

**FOUR OAKS,  
HEADCORN, KENT**

**Preliminary Ecological Appraisal Report**

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<b>Author</b>	Louise Ryan
<b>Reviewer</b>	Bea Davis
<b>Client name</b>	DHA Ltd
<b>Corylus reference</b>	20086

**CONTENTS**

	Page Number
<b>1.0 Introduction</b>	<b>1</b>
<b>2.0 Methodology</b>	<b>2</b>
<b>3.0 Results</b>	<b>4</b>
<b>4.0 Evaluation and Recommendations</b>	<b>10</b>
<b>5.0 Conclusion</b>	<b>16</b>

**References****Tables**

Table 1 – Bat Habitat/Structure Assessment Criteria

Table 2 – Pond Location and Distances within 250m Radius

**Figures**

Figure 1 – Phase 1 Habitat Map and Bat Building Plan

Figure 2 – Annotated Photographs

Figure 3 – Pond Map

**Appendices**

Appendix 1 – Bat Legislation

Appendix 2 – Reptile Legislation

Appendix 3 – Amphibian Legislation

Appendix 4 – Bat Lighting Specifications

Appendix 5 – RHS Pollinating plants

## SUMMARY

- A Preliminary Ecological Appraisal has been undertaken at the Site at Four Oaks in Headcorn, Kent, in April 2020. No rare habitats or botanical species were recorded within the Site boundary and no invasive species were noted at the time of the survey.
- The Site is in a rural environment and habitats present are typical of those associated with a farmyard complex. There are two types of priority habitat within 3km; deciduous woodland and traditional orchard.
- Potential for roosting bats has been found in the roundel B4 and this building has been assessed to have 'Moderate' suitability for day roosting bats and 'Low' suitability for hibernating bats under the BCT guidelines (Collins, 2016). A minimum of two evening emergence surveys have been recommended between May – August to determine if a bat roost is present within the building. If further questions remain about a potential roost, an additional emergence/re-entry survey during the bat active period may be required. Further recommendations, for instance, regarding a potential hibernation roost will be provided following the results of the summer bat emergence surveys. If a bat roost is present a mitigation strategy and European Protected Species mitigation (EPSM) licence will be required to lawfully demolish the building.
- Reptile habitat has been identified in the Site and a presence/likely absence survey is recommended to inform mitigation or management that may be required.
- The Site supports suitable terrestrial habitat for great crested newt (GCN) and other amphibians and there are 11 ponds within a 250m radius of the Site. Further surveys of these off-site ponds are required, including a Habitat Suitability Index (HSI) assessment, and if found suitable, presence/likely absence surveys will be required. If GCN are found in the off-site ponds, a mitigation strategy and an EPSM licence may be required to permit the works.
- With regard to breeding birds, it has been recommended that clearance of the buildings and any vegetation is undertaken outside the core bird breeding season 1<sup>st</sup> March to 31<sup>st</sup> August. The timings will need to take into account timings for bats, if a roost is found in the building B4.
- Recommendations have been made to enhance the Site for biodiversity in accordance with the National Planning Policy Framework. These include generous native and nectar rich planting, installation of bird boxes and enhancements for hedgehogs. Further recommendations to enhance the Site for biodiversity will be provided on completion of the protected species surveys.

## **1.0 INTRODUCTION**

- 1.1 Corylus Ecology was requested to undertake a Preliminary Ecological Appraisal (PEA) of land at Four Oaks in Headcorn, Kent, hereinafter referred to as 'the Site'. The Site is within a rural environment, located at OS grid reference TQ 81246 45471, approximately 2.4km to the north-west of Headcorn village. Immediately to the north, east and west of the Site is an arable field, to the south-east is a residential dwelling and a pond and to the south is Four Oaks road. The wider landscape is dominated by agricultural fields with a low number woodland areas. The Site is approximately 0.53ha in size.
- 1.2 The proposals include the demolition of the three detached agricultural buildings and dilapidated brick roundel to allow for residential development with associated landscaping.
- 1.3 The PEA survey was undertaken by Corylus Ecology on 22<sup>nd</sup> April 2020. The survey includes a Phase 1 Habitat Survey, which provides information relating to the habitats within the Site, and a Protected Species Assessment, which identifies potential for protected species and informs the need for further protected species surveys. The Protected Species Assessment includes a Bat Building Survey, which aims to identify any evidence of and potential for roosting bats.
- 1.4 The objectives of the survey were to:
- Classify and map the habitats within the Site according to those within the Phase 1 manual;
  - Determine the potential for protected species to occur within the Site, including an assessment of the buildings for potential to support bats;
  - Identify key ecological constraints to allow early avoidance or minimisation of ecological effects through appropriate design;
  - Suggest appropriate further surveys where necessary; and
  - Suggest measures to maintain and enhance biodiversity.

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## 2.0 METHODOLOGY

### 2.1 Desk Study

- 2.1.1 A preliminary search within 3km of the Site was undertaken for designated areas, priority habitats, and European Protected Species Mitigation (EPSM) licences using the MAGIC interactive mapping service (DEFRA, 2020). Records from the local biological records centre were not obtained due to the small scale of the Site and proposals.

### 2.2 Phase 1 Habitat Survey

- 2.2.1 The Site was subject to a Phase 1 Habitat Survey on 22<sup>nd</sup> April 2020. The habitats present on the Site were mapped in accordance with the '*Handbook for Phase I Habitat Survey*' (JNCC, 2003). Habitat areas and features of topographical and/or ecological interest were described in the form of target notes. These were later used to create botanical species lists by target note area and also to create a colour coded Phase I Habitat map. All nomenclature follows Stace (2019). Non-native or invasive species were also identified and mapped where appropriate.

### 2.3 Protected Species Assessment

- 2.3.1 The Phase 1 survey on 22<sup>nd</sup> April included an assessment of the potential for the Site to support protected species. This type of survey aims to assess the potential for protected species to occur due to the habitats present and does not include any species specific survey methods designed to demonstrate whether the Site is in fact used by such species. The exception is badgers *Meles meles* as field signs associated with this species, including latrines, holes, pushes, paths and hairs, can be searched for.

