Phase 1

Preliminary Ecological Appraisal

Top Farm, Yieldingtree

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NE class license: Bats: survey (level 2)

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SUMMARY

The Phase 1 preliminary ecological appraisal is undertaken in order to identify key ecological constraints to the proposed development; inform planning to allow significant ecological effects to be avoided or minimized; identify any further ecological surveys needed to inform an ecological impact assessment and to support the development of mitigation of compensation measures.

Methodology

The survey was conducted by carrying out a systematic walkover of the site by Dr. Stefan Bodnar to record habitats, species, and any notable features of interest with regard to flora & Fauna. This is in accordance with standard Phase 1 survey techniques (JNCC, 2016) [1]and is a methodology recommended by CIEEM (2018[1, 2]).

Key Issues and Conclusions

This Phase 1 Ecology Report confirms that majority the Construction Zone is of 'low ecological value' consisting primarily of improved grassland. The features of highest ecological value within the development site are the native trees, which have moderate ecological value and should largely be retained, or if lost, compensated for in the landscape design.

- There are no Statutory or Non-Statutory Designated Nature Conservation Sites within or adjacent to the site.
- The Biological Data Search no protected species were recorded within the site.
- There is no evidence of badger use of the site.
- The site is of low suitability for both reptiles and Great Crested Newts, therefore no further surveys are required, although a series of precautions should be taken during development, as detailed in section 4.3b.
- No further surveys are recommended
- Supplementary planting with native species is recommended.
- Any site clearance should be undertaken outside of the bird breeding season (mid March to mid August) or undertaken under ecological supervision.
- There is no evidence of Non-Native Invasive Species on site.

1. INTRODUCTION

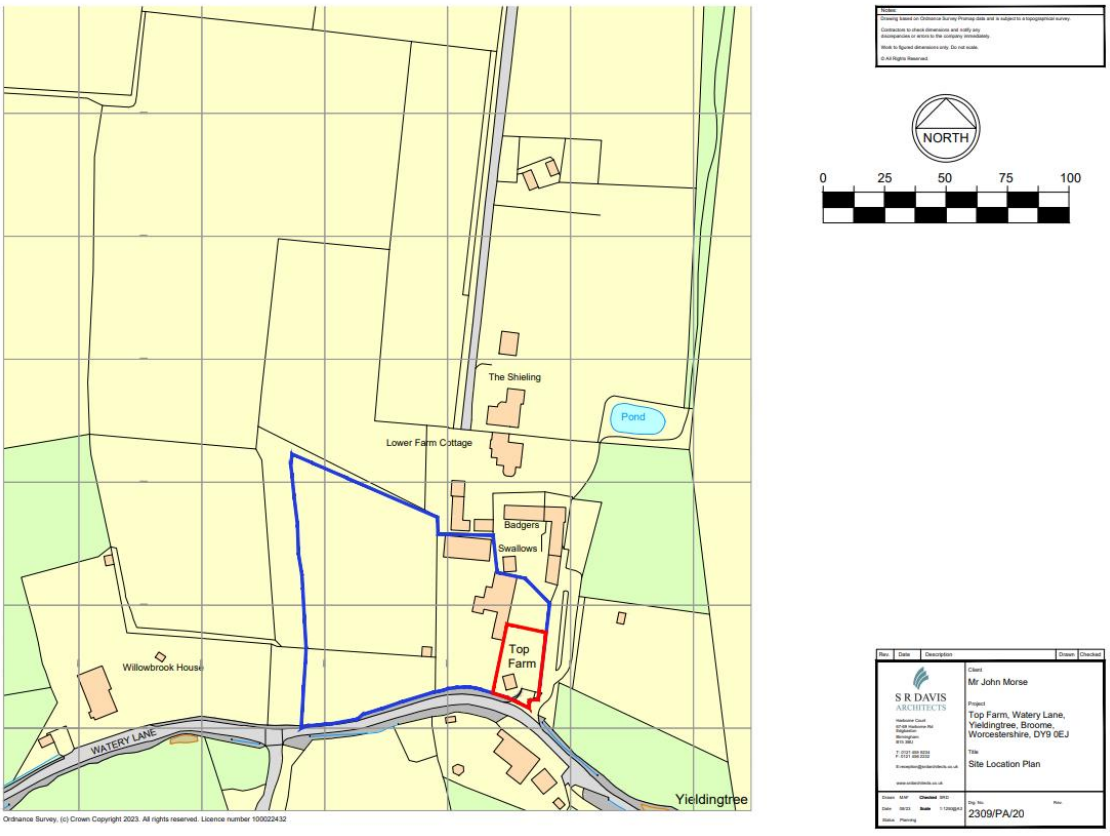
1.1. Background

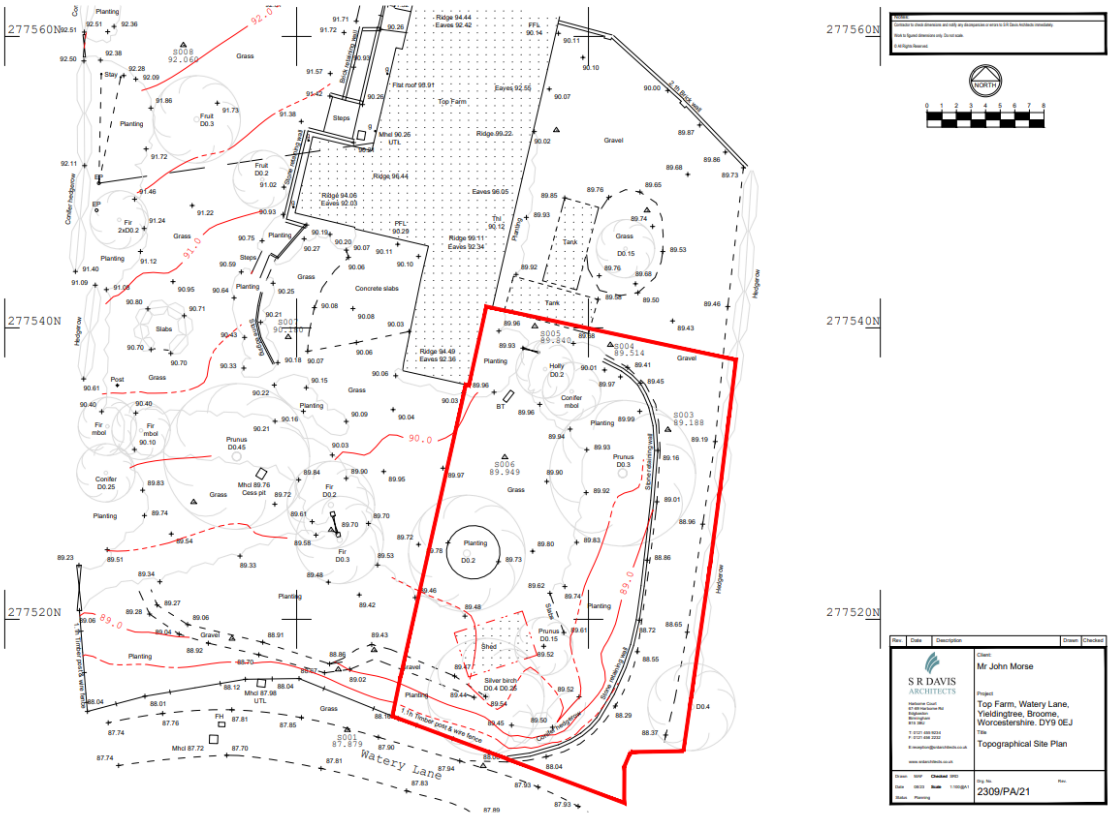
At the request of the client, Tom Morse, a Phase 1 Preliminary Ecological Appraisal was carried out at an area of land at Top Farm DY9 0EJ, to evaluate the habitats, describe any further surveys required and indicate the level of required mitigation/ compensation/ enhancement in relation to the proposed development of the site. All site assessments were undertaken by Dr. Stefan Bodnar MCIEEM, a self employed ecologist and arboricultural consultant, the report was written by Dr. Louise Sutherland MIALE, also a self employed ecologist and arboricultural consultant and the report then checked and verified by Dr. Stefan Bodnar MCIEEM.

1.2. Site Location

The site is an area of land at Top Farm Watery Lane Yieldingtree DY9 0EJ. The site location is described on the topographical survey below. A satellite image and Phase One diagram (see Appendices) also show the areas concerned.

Figure 1. Showing site location



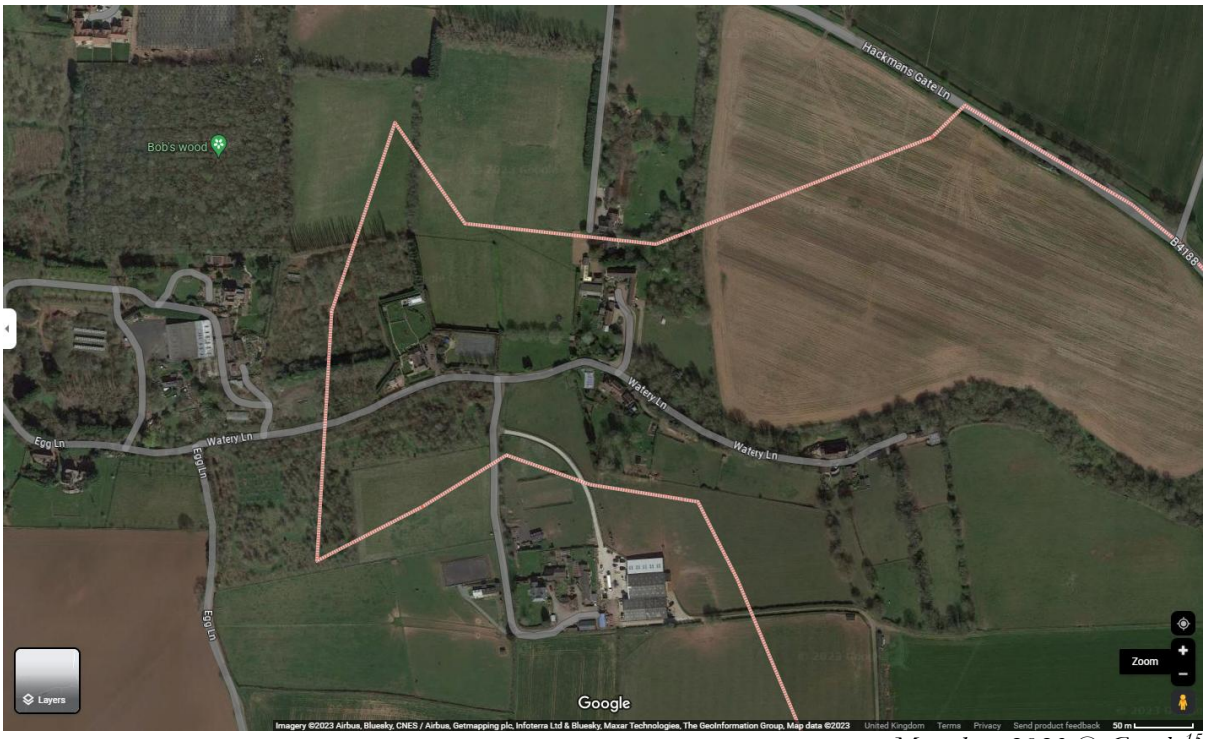


Map data 2023© Google.[15]

