:13		-	Ecologists commenced observations
JD	21:27	1	Common pipistrelle	Heard but not seen
-	21:28		-	Sunset
AGT	21:36	1	Common pipistrelle	Heard but not seen
JD	22:03	1	Common pipistrelle	Heard but not seen
JD	22:04	1	Common pipistrelle	Heard but not seen
JD	22:05	1	Common pipistrelle	Commuting south over the buildings
AGT	22:05	1	Common pipistrelle	Heard but not seen
JD	22:09	1	Noctule	Heard but not seen
AGT	22:09	1	Common pipistrelle	Heard but not seen
JD	22:11	1	Common pipistrelle	Commuting south over the buildings
AGT	22:13	1	Common pipistrelle	Heard but not seen
AGT	22:15	1	Common pipistrelle	Heard but not seen
AGT	22:19	1	Common pipistrelle	Heard foraging but not seen
AGT	22:20	1	Common pipistrelle	Heard foraging but not seen
JD	22:21	1	Common pipistrelle	Commuting south over the buildings
AGT	22:23	1	Common pipistrelle	Heard but not seen
JD	22:24	1	Common pipistrelle	Heard but not seen
AGT	22:25	1	Common pipistrelle	Heard but not seen
AGT	22:29	1	Common pipistrelle	Heard but not seen
AGT	22:32	1	Common pipistrelle	Heard but not seen
JD	22:33	1	Common pipistrelle	Commuting south over the buildings
AGT	22:34	1	Common pipistrelle	Heard but not seen

AGT	22:38	1	Common pipistrelle	Heard but not seen
JD	22:39	1	Common pipistrelle	Commuting south over the buildings
AGT	22:41	1	Common pipistrelle	Heard but not seen
AGT	22:46	1	Common pipistrelle	Heard foraging but not seen
AGT	22:50	1	Common pipistrelle	Heard but not seen
-	22:58		-	Ecologists ceased observations