#### *Bat Building Survey*

- 2.3.2 A bat building survey was undertaken by Louise Ryan (licence no. 2018-37694-CLS-CLS) and Emma Waller of Corylus Ecology. A bat building survey would usually consist of a full internal and external inspection by licenced surveyors, however in light of the current situation with COVID-19, the assessment consisted of an external survey only which was carried out by two licenced surveyors whom maintained the 2m social distancing rule at all times.
- 2.3.3 The external survey consisted of an assessment of areas for potential for bats to roost; these include timber soffits, gable ends and roof tiles. A search for evidence, such as droppings and staining immediately below potential roost areas and for droppings around the base of the buildings, such as on windowsills, was also undertaken.

- 2.3.4 Structures are placed into four categories of potential according to the Bat Conservation Trust (BCT) guidelines: Negligible, Low, Moderate and High (Collins, 2016). The survey also included a search for evidence of breeding birds, including barn owl *Tyto alba*.

#### *Bat Habitat and Tree Assessment*

- 2.3.5 As part of the protected species assessment, the on-site habitats and trees within and at the boundaries of the Site were assessed for their suitability to support roosting, foraging and commuting bats and habitats were placed into one of four categories as described below (Collins, 2016):

*Table 1: Bat habitat/structure assessment criteria*

<b>Negligible</b>	Habitat with negligible features likely to be used by roosting, foraging or commuting bats.
<b>Low</b>	A habitat that could be used by small numbers of roosting or 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.
<b>Moderate</b>	Continuous habitat connected to the wider landscape that could be used by bats for commuting and foraging, such as lines of trees and scrub or linked back gardens.
<b>High</b>	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, hedgerows, lines of trees and woodland edge.

#### *Survey Constraints*

- 2.3.6 The PEA survey is based on a single site visit and the aim is to identify ecological constraints and potential for protected species to occur within a site. It should be noted that whilst every effort is made to identify non-native botanical species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), species may not be visible at certain times of year and therefore may not be detectable during single visit PEA site assessments.

### 3.0 RESULTS

#### 3.1 Desk Study

##### Statutory Designated Areas

- 3.1.1 The River Beult Site of Special Scientific Interest (SSSI) is the only statutory designated site within a 3km radius, located 1.2km to the south-west. This clay river is approximately 15.5 miles in length and is designated for the diversity of floral species it supports including flowering plants, mosses and liverworts. The river channel supports yellow water-lily *Nuphar lutea*, arrowhead *Sagittaria sagittifolia* and five species of pond weed including *Potamogeton berchtoldii*. The Site falls within the Impact Risk Zone (IRZ) of this SSSI.

##### Non-Statutory Designated Areas

##### *Ancient Woodland*

- 3.1.2 There are five small areas of ancient woodland within a 3km radius of the Site; four are to the south and one to the west. The nearest is a 0.33ha of unnamed ancient and semi-natural woodland, approximately 0.5km to the south. The largest area of ancient and semi-natural woodland is Brook Wood (9.7ha) ancient and semi-natural woodland which is 2.5km to the south-west.

##### *Priority Habitats*

- 3.1.3 Under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, an inventory of Priority Habitats was devised. This is a list of habitats and species of principal importance for the conservation of biodiversity in England. Within a 3km radius there are two habitat types including deciduous woodland and traditional orchard, the nearest habitat type is a 12ha area of deciduous woodland *circa.* 0.08km to the west of the Site. The nearest area of traditional orchard is 395m to the south-west of the Site. Although non-priority, there are also areas of good quality semi-improved grassland within a 3km radius of the Site.

##### *European Protected Species Mitigation Licences*

- 3.1.4 There are five records of a European Protected Species Mitigation (EPSM) licences from within a 3km radius of the Site and these are for bats and great crested newt (GCN) *Triturus cristatus*. The nearest is c.70m to the south-west of the Site and relates to both bats and GCN. The bat licence allowed the destruction of a non-breeding roost of common pipistrelle *Pipistrellus pipistrellus* in 2017 and the GCN licence is active between 2016 and 2023 and permits the destruction of a resting place for this species.

#### 3.2 Phase I Habitat Survey

- 3.2.1 The habitats present are shown within Figure 1, with further details provided by way of Target Notes (TN). Annotated photographs are provided in Figure 2.

### Scattered Trees

- 3.2.2 Immediately beyond the north-eastern corner of the Site, outside the Site boundary, is a line of mature pedunculate oak *Quercus robur* trees, TN1.
- 3.2.3 Along the south-eastern boundary is a small group of mature trees, TN6. Tree species present include copper beech *Fagus sylvatica purpurea*, hawthorn *Crataegus monogyna*, beech *F. sylvatica*, silver birch *Betula pendula*, cherry laurel *Prunus laurocerasus*, garden privet *Ligustrum ovalifolium* and willow *Salix* sp. The ground is heavily shaded by the tree canopy and cow parsley *Anthriscus sylvestris* is dominant with common hogweed *Heracleum sphondylium*, low scattered bramble *Rubus fruticosus* sp., agg, ground-ivy *Glechoma hederacea* and cleavers *Galium aparine*.

### Dense Scrub

- 3.2.4 In the north-east, surrounding the disused brick roundel (B4) is overgrown scrub, TN2. The vegetation is approximately 2m in height and dominated by field-rose *Rosa arvensa*, with blackthorn *P. spinosa*, bramble, elder *Sambucus nigra* and young oak saplings.

### Scattered Scrub

- 3.2.5 In the north-west, surrounding the north-eastern corner of building B2, is scattered scrub TN4. Bramble is dominant with blackthorn, dogwood *Cornus sanguinea* and common ivy *Hedera helix*.

### Semi-improved Grassland

- 3.2.6 In the north-east of the Site and around the base of the buildings is tussocky semi-improved grassland, TN3. In the north-east, the grass assemblage is dominated by cock's-foot *Dactylis glomerata* with false oat-grass *Arrhenatherum elatius*, creeping bent *Agrostis stolonifera*, tall fescue *Festuca arundinacea*, annual meadow grass *Poa annua* and red fescue *Festuca rubra*. Herbaceous species present include dandelion *Taraxacum officinale* agg., creeping buttercup *Ranunculus repens*, common bird's-foot-trefoil *Lotus corniculatus*, common hogweed, broad-leaved dock *Rumex obtusifolius*, bristly ox-tongue *Helminthotheca echioides*, cuckoo flower *Cardamine pratensis*, common nettle *Urtica dioica*, rosebay willowherb *Chamerion angustifolium*, red dead-nettle *Lamium purpureum*, cow parsley and creeping thistle *Cirsium arvense*. Around the base of the buildings the grass assemblage is similar to TN3, however the herb species composition is different and oxeye daisy *Leucanthemum vulgare* is abundant with daisy *Bellis perennis*, ground elder *Aegopodium podagraria*, ribwort plantain *Plantago lanceolata*, greater bird's foot-trefoil *L. pedunculatus*, dove's-foot crane's-bill *Geranium molle*, garlic mustard *Alliaria petiolate*, cut-leaved crane's-bill *G. dissectum*, field madder *Sherardia arvenis*, white dead nettle *Lamium album*, spear thistle *C. vulgare* and smooth sow thistle *Sonchus olearceus* (TN3a). In the west of the Site, at the base of B2, common nettle, cleavers *Galium aparine*, common hogweed and white dead-nettle are locally dominant (TN3b).