1.3. Site Description

The site consists mainly of a flat area of land. It is the southern section of garden of Top farm, and consists of mown improved grassland, landscape trees and hedgerows/shrubs, with a garden chalet type building. (See Phase 1 Habitat Map, appendix 1d).

The site is located in a rural area between Blakedown and Belbroughton, with hedgerows, mainly young woodland and agricultural (pastoral) areas. This represents moderate bat foraging habitat for bat species. See satellite image below:



Map data 2023 © Google.[15]

Figure 2. Satellite image of local area around proposed development site.

1.4. Brief Description of Project

Refer to planning application for full details and see below (a freestanding oak framed building):

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1.5. Purpose of the Preliminary Ecological Appraisal

The phase 1 preliminary ecological appraisal report identifies key ecological constraints to the proposed development; informs planning to allow significant ecological effects to be avoided or minimized; identifies any further ecological surveys needed to inform an ecological impact assessment and supports the development of mitigation of compensation measures.

It is composed of two parts. A site visit, during which a preliminary ecological appraisal of the site is carried out to identify the major habitat types, plant, bird, reptile, mammal and other species using the site. Also a desk study, which gathers ecological data on the site and its surrounding area, to identify protected species and statutory protected sites in the vicinity of the proposed development site, in order to produce recommendations on the key ecological constraints to the proposed development.

2. METHODOLOGY

2.1 Desk Study Methodology

Information was gathered from a number of web-based data sources, published ecological reports and where appropriate, the authors own records. The ecological data search covers the following areas:

- Species of particular note
- Local Nature Reserves
- Protected species (e.g. badger, grass snake, great crested newts, otter, water vole and bats).

Plant names (common and scientific) within this report follow 'New Flora of the British Isles' (Stace, 2019)[8].

2.2. Survey Methodology

The survey was conducted by carrying out a systematic walkover of the site by Dr. Stefan Bodnar to record habitats, species, and any notable features of interest with regard to flora & Fauna. This is in accordance with standard Phase 1 survey techniques (JNCC (2106)[1] and is a methodology recommended by CIEEM (2018) [2, 3].

During the survey, emphasis was placed on searching for evidence of and potential of habitats and features supporting protected or notable species, especially those listed under the Conservation of Habitats and Species Regulations, revised 2017[4], and the Wildlife & Countryside Act 1981 (as amended)[5].

The range of methods used were as follows:

Bats

The assessment was carried out using the guidance provided within the publication: Bat Surveys for Professional Ecologists (3rd Edition), BCT (2016)[6], the relevant section is reproduced below:

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

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

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

The trees within the site were appraised for their potential suitability to support breeding, resting and hibernating bats in accordance with survey methods documented in the Bat Surveys: Good Practice Guidelines (Bat Conservation Trust 2016)[6]. Features of medium and high potential for bats were searched for signs of use by bats, such as droppings, urine staining and scratches around entrance holes etc.

A visual inspection of the trees from ground level with the aid of binoculars was undertaken to search for evidence of actual bats as well as signs of bats (droppings, feeding remains, urine staining, scratch marks, noise and the remains of dead bats etc.). In addition, the trees were assessed for the presence of features likely to be attractive to roosting bats, such as cavities or rot holes in the trunk or branches, splits in the timber, delaminating bark, deep bark crevices, dead branches and dense ivy cover etc.

- The site was also assessed for potential bat foraging areas and commuting routes.
- Features of medium and high potential for bats were searched for signs of use by bats, such as droppings, urine staining and scratches around entrance holes etc. The site was also assessed for actual and potential bat foraging areas and commuting routes.
- Buildings within the site were assessed in accordance with the methodology outlined in the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines (2016)[6]

- **Reptiles**

The site was assessed for its suitability to support reptiles based upon the abundance of suitable habitats such as structurally diverse habitats, hedgerows, scrub, rough grassland, wood piles, rubble, banks and compost heaps etc. The site was assessed with respect to its potential for use for hibernation and spring/summer use based on guidance provided in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee 2003)[9] , Common Standards Monitoring Guidance for Reptiles and Amphibians, 2004, JNCC[10] and the Reptile Management Handbook (Edgar, Foster & Baker 2010)[11]. Great Crested Newts were assessed using techniques described in the Great Crested Newt Conservation Handbook by Tom Langton, Catherine Beckett and Jim Foster[14]

Badgers

The whole site was searched systematically, with particular attention being paid to features likely to support badger setts (e.g. earth embankments, wooded copses etc.). The location of all badger signs such as runs, dung pits, prints, hair, foraging snuffle holes found during the survey were mapped and all setts characterised as either main, annex, subsidiary or outliers in accordance with guidance given in Surveying Badgers (Harris, Cresswell & Jefferies, 1988)[12]. Account was also taken of more recent guidance Scottish badgers: surveying for badgers, 2018)[13]

Birds

All birds observed during the field survey were recorded, in addition to features capable of supporting nesting birds (e.g. trees, hedgerows, buildings, bramble beds, ruderal vegetation and rough grassland etc). The site was also assessed for its actual and potential suitability to support Schedule 1 (Wildlife & Countryside Act 1981 (as amended)[5] and Biodiversity Action Plan priority species (now included within Section 41 of the NERC Act)[7].

Other Species

The site was also assessed for its actual and potential suitability to support other protected or notable fauna including species listed as Invasive species under Schedule 9 of the Wildlife and Countryside Act, 1981, (as amended)[5] in accordance with the Guidelines for Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management, 2018 [2,3]).

2.3. Site Location and Access

land at Top Farm Watery Lane Yieldingtree DY9 0EJ

All areas of the site were available for access.

2.4. Date and Time of Survey

The site assessment was conducted on 12th October 2023.

2.5. Weather Conditions

The weather conditions during the survey were warm and clear.

2.6. Survey Constraints

Owing to the time of year the initial survey took place it can be considered to provide a reasonable, though not exhaustive plant list. This survey noted the habitat types on the site, and the dominant vegetation at the time of the survey, which is likely to be constant and a fair reflection of the habitat quality present. In particular the survey was undertaken within the optimal season for grassland surveys.

2.7 Evaluation of Ecological Features

The potential of the Site to support legally protected or notable species was determined through a review of field observations and desk study information.

The likelihood of the occurrence of any protected and/or invasive species is ranked as follows and relies on habitat suitability for the species at the Site as well as an evaluation, in parallel, of desk study data and published guidance/literature which is referenced accordingly:

• Negligible – while presence cannot be absolutely discounted, the Site supports very limited or poor-quality habitat for a species or species group. There may be no local records of the species/species group from the data search, and the surrounding habitats are considered unlikely

to support wider populations of a species/species group. The Site may also be outside or peripheral to the known natural range of a species/species group;

• Low – habitats within the Site are of poor to moderate quality for a given species/species group. There are few or no returns from the data search, but presence cannot be discounted based on the national distribution of the species/species group, the nature of surrounding habitats, habitat fragmentation or recent on-site disturbance, etc.

• Medium – habitats within the Site are of moderate quality providing some opportunities for a given species/species group. The desk study reveals historic local occurrence of the species/species group and the Site is within the national distribution and with suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat isolation, and/or disturbance

• High – habitats within the Site are of high quality for a given species/species group. The desk study provides evidence of local occurrence. The Site may be within/peripheral to a national or regional stronghold and/or has good quality surrounding habitat and good connectivity

• Confirmed Presence - presence confirmed from the most recent site survey or by recent, confirmed records

The CIEEM EcIA guidelines (CIEEM, 2018) state that "the importance of an ecological feature should be considered within a defined geographical context. It is recommended that the following frame of reference be used, or adapted to suit local circumstances:

• International and European;
• National
• Regional
• Metropolitan, County, vice-county or local authority-wide area
• Local