*Spoil*

3.2.7 There are a number of spoil piles around the Site and these are detailed below:

- In the north-east within the tussocky grassland TN3 are two fresh brash piles (c. 1m x 1m), S1 and S2.
- Adjacent to the eastern elevation of B3 is a 1.5m x 2m pile of corrugated asbestos that has become vegetated with bramble, S3.
- Within the dense scrub (TN2) is a large rubble pile that is approximately 3m x 5m in size, S4.
- Immediately to the east of B2 and within the area of grassland is a pile of disused building material including stacked wooden pallets and broken breeze blocks, S5. S5 is approximately 3m x 2m in size.
- In the north-west of the Site is a large rubble pile, 3m x 5m, S6. S6 is within the scattered scrub TN4.

*Hardstanding*

3.2.8 There is a hardstanding access road through the centre of the Site, TN7.

*Arable Field*

3.2.9 The eastern, northern and western boundaries of the Site include an arable field, TN8.

### 3.3 Protected Species Assessment

*Bat Building Assessment*Building B1 – Modern Agricultural Barn*External*

3.3.1 Building B1 is a detached, modern barn built with corrugated metal and breeze block brick footings. The building is orientated on a north – south axis with a simple pitched, single skinned corrugated metal roof. On the western elevation there are four large roller shutter doors and there is a 20cm gap between the top of these doors and the roof, providing direct access into the building. The southern elevation is formed of 1m high breeze blocks and then single skinned corrugated metal, the eastern elevation is entirely breeze blocks and the northern elevation is corrugated metal sheeting only. Evidence of nesting birds in the form of splashing was found on the western elevation. No evidence of bats or features suitable to support a bat roost were noted externally. It is likely that the construction of the building provides unsuitable conditions, such as temperature fluctuations and single-skinned materials, within the building for day roosting bats. This building is considered to have 'Negligible' potential for a bat roost under the Bat Conservation Trust (BCT) guidelines (Collins, 2016).

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#### Building B2 – Traditional Monitor Barn

- 3.3.2 Building B2 is a detached traditional 'Monitor' style barn orientated on a north-south axis. The walls are formed with tight metal sheets and the roof is simple pitched corrugated asbestos. There are vents at the eaves of the building. Externally no suitable features for a bat to roost or evidence of bats were found. Pigeons could be heard inside the building. It is likely that the construction of the building would result in unsuitable conditions within the building for day roosting bats. Overall this building has 'Negligible' potential to support a bat roost.

#### Building B3 – Modern Agricultural Barn

- 3.3.3 Building B3 is detached modern barn constructed with brick footings and corrugated metal with a pitched corrugated asbestos roof orientated on an east – west axis. The roof overhangs the eaves and it could be seen that it was not lined. There are four roller shutter doors on the southern elevation. It is likely that the construction of the building provides unsuitable conditions within the building for day roosting bats. No evidence of bats or suitable features for roosting bats were noted externally; this building has 'Negligible' potential for bats (Collins, 2016).

#### Building B4 – Brick Roundel

- 3.3.4 Building B4 is a derelict red brick roundel, considered to be the remains of a previous Oast building. The building is crumbling and there is no roof. The brickwork is double skinned and on the northern elevation there is a 10cm long and 3cm wide crack and on the south-eastern elevation is a 15cm long and 3cm wide crack; both these cracks appear to extend back into a suitable cavity for a bat roost. Within the structure is a mature elder tree. Birds were noted around the structure. No evidence of bat was found. This building is considered to have 'Moderate' potential for day roosting bats under the BCT guidelines. It is considered the cavity wall, particularly on the northern side where there is also an access point, would provide suitable conditions, such as temperature and humidity levels, for a small number of hibernating bats therefore the building is also considered to have 'Low' potential for hibernating bats under the BCT guidelines (Collins, 2016).

#### *Bat Habitat Assessment*

- 3.3.5 The Site supports small areas of suitable foraging and commuting habitat for bats and these are limited to the boundaries. The tussocky grassland in the north-east and overgrown areas of scrub and scattered trees provide Low quality foraging opportunities. The pond and line of oak trees immediately adjacent to the boundaries provide additional foraging and commuting opportunities, however the arable field which surrounds the Site is Low quality. The area of deciduous woodland to the west is optimal bat habitat and there is a good pond network within a 250m radius, however the wider landscape is predominately open farmland with few areas of woodland. Overall the Site is considered to provide 'Low' quality habitat for bats under the BCT guidelines (Collins, 2016).

*Bats - Trees*

- 3.3.6 One tree immediately beyond the north-eastern corner of the Site, within the line of oak trees, has been assigned 'Moderate' suitability for roosting bats. T1 is a mature oak (DBH 0.7m) and on the western side, there is a branch with a downward facing rot wound which appears to extend back into a cavity.

*Reptiles*

- 3.3.7 The area of tussocky grassland and overgrown scrub vegetation is high quality reptile foraging habitat, and the spoil piles S1 – S6 within these habitats have potential to be used as refugia features by sheltering and hibernating reptiles. The unmanaged margins along the boundaries of the arable field and the adjacent residential garden are potentially suitable habitat for reptiles and the pond immediately adjacent to the boundary has scrubby banks and increases the range of habitats and prey species available for reptiles, particularly grass snake *Natrix helvetica*.

*Amphibians*

- 3.3.8 There are no ponds within the Site and 11 within a 250m radius; the nearest (P1) is immediately beyond the south-western boundary (see Figure 3). There is suitable terrestrial habitat for GCN and other amphibians to commute between these off-site ponds and the Site in the form of hedgerows, unmanaged grassy margins around the arable fields and woodland. Four Oaks road is a minor road that is not likely to form a barrier to newt movement. The distance and locations of the off-site ponds are shown in Table 2 below.