3. RESULTS

3.1 Desk Study Results

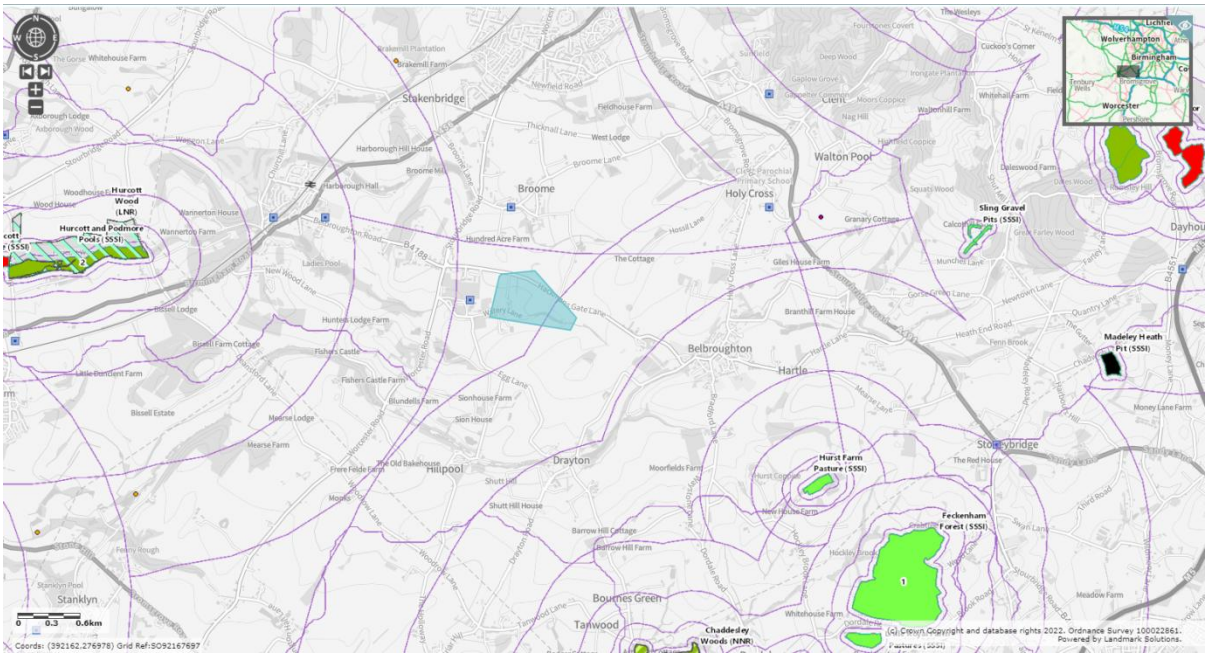
The data search was obtained from the Natural England 'MAGIC' website[16] accessed on 13th November 2023, appropriate sections reproduced and referenced below:

3.1a Statutory & Non Statutory Nature Conservation Sites

The maps below show all Statutory and Non Statutory Nature Conservation Sites (this includes Sites of Special Scientific Interest, Local Wildlife Sites, Local Nature Reserves, Special Areas of Concern) within 5km of the proposed development.

Statutory Protected Sites:

The closest Statutory Protected Site is Drayton Meadows SSSI, which lies approximately 1km East of the site. The site lies within the SSSI Impact Zone of Hurst Farm Pasture SSSI, and within a Nitrate Vulnerable Zone and Drinking Water Safeguard Zones due to the presence of 11 different pesticides and nitrate in the water sources due to the high levels of insecticides, herbicides, fungicides and nitrogen fertilizers used within the industrial agriculture surrounding the area.



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3.1b. Protected & Notable Species Records

Species (Latin Name)	Common Name	Approximate distance of nearest record from the survey site (km)
Triturus cristatus	Great Crested Newt	Within 5 km
Erinaceus europaeus	Hedgehog	Within 1 km

In relation to protected and notable species, the following were recorded from the bespoke data search and a variety of online web based resources, in this case magic.gov.uk[16], accessed on the 13th November 2023.

Protected & Notable Species Occurrence Tables, source MAGIC[16]

Protected Bat Species Occurrence Tables

Species (Latin Name)	Common Name	Approximate distance of nearest record from the survey site (km)
Pipistrellus pipistrellus	Common pipistrelle	Within 1 km
Plecotus auritus	Brown long-eared bat	Within 1 km
Myotis nattereri	Natterers bat	Within 2 km
Pipistrellus pygmaeus	Soprano pipistrelle	Within 2 km

A Natural England 'Magic' data search map (shown below) illustrates the locations of all European Protected Species license applications in the locality relating to bat roosts and herpetiles.

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3.1c Interpretation of Available Biological Data

The site is not adjacent to any statutory designated site, and is unlikely to have any impact on those at further distances. Two species of bat are known to roost within 1km of the site, with 2 additional species recorded within 2km. There are no records from the site itself.

Badger, brown hare and hedgehog are all present within 1km, Otter are all present within 2km. There are records of Badgers within 1km and records of badger sett within 30m of the site boundary, however the data search provides no details of the age of these records. Great Crested Newt are present within 5km though habitats on site for this species are unsuitable.

3.2 Survey Results

3.2.1. Habitat Types Present & Baseline Ecological Conditions

The site consists mainly of a flat area of land. It is the southern section of garden of Top farm, and consists of mown improved grassland, landscape trees and hedgerows/shrubs, with a garden chalet type building. (See Phase 1 Habitat Map, appendix 1d).

Habitats present:

Native Landscape Trees: Mainly early mature Holly, Goat willow and Yew, Silver birch.

Improved grassland: Dominated by Perennial ryegrass and clover sp.

Non native trees and shrubs: Rhododendron, Laurel, cypress, Lilac, a planted Yew and Laurel hedges. Other species include Oregon grape, Bamboo, Mock orange, Cotoneaster, Magnolia.

Hardstanding: Existing site access road

Non-Native Invasive Species: There is no sign of Japanese knotweed *Reynoutria japonica* on the site.

Building: A garden chalet, single skin unlined wood, mineral felt roof, lit by windows, no cavity or roofspace, in good condition and intact.

See Phase 1 Habitat plan (appendix 1d) and images, Appendix 2. A full list of vascular plant species is provided in Appendix 3.

3.2.2. Protected and Notable Species on Site

Bats:

There are 18 species of bat found in the UK, 17 of which are known to breed in the UK. All are small, nocturnal, flying, insectivorous mammals that are under considerable conservation threat and many having undergone severe population declines over the last century. Some species,

such as pipistrelle bats (*Pipistrellus* sp) still remain relatively common and widespread in the UK, while others, such as greater horseshoe bats (*Rhinolophus ferrumequinum*), have an extremely restricted distribution. All species of bats and their roosting sites are afforded full protection under both UK and European legislation and are designated as 'European protected species'.

Bat Foraging Potential of the Site:

The site has low to moderate bat foraging potential, located within a rural landscape but mainly non native plantings, dark and sheltered by trees which provide foraging opportunities or shelter for bats.

Bat Roost Potential of Trees:

The trees have no bat potential, as they are not old enough to have developed features. No further bat surveys are required.

Bat Roost Potential of Buildings:

The garden chalet is intact and has no features where bats could enter or suitable roost features. Classified as negligible bat roost potential.

Badgers

Badgers (*Meles meles*) are protected in England and Wales under the Protection of Badgers Act 1992. Protection applies both to the animal itself and to its nesting burrows (setts), and current interpretation of the Act also confers some protection to key foraging areas. Badgers remain comparatively widespread and common throughout the UK.

There is no evidence of badger activity on the site. The site has low badger foraging potential. There were no badger setts on site, or within 30m of the site boundary, at the time of survey. However, there are records of Badgers and records of badger sett within 30m of the site boundary, on the other side of the Frankton Road. The data search provides no details of the age of these records, and with the intervening road setts are very unlikely to extend from this area into the site.

No further surveys are recommended on site, however to protect any other mammals, such as fox or hedgehog, which could enter the working areas at night, the following additional precautionary measures are recommended:

- All excavations to be covered over or ramped so that any mammals could get out of an excavated structure. Further measures are detailed below:
- Any ground-works that are to be left open overnight will be provided with a means of escape should a badger enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
- Any trenches/pits will be inspected each morning to ensure that no badgers have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett.

Other mammals

The presence of other specially protected mammals, such as otter, dormouse and water vole, is assessed as extremely unlikely, due to the lack of suitable habitats on this site. Hedgehogs are recorded within 1km and could be present on the site.

Birds

The Wildlife and Countryside Act 1981 (as amended)[5] makes it an offence (with certain limited exceptions) to intentionally kill, injure or take any wild bird, or to damage, take or destroy the nest of any wild bird whilst that nest is being built or in use, or to take or destroy its eggs. Furthermore, the Act affords additional protection to specific species of birds listed in Schedule 1 of the Act. In respect of these species, it is unlawful to intentionally or recklessly disturb such a bird whilst it is nest-building or is in, on or near a nest containing eggs or young; or to disturb their dependent young. Following recent revisions, fifty-nine species are listed on the UKBAP.

Birds recorded on site include:

Bird Species:	**Latin name:**
Blackbird	*Turdus merula*
Goldfinch	*Carduelis carduelis*
Dunnock	*Prunella modularis*
Jackdaw	*Corvus monedula*
Robin	*Erithacus rubecula*
Redwing	*Turdus iliacus*
Woodpigeon	*Palumba columbus*
Blue tit	*Cyanastes caeruleus*

The trees on site and along the edges of the survey site could provide suitable for nesting habitat for a number of other common woodland bird species. It is recommended that these trees be protected and retained within the proposed development, with additional native tree planting within any development of the site. It is recommended that any site clearance of vegetation is undertaken outside of the peak bird breeding season (mid March to mid August). If site clearance is undertaken during these months, a suitably qualified and experienced ecologist should be employed to ascertain the presence of any breeding birds within the site.

Great Crested Newt

The Great Crested Newt (*Triturus cristatus*) is one of the two rarest amphibian species in Britain. It is primarily a terrestrial animal, spending much of its life on land, but returning to the water to breed. Great crested newts (GCNs) will often return to breed in the same waterbody where they were spawned. In addition, they are highly opportunistic and will also colonise suitable new waterbodies rapidly. Great Crested Newt is a *'European protected species'* afforded full protection under both UK and European legislation. This protection extends to the habitats which support it. The habitats within 500m of a breeding pond are generally considered to be protected by the legislation. The Great Crested Newt is a priority species and subject to its own Biodiversity Action Plan.

There are no on-site ponds, and the terrestrial habitat is of low to moderate suitability for this species. There are no records of GCNs within 5 km of the site, and the site is isolated by hostile agricultural and urban landscape. It is considered unlikely that GCNs would be present on site and no further survey is recommended.

However, to reduce risk of harm to newts or other amphibians as a result of this development, it is recommended appropriate precautions should be taken during development.

- If Great Crested Newts are discovered at any time during processes involved with the development, work should cease immediately and the advice of a licensed ecologist sought.
- All site staff involved with site clearance and construction works are to be made aware of the potential for encountering Great Crested Newts through a tool kit talk and the appropriate measures to be taken if great crested newts are encountered.
- Keep duration of groundworks as short as possible.