Table 2 - Pond Distances and Locations of ponds within 250m radius

Pond	Distance	Direction
P1	1m	SE
P2	50m	S
P3	65m	S
P4	83m	W
P5	94m	S
P6	133m	SE
P7	175m	SE
P8	196m	SE
P9	150m	S
P10	205m	SW
P11	220m	W

- 3.3.9 The Site supports high quality terrestrial habitat for amphibians including GCN. The tussocky grassland provides good foraging opportunities and the areas of dense scrub and spoil piles provide suitable refugia features for resting and hibernating amphibians.

*Dormice*

- 3.3.10 There is no habitat suitable for dormice within the Site.

*Badger, Hedgehog*

- 3.3.11 No signs of badger, such as setts, latrines or snuffle holes, were recorded during the survey.

- 3.3.11 The spoil piles and grassland have potential to be used by hedgehog *Erinaceus europaeus*.

*Breeding Birds*

- 3.3.12 Evidence of birds was noted in noted in B1 and birds were noted using buildings B2 and B4. The other building B3 and overgrown areas of scrub and trees are also suitable for nesting birds.

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## **4.0 EVALUATION AND RECOMMENDATIONS**

### **4.1 Desk Study**

- 4.1.1 The Site falls within the Impact Risk Zone (IRZ) for the River Beault SSSI, located c.1.2km to the south-west of the Site. The proposals include the demolition of the buildings to allow for the development of four detached houses with car barns and associated landscaping. The categories listed for this SSSI IRZ include rural residential development of 100 or more houses therefore no further consultation with Natural England is required.

### **4.2 Phase 1 Habitat Survey**

- 4.2.1 No rare, nationally scarce or invasive botanical species or habitats were recorded during the Phase 1 Habitat survey. The Site is a typical farmyard complex with agricultural barns, hardstanding and overgrown habitats. The tussocky grassland, scrub and trees provide habitat that is beneficial for a range of wildlife including invertebrates, mammals, reptiles, amphibians, birds and bats.

### **4.3 Protected Species Assessment**

#### *Bat Building Assessment*

- 4.3.1 The dilapidated roundel structure B4 has 'Moderate' suitability for day roosting bats and 'Low' suitability for hibernating bats, based on the size and nature of the roosts that the structure is capable of supporting and the surrounding landscape. As the proposals include the demolition of this building and there is potential for bats in the building, further surveys are required to confirm the presence or likely absence of a bat roost.
- 4.3.2 The BCT guidance for a building with 'Moderate' suitability for day roosting bats is for two separate survey visits to be undertaken between May and August, with one of these surveys being a dawn re-entry survey (Collins, 2016). It is considered that two evening emergence surveys between May and August can be adequate to address the survey questions but, where a negative result or further questions remain about a potential roost, an additional dusk or pre-dawn survey may be required. Pre-dawn surveys can be particularly relevant where questions remain about a bat roost and emergence points. It is typical to leave at least three to four weeks between the surveys to show that reasonable effort has been made to determine whether a bat roost is present. It is therefore recommended that a minimum of two evening emergence surveys are undertaken of B4 between May and August.
- 4.3.3 Regarding hibernation roosts, the BCT guidelines recommend for buildings with 'Low' suitability for hibernating bats that bat surveys of the building are undertaken over the winter. However, it is considered that it would not be possible to thoroughly survey the cavity walls for hibernating bats using standard methods such as an endoscope and high powered torch due to the extent of the cavity wall and narrowness of the access points therefore the surveys would not give confidence in a negative

result. Further recommendations regarding a potential hibernation roost will be discussed following the results of the summer bat surveys of the building.

- 4.3.4 If the surveys confirm the presence of a bat roost in the building B4 then a European Protected Species Mitigation (EPSM) licence from Natural England would be required to lawfully complete the works.
- 4.3.5 The three barns B1, B2 and B3 have 'Negligible' potential for a bat roost. No further surveys of these buildings for bats are required.

#### *Bat Tree and Habitat Assessment*

- 4.3.6 There is one tree, T1, with 'Moderate' potential to support a bat roost immediately beyond the north-eastern corner of the Site. It is understood that the proposals will not directly impact this tree therefore at this stage no further surveys are considered necessary. If the proposals change and this tree is to be cut/felled through the development then further surveys to determine if bats are roosting in the tree will be required. A sensitive lighting strategy is recommended to reduce any indirect impacts through an increase in any artificial lighting in the area on any bat roost(s) that maybe be present in this tree.
- 4.3.7 The Site has been assessed as having 'Low' quality suitability for bats under the BCT guidelines (Collins, 2016); the only areas of suitable habitat are limited to the boundaries of the Site and these include the small area of unmanaged grassland, overgrown vegetation and scattered trees. It is not considered that the loss of these small areas of habitat will have a detrimental impact on the local bat population therefore no dedicated bat activity surveys are not recommended.
- 4.3.8 The Site is located within a rural environment and is likely to experience minimal lighting therefore it is recommended that any new lighting is sympathetic to the location. When the results of the bat emergence surveys are known and the Site proposals have been finalised a sensitive lighting strategy will be devised. However, general measures have been provided in Appendix 4 of this report.

#### *Reptiles*

- 4.3.9 The Site contains good quality reptile foraging, resting and hibernating habitat and this is the tussocky grassland, overgrown scrub and spoil piles S1 – S6 which are formed of brash, broken rubble and building materials. The Site is connected to suitable habitat in the immediate landscape in the form of a residential garden, a pond and unmanaged grassy margins around arable fields.
- 4.3.10 The proposal layout plan shows that the proposals will result in the loss of suitable reptile habitat. Reptiles are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as

amended) which makes it an offence to intentionally kill or injure a reptile. As the proposals will result in the loss of suitable reptile habitat a presence/likely absence survey for reptiles is recommended.

- 4.3.11 The reptile survey would entail setting out heat traps (rectangles of roofing felt) which the reptiles use to thermoregulate. Froglife (1999) recommends that a minimum of 10 heat traps are set out per hectare. However, the density may be increased in areas where more suitable habitat is present and to cover all the suitable habitat areas. Once set, the heat traps are left to bed in for a week and are then checked on seven occasions in suitable weather conditions. The number and species of reptile and breeding conditions are recorded. The optimal survey period for reptiles is March to September.
- 4.3.12 If reptiles are confirmed to be using the Site, precautions must be put in place to reduce threats to reptiles and to mitigate the effects of development. Mitigation for the more common British reptile species does not require a licence from Natural England but, if present, a mitigation strategy will need to be designed for approval by the local planning authority for the protection and conservation of reptiles.