- Undertake during the day works that might only affect newts above ground.
- Backfill trenches and other excavations before nightfall, or leave a ramp to allow newts to easily exit.
- Raise stored materials (that might act as temporary resting places) off the ground, e.g. on pallets.

Reptiles

There are four widespread species of British reptile comprising grass snake (*Natrix natrix*), slow-worm (*Anguis fragilis*), adder (*Vipera berus*) and common lizard (*Zootoca vivipara*). These animals are protected under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. They are given so called 'partial protection', which prohibits the deliberate killing or injury of individuals. The habitats of common reptiles are not specifically protected.

The on-site habitat is of low suitability for reptiles. It is considered highly unlikely that reptiles would be present on site and no further survey is recommended.

However, to reduce risk to reptiles as a result of the proposed development it is recommended appropriate precautions should be taken during development.
Including where possible:

- Ensuring storage of piles of materials and excavated earth on the site should be kept to a minimum.
- Storing piles of materials and excavated earth away from the field boundaries to deter reptiles from using them for temporary cover.

4.0. DISCUSSION

It is important that this proposed development should demonstrate Net Biodiversity Gain, in accordance with National Planning Policy Framework 2021[17]. There is also a duty to ensure no net loss of biodiversity placed on Local Authorities in the Natural Environment and Rural Communities Act 2006, Section 40[7]. There are requirements noted for this under The National Planning Policy Framework (2021)[17] which refers to compensation/ mitigation. It is confirmed that the enhancement, mitigation and compensation within this section will comply with all the relevant UK and EU legislation relating to protection and enhancement of ecology.

4.1. Ecological Constraints

The value of the majority of the site, in terms of ecological value to wildlife is low. The native trees on site have moderate to high ecological value, and should be largely protected and retained within any development of the site or if any are lost suitably mitigated for in landscape replacement. The value of the site habitats is generally negligible.

The on-site lighting should be carefully chosen to ensure it is low lux, cowled (directed downwards to prevent light splay), and used on timers or motion sensors to minimize the impact on local bat populations. This should conform the BCT lighting guidance, 2018[19].

If any trees are lost to development, they should be replaced at a minimum of 1:2 ratio, in anticipation of the high failure rate of young trees and reflection of their lower ecological value.

The habitats present within the area consists of the following elements (see Phase 1 Habitat Map in Appendix 1d and refer to JNCC habitat Survey codes, 2016).

- Native trees JNCC Code A1
- Amenity (improved) grassland JNCC Code J1
- Hardstanding
- Introduced shrubs JNCC Code J1.4
- Building

4.2. Additional Ecological Surveys Recommended

- No further surveys are recommended

4.3. Minimising Ecological Impact

This section states how the negative impacts of the development can be addressed.

4.3a. Protecting the Ecological Value of the Site

On site features of value are the native trees, which should largely be retained and protected within any proposed development or if lost, suitably mitigated for in landscape plantings. .

It is recommended that any fencing installed on the site should contain at least 1 gap per run at its base measuring 13cm by 13cm. The gaps should be arranged to allow free movement to hedgehogs throughout the site.

The on-site lighting should be carefully chosen to ensure it is low lux, cowled (directed downwards to prevent light splay), and used on timers or motion sensors to minimize the impact on local bat populations.

Nest boxes suitable for common species should integrated into the built fabric of the new buildings. A minimum of one bird box and one house sparrow terrace on each new unit. Schwegler 1B nest boxes with 32mm entrance holes are recommended. These should be erected in accordance with the manufacturers recommendations. Generally, this will entail mounting the box between 3 – 4 m above the ground, with a north / northwest aspect. Care should be made to make the nest box inaccessible to predators, and generally, nest boxes should not be sited too close to each other.

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It is also suggested that south facing bat boxes be attached to new buildings. A minimum of one bat box. Details can be found in appendix 5.

4.3b. Precautionary Measures during Development

The trees on site are all suitable for breeding birds. Bird breeding season is between mid March and mid August, although certain species can breed outside these months and if breeding birds are found then work should cease and the advice of an ecologist sought. Site clearance should be carried out outside of the bird breeding season.

To protect any reptiles or amphibians which might be using the site, it is recommended appropriate precautions should be taken during development. These include;

- If great crested newts are discovered at any time during processes involved with the development, work should cease immediately and the advice of a licensed ecologist sought.
- All site staff involved with site clearance and construction works are to be made aware of the potential for encountering great crested newts and reptiles through a tool kit talk and the appropriate measures to be taken if great crested newts are encountered.
- Keep duration of groundworks as short as possible.
- Undertake during the day works that might only affect newts above ground.
- Backfill trenches and other excavations before nightfall, or leave a ramp to allow newts to easily exit.
- Raise stored materials (that might act as temporary resting places) off the ground, e.g. on pallets.
- Ensuring storage of piles of materials and excavated earth on the site should be kept to a minimum.
- Storing piles of materials and excavated earth away from the field boundaries to deter reptiles from using them for temporary cover.

Appropriate precautionary measures are recommended, in case badgers enter the working areas at night:

- Ensure that all those in work are aware of the potential for setts or badgers to be encountered, and the actions to be taken if these are discovered at anytime.
- All excavations to be covered over or ramped so that any badgers could get out of an excavated structure. Further measures are detailed below:
- Any ground-works that are to be left open overnight will be provided with a means of escape should a badger enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
- Any trenches/pits will be inspected each morning to ensure that no badgers have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett. Should a

trapped badger be encountered the Ecologist should be contacted immediately for further advice who, if necessary, will contact Natural England in respect of legislative and licensing issues.

- The storage of topsoil or other 'soft' building materials on site will be given careful consideration. Badgers will readily adopt such mounds as setts; so as to avoid the adoption of any mounds, these will be kept to a minimum and any essential mounds subject to daily inspections (or nightly patrols if 24 hour security is present on site), with consideration given to temporarily fencing any such mounds to exclude badgers.

4.4 Opportunities for Biodiversity Gain and Off-setting Requirements

It is important that this proposed development should demonstrate Net Biodiversity Gain, in accordance with National Planning Policy Framework 2021[17], set to become a mandatory requirement in November 2023.

Following the built development there will be opportunities for enhancement of the site's ecological value by on site landscaping measures designed to encourage wildlife into the site, including native planting, bird and bat boxes on built structures. Species should be selected, that are both native and wildlife friendly, focusing on measures to encourage birds and foraging bats, wherever possible. See appendices 4 - 8 for detailed information.

The opportunities for enhancement lie in the following main areas:

- Retention and enhancement of value of existing trees.
- If any trees are to be lost, supplementary planting with native species.
- Sowing of flowering lawn mix seed where grassland is disturbed around the construction areas and within new garden area.
- Introduction of bat and bird friendly native planting schemes, hibernacula, and wildflower hedgerow edge mix seeding.
- Bird and bat boxes incorporated within or on the new building or other built fabric, in particular should be included.
- Selection of wildlife-friendly shrub/planting species as part of the terrestrial landscaping scheme within the development. The specification should include 4 elements of landscaping details selected from a palette of species beneficial to wildlife (further information can be found in Appendix 4):
- Planting of native deciduous specimen tree species.
- Wildflower seeding areas, use of flowering lawn seed mixes.

5. Conclusion

This Phase 1 Ecology Report confirms that majority the Construction Zone is of 'low ecological value' consisting primarily of improved grassland. The features of highest ecological value within the development site are the native trees, which have moderate ecological value and should largely be retained, or if lost, compensated for in the landscape design.

- There are no Statutory or Non-Statutory Designated Nature Conservation Sites within or adjacent to the site.
- The Biological Data Search no protected species were recorded within the site.
- There is no evidence of badger use of the site.
- The site is of low suitability for both reptiles and Great Crested Newts, therefore no further surveys are required, although a series of precautions should be taken during development, as detailed in section 4.3b.
- No further surveys are recommended
- Supplementary planting with native species is recommended.
- Any site clearance should be undertaken outside of the bird breeding season (mid March to mid August) or undertaken under ecological supervision.
- There is no evidence of Non-Native Invasive Species on site.

Date	**Prepared by**	**Checked and Verified by**
13th November 2023	Dr Louise Sutherland MIALE Ecologist	Dr Stefan Bodnar MCIEEM Principal Ecologist

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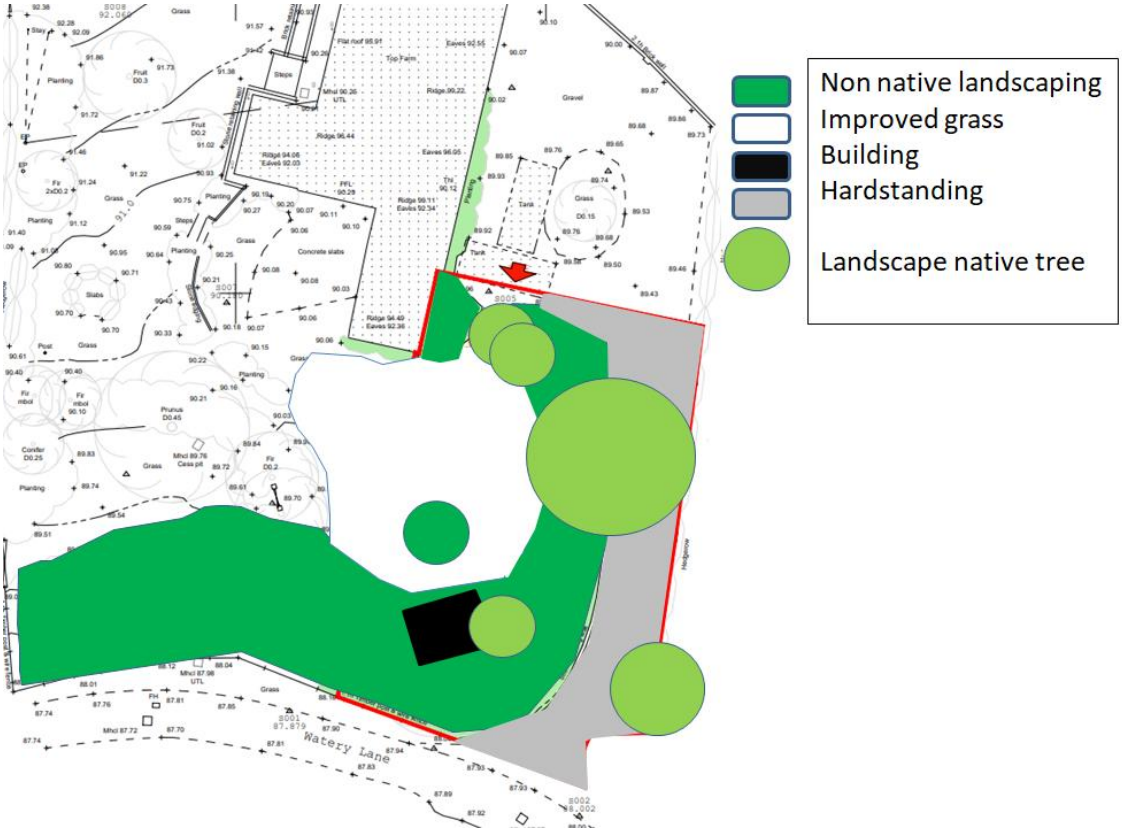
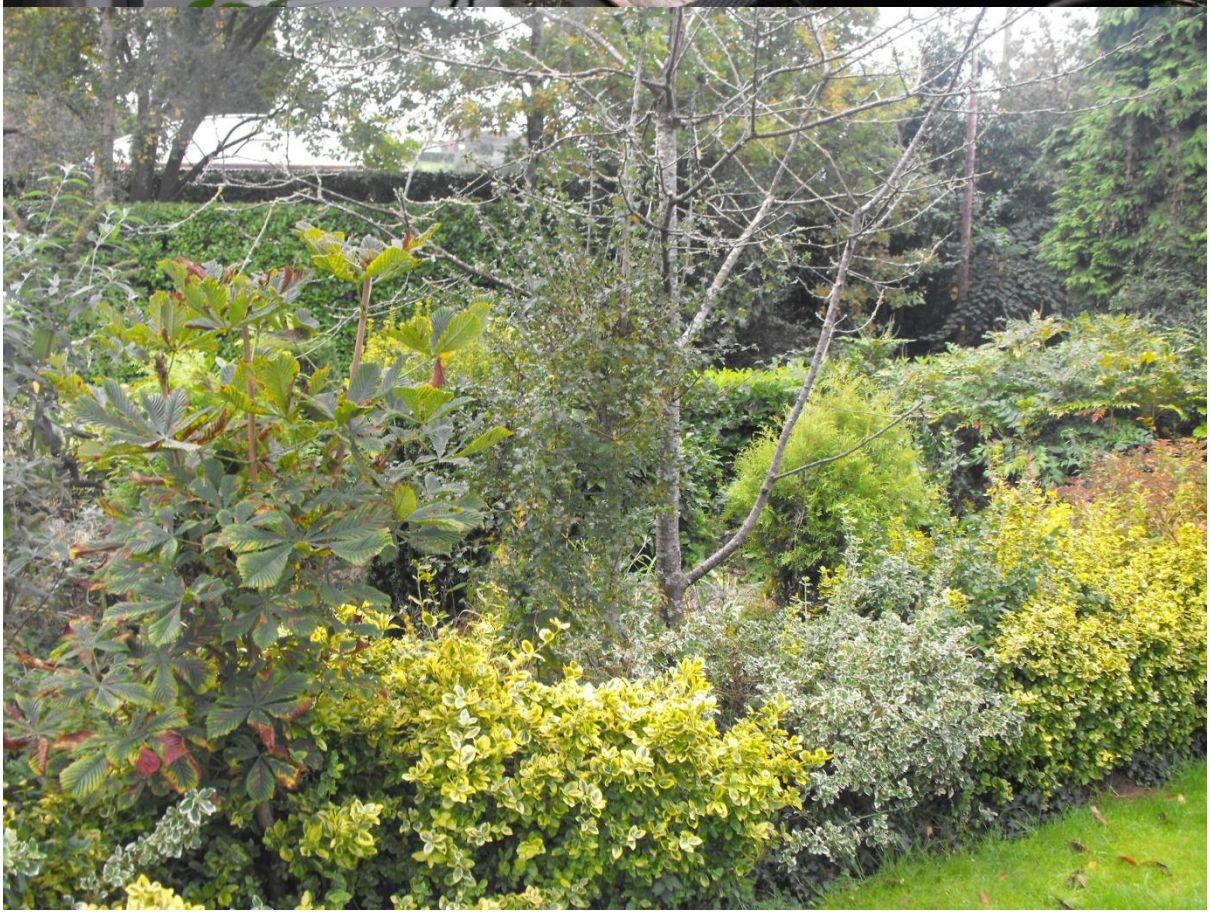
Appendix 1a Satellite Image

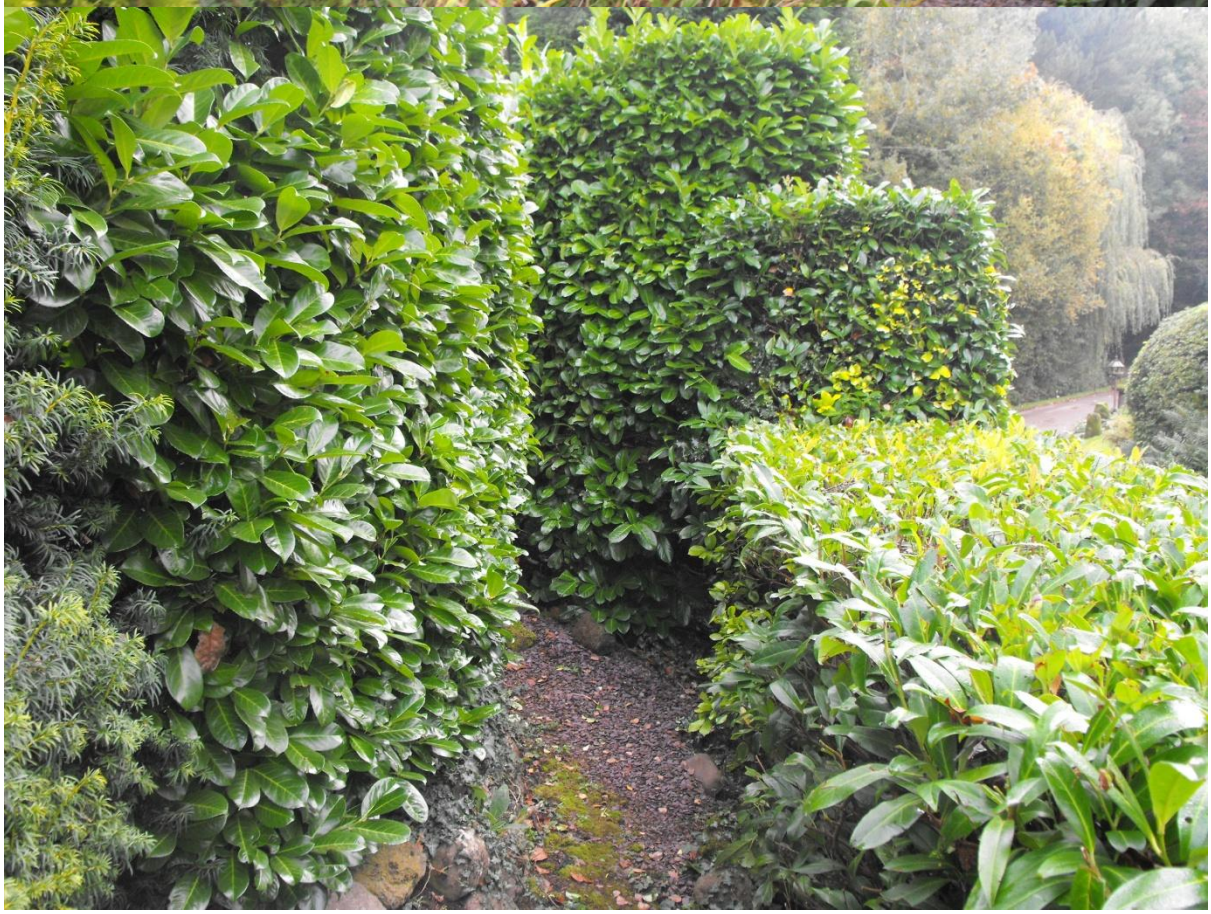
Map data 2023 © Google. [18]