#### *Amphibians*

- 4.3.13 There have been declines in the range and abundance of GCN in the last century and the species is fully protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitat and Species Regulations 2017. The protection afforded to GCN is such that the animals, their eggs and their habitats they use for rest or shelter are protected, including both aquatic and (in this case) terrestrial habitats, and consideration must be given to the potential for death or injury to individual animals.
- 4.3.14 There are no ponds within the Site, however there is one pond (P1) immediately adjacent to the boundary and 10 additional ponds within a 250m radius. The Site supports suitable foraging, resting and hibernating habitat for amphibians in the form of tussocky grassland, scrub and vegetated rubble and brash piles, and there is suitable terrestrial habitat for GCN to move between the Site and off-site ponds. The desk study has revealed that GCN are present in the landscape with an EPSM licence permitting the destruction of GCN resting habitat between 2017 and 2023 located 70m to the south-west.
- 4.3.15 GCN breed in ponds during March to June and use terrestrial habitats for the remainder of the year. GCN are surveyed at a landscape level because they form a series of subpopulations or metapopulations across suitable ponds and habitats (English Nature, 2001). This strategy enables populations to survive by shifting locations when conditions become unfavourable, such as when a breeding pond dries out. The majority of GCN will move into terrestrial habitat within 250m of the breeding pond, although some individuals move up to 500m or more; distances moved are dependent on the quality of the habitat in the area (Oldham et al., 2000).

- 4.3.16 The proposals will result in the permanent loss of suitable GCN terrestrial habitat therefore the presence of GCN in the landscape needs to be ascertained. If GCN are present in the local environment, the potential impacts of the proposals will be the loss of a small amount of good quality terrestrial habitat. There is also potential for GCN to enter the Site during the construction phase and therefore injury or killing of individual newts during works is also a potential impact. It is not considered the proposals would result in the fragmentation in the landscape due to the location of the off-site ponds.
- 4.3.17 In the first instance, it is recommended that the off-site ponds (P1 – P11) are assessed for their suitability to support GCN using the Habitat Suitability Index (HSI) assessment. If these ponds are found to be suitable to support GCN, presence/likely absence surveys will be required.
- 4.3.18 If GCN are recorded in the off-site ponds then a mitigation strategy and/or an EPSM licence from Natural England may be required.

#### *Dormice*

- 4.3.19 There is no suitable habitat for dormice within the Site and no further surveys are required.

#### *Badger and Hedgehog*

- 4.3.20 No signs of badger were recorded during the survey and no further surveys are required.
- 4.3.21 The Site supports some suitable foraging and sheltering opportunities for hedgehog. Hedgehog is protected from harm under Schedule 6 of the Wildlife and Countryside Act 1981 and the Wild Mammals Protection Act (1996) and it is a species of principal importance under the Natural Environment and Rural Communities (NERC) Act 2006 which means public bodies have a duty of responsibility to conserve this species. No further surveys are required, but the spoils piles should be removed slowly and carefully, outside the winter months, to avoid killing or injuring any hibernating hedgehogs.
- 4.3.22 The spoil piles should only be removed once the results of reptile and GCN surveys are known and have shown whether a mitigation strategy is required.

#### *Breeding Birds*

- 4.3.23 Evidence of birds was noted in the building B1 and birds were noted using the buildings B2 and B4. The other building B3 and overgrown scrub and trees are also suitable for nesting birds. All wild birds, including eggs and chicks, are protected against injury or killing and their nests are protected against damage or destruction when in use by the Wildlife and Countryside Act (1981). The demolition of the buildings and clearance of any vegetation should therefore be undertaken outside the core bird breeding



season, limiting this work to the period 1<sup>st</sup> September to 1<sup>st</sup> March. If these dates do not coincide with planned schedules then it is recommended that the building and vegetation is checked by a suitably experienced ecologist before the works commence. If any breeding birds are noted, works in the vicinity of the nest would have to cease until fledging has occurred. Measures to retain the suitability of the Site for breeding birds have been provided under the National Planning Policy Framework in section 4.4.

#### 4.4 National Planning Policy Framework

4.4.1 The National Planning Policy Framework (February 2019) sets out planning policies on the protection of biodiversity and geological conservation through the planning system. Section 15 of the National Planning Policy Framework (NPPF) states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- safeguarding local wildlife-rich habitats and wider ecological networks including designated sites, wildlife corridors and stepping stones and areas identified by national and local partnership for enhancement;
- promoting the conservation, restoration and enhancement of priority habitats and ecological networks;
- promoting the protection and recovery of protected species; and
- identifying and pursuing opportunities for measurable net gains for biodiversity.

4.4.2 Regarding NPPF and the enhancement of the Site to benefit local wildlife, it is recommended that the measures detailed below are included in the scheme to maintain and enhance biodiversity. Once the results of the recommended reptile, GCN and bat surveys are known, further recommendations may be made for these species.

##### *Birds*

- To maintain the value of the Site for nesting birds, compensation should be provided in the new buildings and tree planting. At least two boxes, such as for house sparrow *Passer domesticus*, should be installed on the eastern elevations of two of the detached houses in order to avoid strong sun or prevailing wind and rain.
- It is recommended that swallow nesting areas are provided within the car barns. Swallows require open access to a building which is fairly dark and has suitable beams or ledges on which to build their nests. Provision of swallow nesting areas is typically suited to open sided buildings, or can be created on the outside of buildings. At least two No. 10 Schwegler Swallow Nest or three Woodstone Swallow Nest Bowls should be installed at the eaves along the eastern elevation of two of the proposed car barns, making sure there is at least 13cm above the top of the nest bowl for access. Likewise, a nesting platform where swallows can build their own nests can be incorporated along the eaves of the eastern

elevations of the car barns. The platform should be 13cm in height, 26cm in length and the shelf 10cm in width. At least two of these should be installed.

#### *Planting*

- If there is to be new tree planting around the development, it should include native, heavily flowering and fruiting species that are locally sourced. Woody species should include hazel *Corylus avellana*, guelder rose *Viburnum opulus*, field maple *Acer campestre*, pedunculate oak and hornbeam *Carpinus betulus*.
- Generous native and nectar-rich planting should be incorporated into any new flowerbeds. Flowering plants should be made available for as long as possible through the year by planting a combination of plants which flower during spring, summer and late summer. This would benefit local wildlife by providing more nest building opportunities and food sources for small mammals, birds and invertebrates. Species such as lavenders *Lavandula* sp., heathers *Calluna* sp., and honeysuckles *Lonicera* sp. are good nectar sources for bumblebees and other insects, and climbing plants such as honeysuckle and jasmine *Jasminum officinalis* can also be used by birds to forage and nest in. A list of nectar-rich species for bumblebees prepared by the RHS is given in Appendix 5.