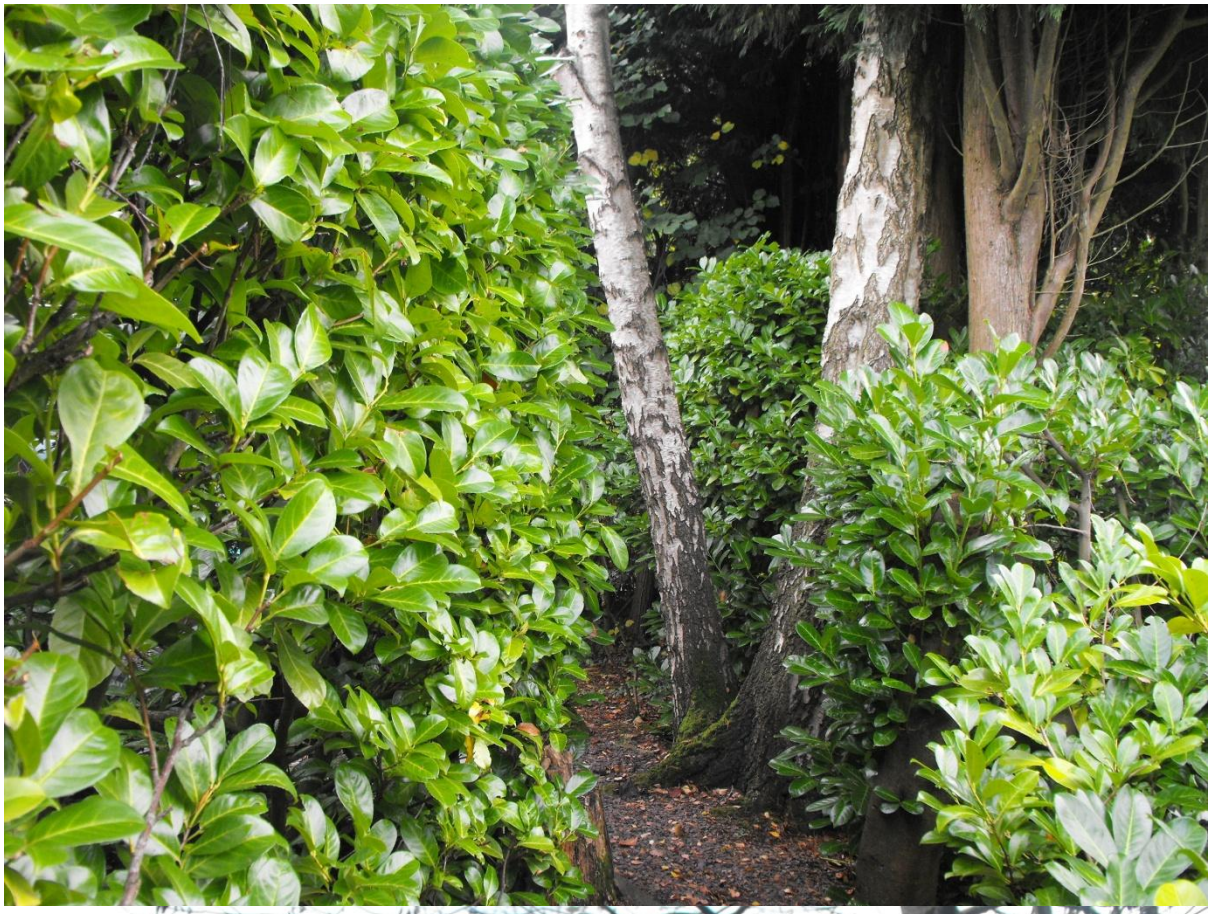
Appendix 1d Phase 1 Habitat Map



Appendix 2 Photographs







Appendix 3 Species Lists

Omitted

Biodiversity Gain

Appendix 4a: British Native Trees to Attract Wildlife

Species	Average mature / ultimate height			Growth rate			Soil/ground conditions					Tolerant of sites that are				Valuable for	
	0.5-5m	6m-15m	16m+	Fast	Medium	Slow	Wet ground	Light sandy soils	Heavy soils	acid	alkaline	Shaded	Polluted	Coastal	Exposed	Birds	Insects
Alder		●		●			■		●		●	●	●		●		●
Ash			●		●		▲	●	●		●	●	●	●	●		
Aspen		●		●					●	●	●		●	●	●		●
Beech			●			●		●			●	●					●
Birch, Downy		●		●			▲			●			●		●		●
Birch, Silver		●		●				●		●			●		●		●
Blackthorn	●			●				●	●	●	●			●	●	●	●
Broom	●				●			●		●	●	●	●	●			●
Buckthorn, Alder	●					●	▲			●							
Cherry, Wild		●			●			●	●		●		●				
Cherry, Bird		●			●			●	●	●		●				●	●
Crabapple		●				●		●	●	●	●	●				●	●
Elder		●		●				●	●	●	●	●	●	●	●		●
Elm, Wych		●			●				●		●	●	●	●	●		●
Gorse	●				●			●		●	●					●	●
Hawthorn	●				●			●	●	●	●		●	●	●	●	●
Hazel		●		●					●		●	●					●
Holly		●				●		●	●	●	●	●	●	●	●	●	
Lime, small-leaved			●		●				●		●	●					●
Maple, Field		●			●				●		●	●	●				
Oak, Pedunculate			●			●			●		●				●	●	●
Oak, Sessile			●			●	▲	●	●	●		●			●	●	●
Pine, Scots			●		●			●		●					●		●
Poplar, Black			●	●			▲	●	●		●						●
Rose, Dog	●				●			●	●		●	●	●		●		●
Rose, Guelder	●				●		▲		●		●	●					●
Rowan		●		●				●		●			●	●	●	●	
Spindle	●				●				●		●	●					
Whitebeam, Common		●			●			●	●		●						●
Wild Service	●					●			●		●	●		●		●	
Willow, Crack		●		●			■				●		●	●	●	●	●
Willow, Goat		●		●	●		■		●		●	●	●	●	●	●	●
Willow, White			●	●			■				●		●	●	●	●	●
Yew		●				●		●			●	●			●	●	

■ Only species to survive waterlogged sites with anaerobic conditions.

▲ Will tolerate wet ground if there is some seasonality of "flushing (water movement) within the soil.

Appendix 4b: Non-native plants to attract wildlife

Buddleja X weyeriana cultivars

You can plant the orange-flowered B. X weyeriana hybrids with a clear conscience as they don't appear to produce viable seed, they also attract a broad spectrum of insects including both butterflies and bees, and they flower late into the season when nectar is scarce. The beautiful B. x fallowiana 'Lochinch' with silver leaves is attractive to butterflies and is also said not to produce seeds. The orange ball Buddleja (B. globosa) from South America seems to attract bees rather than butterflies.

Bupleurum fruticosum ('Shrubby Hare's Ear')

A shrubby evergreen umbellifer from Southern Europe, where it is often cultivated. It has leathery aromatic foliage and umbels of yellowish flowers, a bit like those of Fennel, that are very attractive to hoverflies and other small insects. Well worth growing for this reason.

Ceanothus X 'Gloire de Versailles'

Ceanothus come from the Western United States. Most Ceanothus have bunches of very small flowers that don't seem very attractive to insects. 'Gloire de Versailles' however is a hybrid with loose bunches of pale blue tubular flowers that are very attractive to butterflies and bees.

Caryopteris X clandonensis 'Kew Blue'

A deciduous shrub from China for a sunny position, has small tubular blue flowers attractive to insects.

Clethra alnifolia ('Sweet Pepper Bush')

A deciduous shrub from the Eastern united States that likes damp, acid or woodland soil. Has spikes of small scented white flowers attractive to moths and butterflies.

Hebe X 'Great Orme' and H. X 'Midsummer Beauty'

Hebes are close relatives of the herbaceous genus Veronica, and come from New Zealand. Some are much more attractive to insects than others. 'Great Orme' is a medium-sized hybrid with pale pink flowers that are attractive to butterflies. It is a distinctive cultivar and available true to name in the nursery trade.

'Midsummer Beauty' seems to be more of a generic name for a series of large shrubs with blue or grey-blue flowers in long spikes, attractive to both bees and butterflies. There are a number of other blue and white flowered Hebes that seem very popular with bumblebees.

Myrtus communis ('European Myrtle')

An attractive evergreen shrub from the South of France and Spain with small evergreen aromatic leaves. It has been grown in our gardens for centuries, but is susceptible to hard frost and prefers a site against a warm sunny wall. Fluffy white flowers in early summer are bumblebees' heaven. Purplish berries follow later which are stripped by blackbirds in January.

Amelanchier species ('Shad Bush')

Shrubs with white cherry-like blossoms early in the year, followed by blackish berries in late summer. Valuable for the berries as a source of food for berry-eating birds when most other berries are not yet ripe.

Erica terminalis ('Corsican Heath')

A shrubby heather-like plant popular with bumblebees. The Cornish Heath, Erica vagans, from the Atlantic fringes of Europe is also a good bee plant. Erica manipuliflora, from Southern Europe, and its hybrid Erica X griffithii have fragrant flowers that attract butterflies.

Eupatorium ligustrinum

A late-flowering evergreen bush that looks very like a privet, but has bunches of white fluffy flowers in September and October. These flowers seem very attractive to range of insects, especially hoverflies.

Ribes sanguineum (Flowering Currant)

It is a very good early flower for bumblebees, as indeed are the flowers of the closely related blackcurrants and gooseberries.

Appendix 4c: Plants good for moths, with species of moth they encourage beside

Plant	Moths
Bird's Foot Trefoil *(lotus corniculatus)*	*Burnet, Belted Beauty, Chalk Carpet, Latticed Heather*
Bladder Campion *(silene vulgaris)*	*Campion, Marbled Coronet, Nettle Pug, Marbled Clover, Dark Brocade, Sandy Carpet*
Borage *(borago officinalis)*	*Crimson Speckled*
Wild Clary *(salvia horminoides)*	*Twin-spot Carpet*
Biting Stonecrop *(sedum acre)*	*Yellow Ringed Carpet, Northern Rustic*
Cowslip *(primula veris)*	*Plain Clary, Northern Rustic*
Dropwort (*filipendula hexapetala)*	*Satyr Pug*
Evening Primrose *(oenothera biennis)*	*Elephant Hawk*
Field Scabious *(kanutia arvensis)*	*Marsh Fritillary, Narrow Bordered Bee Hawk, Lime Speck Pug, Shaded Pug*
Foxglove (*digitalis purpurea)*	*Lesser Yellow Underwing, Foxglove Pug*
Golden Rod *(solidago)*	*Lime Speck Pug, Bleached Pug, Golden Rod, Wormwood Pug, V Pug*
Greater Stitchwort (*stellaria holostea)*	*Dart, Yellow Underwing, Marsh Pug, Plain Clary*
Hedge Bedstraw (*gallium mollugo*)	*Ruddy Carpet, Royal Mantle, Common Carpet, Wood Carpet, Water Carpet, Beech Green Carpet, Mottled Grey, Green Carpet*
Hedge Woundwort (*stachys sylvatica)*	*Rosy Rustic, Plain Golden Y, Sub-angled Wave*
Hemp Agrimony (*eupatorium cannabinum)*	*Wormwood Pug, V Pug, Lime Speck Pug, Marsh Pug, Gem, Scarce Burnished*
Herb Bennet (*geum urbanum)*	*Riband Wave*
Herb Robert (*geranium robertianum)*	*Barred Carpet*
Hollyhock (*althaea rosea)*	*Mallow*
Kidney Vetch (*anthyllis vulneraria*)	*6-belted Clearwing*
Lady's Bedstraw (*gallium verum*)	*Hummingbird Hawk, Small Elephant Hawk, Gallium Carpet, Plain Wave, Riband Wave, Bedstraw Hawk, Archer's Dart, Red Chestnut, Ruddy Carpet, Royal Mantle, Common Carpet, Water Carpet, Beech Green Carpet, Red Twin Spot Carpet, Wood Carpet, Mottled Grey, Green Carpet*
Lady's Mantle (*alchemilla mollis)*	*Red Carpet*
Lesser Knapweed (*centaurea nigra*)	*Silver Y, Lime Speck Pug, Satyr Pug*
Lesser Meadow Rue	*Marsh Carpet*
Maiden Pink (*dianthus deltoides*)	*Marbled Coronet*
Marjoram (*majorana orignaum*)	*Sub-angled Wave, Lace Border*

Marshmallow (*althea officinalis*)	*Marshmallow*
Meadow Clary (*salvia pratensis*)	*Brown Spot Pinion, Hebrew Character, Powder4ed Quaker, Emperor*
Mullein	*Mullein, Striped Lychnis*
Navelwort (*umbilicus rupestris*)	*Weaver's Wave*
Pink	*Hawk*
Primrose *(primula vulgaris)*	*Pearl Bordered Yellow Underwing, Double Square Spot, Green Arches, Triple Spotted Clary, Ingrained Clary, Silver Ground Carpet*
Purple Loosestrife (*lythrum salicaria)*	*Emperor, Small Elephant Hawk, Powdered Quake*
Ragged Robin (*lychnis flos cuculi*)	*Campion, Lychnis, Twin-spot Carpet, Marbled Clover*
Red Campion (*melandrium rubrum*)	*Rivulet, Campion, Lychnis, Twin-spot Carpet, Sandy Carpet, Marbled Clover*
Red Clover (*trifolium pratense*)	*Latticed Heath, Chalk Carpet, Belted Beauty, Mother Skipton, Shaded Broad Bar, Narrow-bordered 5-spot Burnet*
Red Valerian (*centranthus ruber)*	*Elephant Hawk*
Rock Rose (*helianthemum mummularium)*	*Amulet, Cistus Forester, Silky Wave, Ashworth's Rustic, Argus, Wood Tiger, Northern Brown*
Rosebay Willowherb	*Twin-spot Carpet, Small Phoenix, White Banded Carpet*
Small Scabious (*scabiosa columbaria*)	*Lime Speck Pug, Shaded Pug*
Soapwort (*saponaria officinalis*)	*Marbled Clover*
St John's Wort	*Treble Bar*
Sweet Violet (*viola odorata*)	*Broad Bordered Yellow Underwing, Lesser Broad Bordered Yellow Underwing*
Tansy (*tanacetum vulgare*)	*Essex Emerald*
Thrift (*armeria maritima*)	*Amulet, Feathered Ranunculus, Thrift Clearwing, Black Banded*
Thyme	*Thyme Pug, Satyr Pug, Lace Border*
Toadflax (*linaria vulgaris)*	*Toadflax Pug, Marbled Clover*
Valerian (*valeriana officinalis*)	*Valerian Pug, Lesser Cream Wave*
White Campion (*silene latifolia alba*)	*Marbled Coronet, Marbled Clover, Sandy Carpet*
Wild Clematis (*clematis vitalnba*)	*Lime Speck Pug, Haworth's Pug, Small Emerald, The Fern, Pretty Chalk Carpet, Least Carpet, Pug, Chalk Carpet, Small Waved Umber*
White Clover (*trifolium repens*)	*Cloudy Wing Skipper, Orange, Clouded Sulphur*
Wild Pansy (*viola tricolor)*	*Pluvia*
Wild Strawberry (*fragaria vesca*)	*Amulet, Yellow Shell, Beautiful Carpet, Dark Marbled Carpet*

Wild Wallflower	*Flame Carpet*
Wormwood (*artemesia absinthium*)	*Wormwood Pug*
Yarrow (*achillea millefolium*)	*Essex Emerald, Lime Speck Pug, Straw Belle, Wormwood Pug, Ruby Tiger, Yarrow Pug, V Pug, Sussex Emerald, Grey Pug, Tawny Speckled Pug, Common Pug, Mullein Wave*
Yellow Flag Iris (*iris pseudacorus)*	*Belted Beauty, Water Ermine*
Barberry	*Scarce Tissue, Wheat*
Blackthorn/Sloe	*March, Common Emerald, Little Emerald, Mottled Pug, Feathered Thorn, Orange, Scalloped Hazel, Scalloped Oak, August Thorn, Brimstone, Early Thorn, Pale Brindled Beauty, Blue Bordered Carpet, Broken Barred Carpet, November, Pale November, Winter, Sloe Pug, Green Pug, Sharp Angled Peacock, The Magpie*
Broom	*Grass Emerald, The Streak, Broom-tip, Lead Belle, Spanish Carpet, Frosted Yellow*
Dog Rose	*V Pug, Little Thorn, Shoulder Stripe, Barred Yellow, Streamer*
Hawthorn	*March, Common Emerald, Little Emerald, November, Pale November, Winter, Mottled Pug, Pinion Spotted Pug, Common Pug, Grey Pug, Peppered, Brindled Beauty, Pale Brindled Beauty, Feathered Thorn, Scalloped Hazel, The Magpie, Scalloped Oak, Large Thorn, Early Thorn, Oak Tree Pug, Broken Barred Carpet*
Hazel	*Oak Beauty, Small White Wave, The Magpie, Clouded Border, Barred Umber, Winter, Pale November*
Oak	*Brindled Pug, Oak Tree Pug, Spring Usher, Peppered, Oak Beauty, Brindled Beauty, Pale Brindled Beauty, Small Brindled Beauty, Feathered Thorn, Orange, Lunar Thorn, Purple Thorn, Scalloped Hazel, Scalloped Oak, Scorched Wing, Large Thorn, August Thorn, November, September Thorn, Pale November, Winter, March, Blotched Emerald, Common Emerald, Little Emerald, False Mocha, Maiden's Blush, Marbled ug, Red-green Carpet, Broken Barred Carpet*
Rowan	*Orange Underwing, Welsh Wave, Mottled Pug, Red-green Carpet*
Wild Privet	*Lilac Beauty, Barred Toothed Striped, Yellow Barred Brindle,*

Appendix 4d: Plants and Habitats to attract Bats

1. Flower Borders and Lawns

Larvae and adults of many insects will be catered for by introducing a wide range of food, in the form of nectar, seeds and fruit as well as vegetation.

- Grow night scented flowers. These attract moths and other night flying insects of particular importance to bats.
- Plant herbs and old fashioned cottage-garden annuals attractive to insects.
- Leave part of your lawn un-mown from about mid-May to encourage insect larvae which feed on grass. Allow to seed before cutting, and rake up the hay afterwards.
- Sow wild flower seed collections in your borders.

2. Trees and Shrubs

At woodland edges space and sunshine combine with the trees to give shelter and warmth, and insects will concentrate there. So even in the smallest garden try to have at least one tree or shrub. Native trees are more attractive to insects than foreign species.

If space is limited, silver birch and goat willow are quick growing and are host to many insect visitors. With a little more space, try to make a bank of vegetation to give your garden a woodland edge structure.

3. Shelter Belts

Rows of bushes or trees can be created or improved, encouraging concentrations of insects and providing a feeding area for bats,

- Plant up gaps in natural hedges,
- A row of fast-growing cypress can be valuable.
- Train climbers using battens against a wall or fence, to provide possible roosting sites.
- Create a sheltered corner by using any combination of walls, fences, hedges or woodland edge at two angles.

Scented herbs

Chives, Borage, Lemon balm, Marjoram, Mint - many varieties

Night scented flowers for the border (in approximate order of flowering)

Bedding Plants

Nottingham catchfly	Silene nutans	
Night-scented catchfly	S. noctiflora	
Bladder campion	S, vulgaris	
Night-scented stock	Matthiola bicornis	
Sweet rocket	Hesperis natronalis	
Evening primrose	Oenothera biennis	
Tobacco plant	Nicotiana affinis	
Cherry pie	Heliotropun x hybndurr	
Soapwort	Saponaria officinalis	

Climbers

European honeysuckle	Lonicera caprifolium	July-November
Italian honeysuckle	L. etrusca superba	July-August
Japanese honeysuckle	L. japonica halliana	August-October
Honeysuckle (native)	L. periclymenum...	July-August
White jasmine	Jasminium otiicinale	
Dogrose	Rosa canina	
Sweetbriar	R. rubiginosa	
Fieldrose	R. arvensis	
Ivy	Hedera helix	
Bramble - many species		

Large trees, small trees and shrubs

Oak	Quercus robur & Q. petrea
Ash	Fraxinus excelsior
Silver birch	Betula pendula
Field maple	Acer campestre
Hawthorn	Crataegus monogyna
Alder	Ainus glutinosa
Goat willow	Salix caprea
Guelder rose	Viburnum opulus
Hazel	Coryllus avellana
Blackthorn	Prunus spinosa
Elder	Sambucus nigra
Buddleia davidii	

Rock plants for walls

Ivy-leaved toadflax	Cymbana muralis
Wall pennywort	Umbilicus rupestris

Appendix 4e: Plants and Habitats to Attract Birds

Plants to Feed Birds.

Many shrubs, climbers, trees, garden and 'wild' plants provide food, directly or indirectly, through berries, seeds or the insects they attract.

Berry or fruit bearing trees and shrubs will attract members of the Thrush family, Blackbird, Fieldfare, Mistle and song Thrush, Redwing and Robin. Also Starlings and, in some winters, Waxwing and even some Warblers, e.g., Blackcaps who eat berries in the early autumn before they migrate. Unless mentioned, the berries attract all the above birds plus others as specified.

Shrubs with Berries.