#### *Hedgehog*

- If any close board fencing is to be installed around the new properties, 13 x 13cm holes should be cut into the base of the fences to allow hedgehogs to move through the landscape. Where, possible, these holes should connect to areas of suitable hedgehog habitat. It is also recommended that two hedgehog boxes are incorporated into the garden areas, at the base of any hedgerows or shrub planting.

#### *Other Recommendations*

- 4.4.3 Further recommendations to enhance the Site for biodiversity can be provided on completion of the protected species surveys.

---

## 5.0 CONCLUSION

- 5.1 A Preliminary Ecological Appraisal has been undertaken at land at Four Oaks in Headcorn, Kent in April 2020. The Site is in a rural environment and habitats present are typical of those associated with a farmyard complex. There are two types of priority habitat within 3km; deciduous woodland and traditional orchard.

### *Bats - Building*

- 5.2 Potential for roosting bats has been found in the roundel B4 and this building has been assessed to have 'Moderate' suitability for day roosting bats under the BCT guidelines (Collins, 2016). A minimum of two evening emergence surveys have been recommended between May – August to determine if a bat roost is present within the building. If further questions remain about a potential roost, an additional emergence/re-entry survey during the bat active period may be required.
- 5.3 B4 has been assessed to have 'Low' suitability for hibernating bats. Further recommendations regarding a potential hibernation roost will be provided following the results of the summer bat emergence surveys. Compensation for the potential loss of a hibernation roost should be provided in the new buildings and this can be in form of installing bat tubes on the northern elevations of the buildings.
- 5.4 If bats are found to be present in B4 then an EPSM licence will be required to lawfully demolish the building.

### *Reptiles*

- 5.5 Reptile habitat has been identified and a presence/likely absence survey is recommended to inform mitigation or management that may be required.

### *Amphibians including GCN*

- 5.6 The Site supports suitable terrestrial habitat for GCN and other amphibians and there are 11 ponds within a 250m radius of the Site. Further surveys of these off-site ponds are required, including a Habitat Suitability Index (HSI) assessment, and if found suitable, population surveys will be required. If GCN are found in the off-site ponds, a mitigation strategy and an EPSM licence may be required to permit the works.

### *Mammals*

- 5.7 Precautionary methods regarding the removal of the brash and rubble piles have been provided in relation to mammals including hedgehog.

*Breeding Birds*

- 5.8 With regard to breeding birds, it has been recommended that clearance of vegetation and buildings is undertaken outside the core bird breeding season 1<sup>st</sup> March to 31<sup>st</sup> August.

*NPPF*

- 5.9 Recommendations have been made to enhance the Site for biodiversity in accordance with NPPF. These include generous native and nectar rich planting and the installation of bird boxes and enhancements for hedgehog. Further recommendations to enhance the Site for biodiversity will be provided on completion of the protected species surveys.

## REFERENCES

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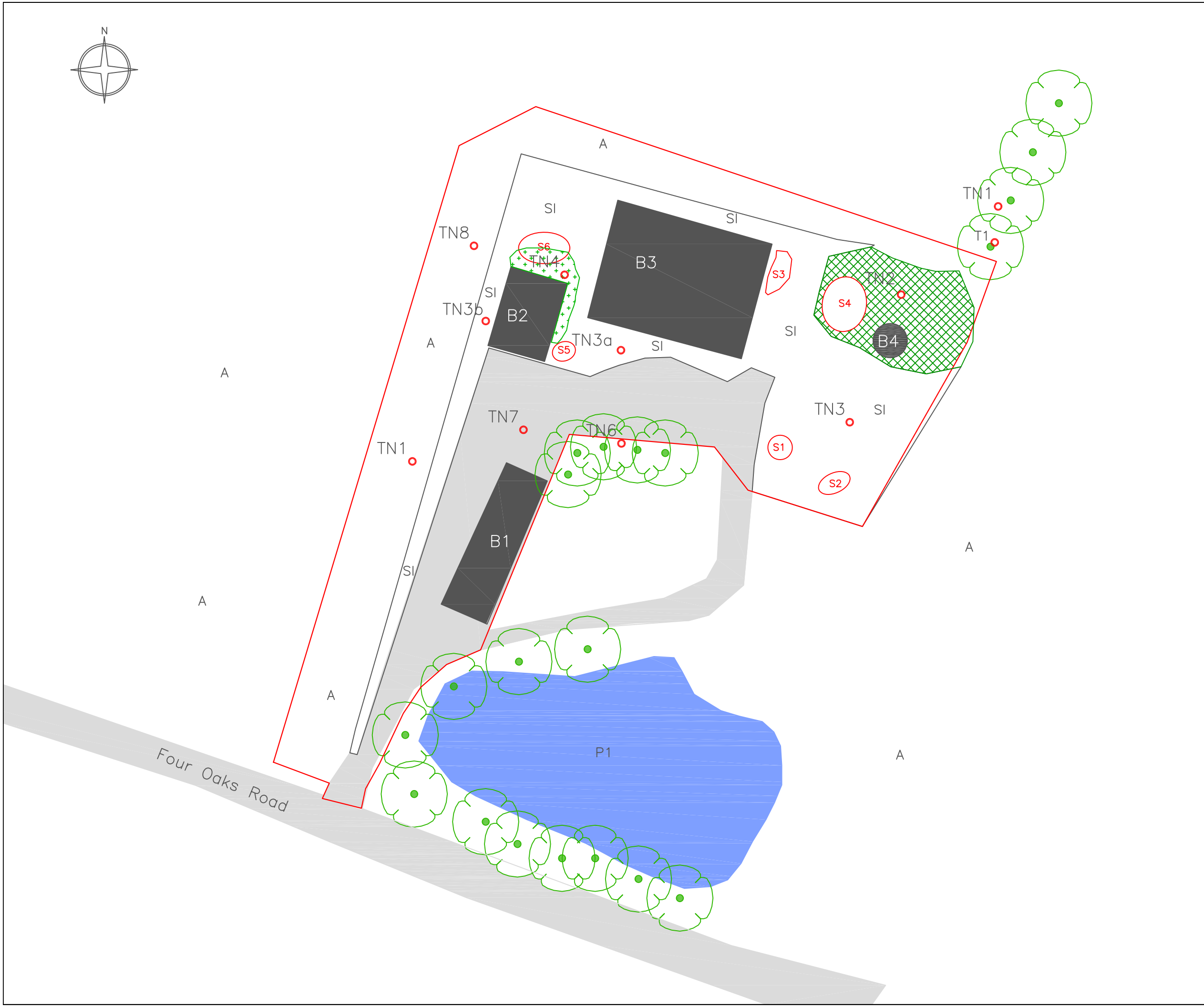
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- Key
- Site Survey Area
  - Tree
  - Dense Scrub
  - Scattered Scrub
  - SI Semi-Improved Grassland
  - Waterbody
  - S Spoil
  - A Arable Field
  - Building
  - Hard Standing