- Aronia arbutifolia (Red Chokeberry) : bright red fruits
- Berberis: most forms have black/purple berries, especially loved by Blackbirds.
- Callicarpa 'Profusion': bright violet coloured berries.
- Cornus (Dogwood): blue tinted white berries (not C.Mas).
- Cotoneaster : prolific red, orange or yellow berries - birds often choose red first, through orange to yellow last. (Note berries are poisonous to humans).
- Euonymous europaeus (spindleberry: large bright red fruits which open to emit orange red seeds.(Note berries are poisonous to humans).
- Ilex (Holy): red, orange or yellow berries - red berries preferred (need partner to fruit).(Note berries are poisonous to humans).
- Mahonia: decorative black berries.
- Rosa rugosa : large red hips, particularly attractive to Greenfinches which pick out the seeds.
- Sambucus (Elder): red or black berries - over 32 species reported eating them, especially Blackcap and, occasionally, Collar Doves.
- Viburnum opulus (Guelder Rose) : translucent berries
- Viscum album (Mistletoe): familiar white globular berries of this parasite that grows in trees, especially apple, are a good food source for Blackbirds.

Climbers with Berries.

- Chaenomeles (Flowering Quince/Cydonia): Autumn Quinces.
- Hedera (Ivy) : shiny black berries
- Lonicera (Honeysuckle: red or black berries attract Thrushes plus Bullfinches and Marsh and Willow Tits. (Note berries are poisonous to humans).
- Pyracantha (Firethorn) :red, orange or yellow berries - choose red for the birds to eat before Christmas usually with orange or yellow to follow in a hard winter.
- Clematis vitalba (Old Man's Beard): seed heads are enjoyed by many birds.

Trees with Berries or Fruits.

- Crataegus monogyna (Hawthorn : red berries.
- Malus (Crab Apple: red fruited varieties are best for birds.
- Prunus (Cherries): fruits quickly picked off.
- Sorbus aucuparia (Mountain Ash/Rowan) :red, orange or pink flushed white berries. The darker the fruits the more attractive they are to birds. Occasionally bring Spotted Flycatchers to the garden.
- Taxus (Yew): sparse red berries attract a wide range of birds. Attractive also to Badgers.(Note berries are poisonous to humans).

Trees with Seed Cones.

- Alnus glutinosa (Alder), and Betula (Birch): seeds from cones enjoyed by Goldfinches, Greenfinches, Redpolls, Siskins and Tits.
- Pinus sylvestris (Scots pine) : pine cones from which Crossbills and Great Spotted Woodpeckers prise seed.

Trees with Blossom.

- Although not always welcome, Bullfinches strip the buds of fruit trees in late winter and early spring.

Garden Plants.

- Crocus: yellow and orange flowers are attractive to Sparrows because they contain yellow pigment carotene to brighten up their plumage for the breeding season.
- Echinops ritro (Globe Thistle: seed heads are eaten by Goldfinches and flower heads attract insects.
- Helianthus (Sunflower: seed heads are eaten by Greenfinches. The nectar attracts a wide range of insects.
- Lavandula (Lavender): flowers going to seed are attractive to Goldfinches.
- Primula (Polyanthus/Primrose): yellow and orange flowers are attractive to Sparrows.

Wild Plants.

You can provide a haven for wild plants to exist in their own right recreating a wild meadow to attract insects which, in turn, attract birds and other wildlife. We sell nursery grown 'wild' plants throughout the year so that you can go wild in a corner of your garden.

- Betony.
- Bird's Foot Trefoil.
- Common Poppy - seeds are favourite food of Finches.
- Field Scabious.
- Greater Knapweed.
- Meadow Cranesbill.
- Musk Mallow.
- Ox Eye Daisy.
- Oxlip.
- Primrose.
- Rough Hawkbit.
- Self Heal.
- Teasel - seed heads are a favourite food of Goldfinches.
- Wild Strawberry

The Lawn.

This is one of the principal sources of food for birds who enjoy feeding on insects including-:Ants eaten by Green Woodpeckers; Leatherjackets by Starlings; Snails by Song thrushes; Slugs by Toads and Worms by Blackbirds, Robins and Thrushes.

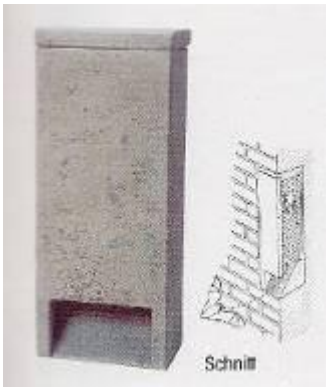
Cover and Protection.

By surrounding your garden by thick and often prickly hedging and dotting suitable shrubs around, you can provide safe nesting havens that are protected from marauding cats and even the unwelcome attention of unfriendly humans.

The most successful shrubs and trees for this purpose include:-

- Conifers especially chamaecyparis, Taxus (Yew) and Thuja Placata.
- Crataegus.
- Eleagnus.
- Hedera (Ivy) up a tree.
- Ligustrum (Privet) especially for Blackbirds.
- Lonicera (Honeysuckle).
- Pittosporum.
- Salix caprea (Weeping Kilmarnock Willow).

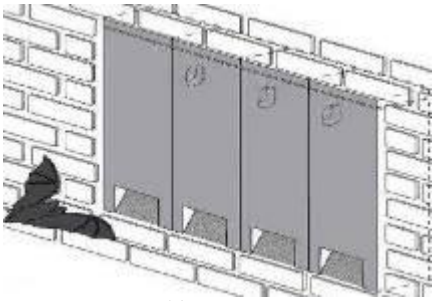
Appendix 5: Bat Boxes and Bat Brick Specifications to Provide Bat Habitat on Buildings



Schwegler 1FR can be installed within brick masonry just leaving the entrance and can be rendered over.

Ibstock Enclosed Bat Box B is designed specifically for the pipistrelle bat.

Schwegler WI integral Summer & Winter Bat Box.



Schwegler 2FR Bat Tube is the same design as the 1FR but with holes in the sides. Multiple tubes to be placed next to each other to form a much larger roost.

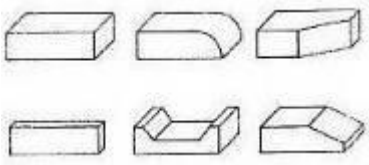
Schwegler 27 wall can be installed within brick masonry. It can be rendered over.

Schwegler 1FQ wall-mounted bat box.

Schwegler 1FE Bat Access Panel can be surface-mounted or integrated. The open back enables bats access through exterior walls.

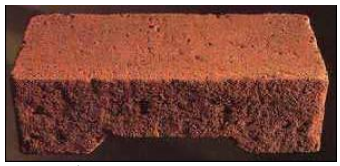
Ibstock Bat Box with Engraved Motif C is designed specifically for the pipistrelle bat and is available in all brick colours.

Ibstock Free Access Bat Box allows bats to access the cavity wall of the building.



Modified bricks for creating bat access points. A standard brick is shown top left. Purpose made bat bricks can also be used.

Norfolk Bat Brick allows bats to access the cavity wall of the building. The slits are the perfect size for Natterer's bat, Daubenton's bat, Brandt's bat and Brown long-eared.



Marshall's Bat Access Brick *(Also available in stone)* allows bats access into the cavity wall of the building.

APPENDIX 6: Insect Box Specifications

A variety of insect boxes is recommended to encourage a diversity of insect species and encourage bats.

Wooden Insect House

A general insect habitat for beneficial insects in summer and, later in the year, over wintering ladybirds and lacewings. Locate in a sheltered place near nectar or pollen plants or by a pond. Durable and strong construction in acacia, oak or larch with no maintenance necessary. Dimensions: 22 × 13.5 × 13.5cm.

Woodcrete Insect House

An insect nest made from long-lasting, insulating, woodcrete, with holes of different sizes providing homes for a variety of beneficial insects such as bees and solitary wasps. Dimensions: 14 × 8 × 26cm; Weight: 3.65kg

Insect House with Inspection Tubes

This nesting and hibernation box for insects has a woodcrete exterior with a wooden front panel which can be removed for observation. Through the transparent tubes you can see the usually hidden lifecycle of many solitary types of bees and hymenoptera including egg-laying, development of larvae and sealing of brood chambers. Typical inhabitants are wild bees and thread-waisted wasps. All the species attracted to this box are harmless non-aggressive pollinating insects.
Dimensions: 33 × 21 × 51 cm; Weight: 7.1kg.

Appendix 7. Bird Box Specifications

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

2. Schwegler No 11 House Martin Nest (Code: 002097D)

It is increasingly difficult for swallows and house martins to find suitable nest-building material. The mud they do find, if any, is often poor quality. In addition, the walls of buildings are nowadays often very smooth As a result, nests tend to fall down, sometimes with the nestlings inside. In many places, the vibration caused by heavy vehicles shakes the nests loose. This nest has been developed to enable House Martins to breed successfully on external facades without overhanging eaves and has proved highly successful.

3. Schwegler No 16 Swift Box (Code: 002087D)

The design of this box mimics bell tower louvres. It has a removable panel for easy inspection of the nest chamber.

4. 2H Robin Box (Code: 002015D)

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts. Best sited on the walls of buildings with the entrance on one side.

5. Sparrow Terrace

House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. No maintenance required. Designed for fixing to walls (not suitable for fences or sheds due to the weight of the box). Available in choice of stone colour (pictured) or brown.

6. Schwegler 1B Bird Box

The most popular box for garden birds, the 1B appeals to a wide range of species, and is the official nest box of National Nest Box Week. The box can be nailed to the trunk of a tree, or hung from a branch. Woodcrete, 23cm high x 16cm diameter. Available in choice of four colours - brown, green, red or white. Available with 32mm entrance hole (standard) or with 26mm hole

7. Schwegler Built-in Multi-System Main Cavity Bird Box (Code: 002101D)

The multi-system has exchangeable front panels for kestrels, jackdaws or swifts. The system can be installed in all types of buildings, whether constructed of concrete, brick or timber. To meet the needs of various species of bird, different types of front panel are available for use with the main cavity. The main cavity is supplied without a front panel which should be ordered separately. **Positioning:** At heights of 5m or more on a sheltered external wall. **Suitable for:** Dependant on the type of front panel chosen. **Material:** Woodcrete **Height:**415mm **Width:** 445mm **Depth:**415mm **Weight:**2.8Kg