revision	description	date	checked by

Corylus Ecology Ltd, Unit A3, Speldhurst Business Park, Went Farm, Langton Road, Speldhurst, Kent TN3 0NR  
Corylus Ecology is the trading name of Corylus Ecology Ltd registered in England, No 5005553. Registered Office: Hemwood House, Hemwood, Ashford, Kent TN24 8DH

Project:  
18056 Four Oaks Road,  
Headcorn

Title:  
Phase 1 Habitat and Bat  
Building Plan

status		drawing no. Figure 1		
scale	size	date	drawn	checked
NTS	A3	06.05.2020	LR	BD
CAD filename Figure_1.dwg				



Figure 2. Annotated Photographs



Mature Oak Trees immediately adjacent to Site, TN1



Tree T1 with 'Moderate' potential for a bat roost



Dense scrub TN2 surrounding B4 and unmanaged grassland TN3



Unmanaged grassland TN3 and eastern elevation of B3



Spoil pile S3



Northern boundary of Site



Spoil pile S4



Scattered scrub TN4 in north-west of Site





Building B1 - western elevation



Building B1 - northern elevation  
and scattered trees TN6



Site from south-western corner.  
Building B1 - western elevation  
and Building B2 southern  
elevation



Building B2 - southern and  
eastern elevations



Eastern and northern elevation of  
B3



Building B4 - abandoned roundel  
with cracks in brick work



Building B4 - abandoned roundel  
with cracks in brick work

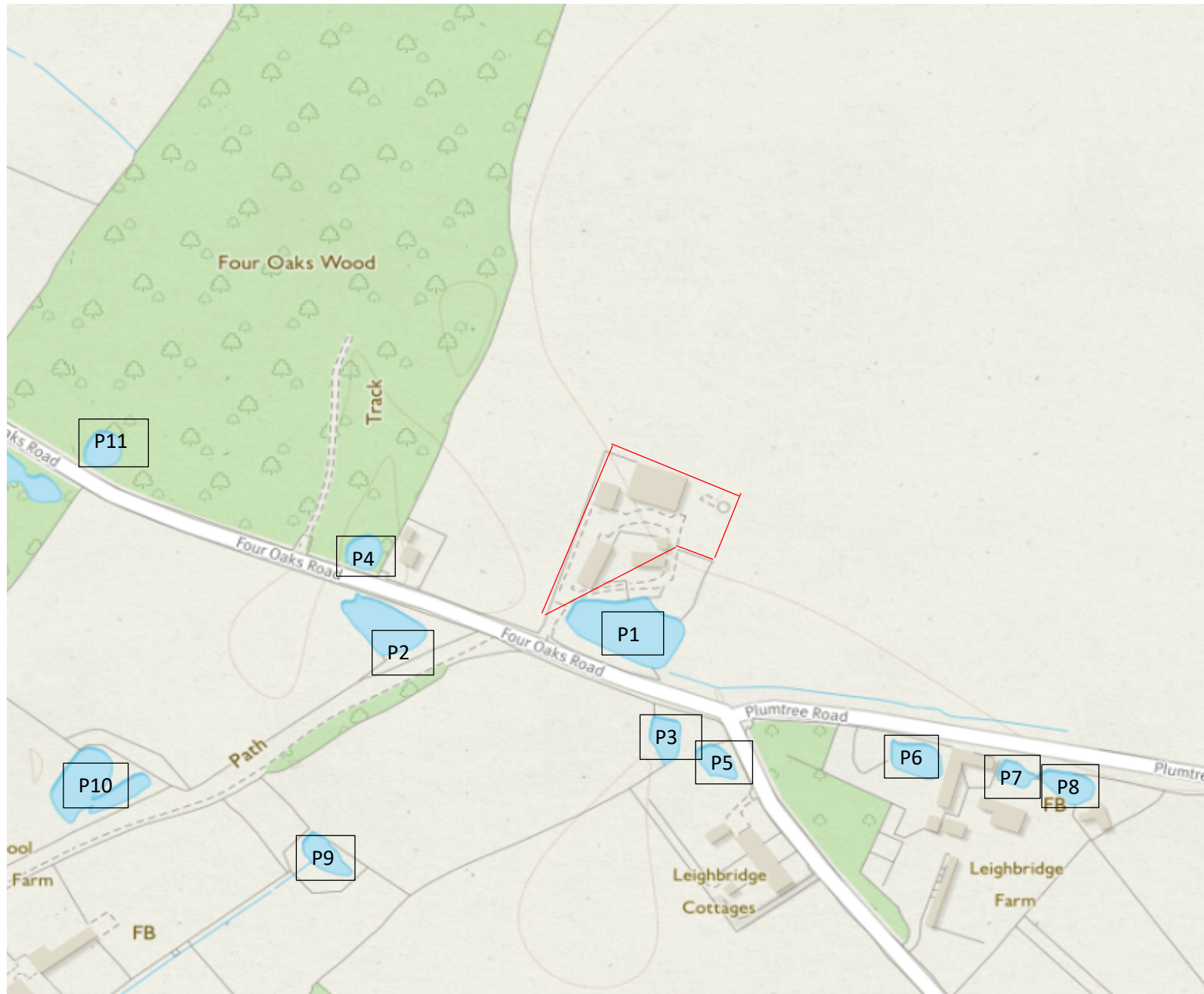


Building B4 - abandoned roundel



Figure 3. Ponds within 250m radius of Site

Key  
Site Location  
P1 Pond



## Appendix 1 – Bat Legislation

All British bat species receive legal protection in the United Kingdom. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Habitats Regulations amendments (2017). All British bat species are listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which makes it an offence to:

- Intentionally kill, injure or take a bat [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a bat [Section 9(2)]
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstructs access to any structure or place which a bat uses for shelter or protection [Section 9(4)(c)]
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a bat [section 9(5)]

Bats are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, all British bats are protected under The Conservation of Habitats and Species Regulations 2017 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture, kill or injure a bat [Regulation 41(1)(a)];
- Deliberately disturb bats in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR  
ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a bat [Regulation 41(1)(d)].

Under the law, a roost is any structure or place used for shelter or protection. This could be any structure, for example, any building or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost is protected whether the bats are present or not.

In addition, four species, the two horseshoes, barbastelle and Bechstein's are included within Annex II of the Habitats Directive for which Member States are required to designate Special Areas for Conservation (SAC's) for their protection.

The UK is a signatory to the Agreement on the Conservation of Bats in Europe, established under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

## **Appendix 2 - Reptile Legislation**

All British reptiles are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) largely as a consequence of a national decline in numbers due to habitat loss. Under the terms of the Act, it is an offence to intentionally kill or injure a reptile and accordingly in order to avoid committing an offence under the Act, appropriate mitigation techniques need to be incorporated for reptiles occurring within development sites. Mitigation methods for reptiles may include trapping and relocation of animals to a suitable receptor site, combined with the exclusion of the development site through the use of reptile fencing. Measures to enhance habitats for reptiles include the provision of hibernacula and appropriate management to improve foraging areas may also be required.

Mitigation for the more common British reptiles and amphibians does not require a licence from Natural England but would typically be agreed in consultation with the local planning authority.

Despite the range of their distribution and the diversity of habitats in which they may be found, the national status of the slow worm is not considered favourable. The slow worm is considered to have undergone a long term decline since the 1930's. Currently the largest threat has been identified as loss of habitat, in particular, due to a shift in planning policy towards the development of brown field sites (English Nature, 2004).

### Appendix 3 – Amphibian Legislation

All British amphibian species receive legal protection in the United Kingdom though the degree to which different species are protected varies. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Conservation Regulations (2007). The great crested newt is listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a great crested newt [Section 9(2)]
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstruct access to any structure or place which a great crested newt uses for shelter or protection [Section 9(4)(c)] Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a great crested newt [section 9(5)]

The other more common amphibian species are protected against sale (Section 9(5)) only. In all cases, the legislation applies to all life stages including spawn, eggs, juveniles and adults.

The great crested newt is also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, the great crested newt is protected under The Conservation of Habitats and Species Regulations 2017 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture or kill a great crested newt [Regulation 41(1)(a)];
- Deliberately disturb great crested newts in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a great crested newt [Regulation 41(1)(d)].

#### **Appendix 4 - Technical Guidance on Artificial Lighting and Bats**

From: Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT). 2018. *Guidance Note 8: Bats and Artificial Lighting*.

Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Low level or bollard lighting can often cause unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition. Therefore the use of specialist bollard or low-level downward directional luminaires should only be considered if their use is directed by a lighting professional.
- The height of columns should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1 minute) timers.
- As a last resort to minimise, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.



# RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

## SHORT GRASS, UP TO 15CMS

<i>Ajuga reptans</i> bugle	H
<i>Bellis perennis</i> daisy	H
<i>Campanula rotundifolia</i> common harebell	H
<i>Hippocrepis comosa</i> horseshoe vetch	H
<i>Lotus corniculatus</i> bird's foot trefoil	H
<i>Potentilla anserina</i> silverweed	H
<i>Potentilla erecta</i> tormentil	H
<i>Potentilla reptans</i> creeping cinquefoil	H
<i>Primula veris</i> common cowslip	H
<i>Prunella vulgaris</i> selfheal	H
<i>Ranunculus repens</i> creeping buttercup	H
<i>Sanguisorba minor</i> salad burnet	H
<i>Taraxacum officinale</i> dandelion	H
<i>Thymus polytrichus</i> wild thyme	H
<i>Thymus pulegioides</i> large thyme	H
<i>Trifolium pratense</i> red clover	H
<i>Trifolium repens</i> white clover	H
<i>Veronica chamaedrys</i> germander speedwell	H

## HEDGES, SHRUB BORDERS AND WOODLAND EDGE

<i>Acer campestre</i> field maple	S or T
<i>Alliaria petiolata</i> garlic mustard	Bi
<i>Allium ursinum</i> ramsons	B
<i>Aquilegia vulgaris</i> common columbine	H
<i>Ballota nigra</i> black horehound	H
<i>Berberis vulgaris</i> barberry	S
<i>Bryonia dioica</i> white bryony	H/C
<i>Buxus sempervirens</i> common box	S

## HEDGES, SHRUB BORDERS AND WOODLAND EDGE (cont.)

<i>Campanula trachelium</i> nettle-leaved bellflower	H
<i>Clematis vitalba</i> old man's beard/traveller's joy	C
<i>Clinopodium vulgare</i> wild basil	H
<i>Cornus sanguinea</i> common dogwood	S
<i>Crataegus monogyna</i> common hawthorn	S or T
<i>Cytisus scoparius</i> common broom	S
<i>Digitalis purpurea</i> common foxglove	Bi
<i>Euonymus europaeus</i> spindle	S
<i>Fragaria vesca</i> wild strawberry	H
<i>Frangula alnus</i> alder buckthorn	S
<i>Galium mollugo</i> hedge bedstraw	H
<i>Galium odoratum</i> sweet woodruff	H
<i>Galium verum</i> lady's bedstraw	H
<i>Geranium robertianum</i> herb robert	A/Bi
<i>Geum urbanum</i> wood avens	H
<i>Hedera helix</i> common ivy	C
<i>Helleborus foetidus</i> stinking hellebore	H
<i>Hyacinthoides non-scripta</i> bluebell	B
<i>Ilex aquifolium</i> common holly	T
<i>Lamium album</i> white deadnettle	H
<i>Lamium galeobdolon</i> yellow archangel	H
<i>Ligustrum vulgare</i> wild privet	S
<i>Lonicera periclymenum</i> common honeysuckle	C
<i>Malus sylvestris</i> crab apple	T
<i>Malva sylvestris</i> common mallow	H
<i>Myosotis sylvatica</i> wood forget-me-not	H
<i>Primula vulgaris</i> primrose	H
<i>Prunus avium</i> wild cherry/gean	T
<i>Prunus padus</i> bird cherry	T
<i>Prunus spinosa</i> blackthorn/sloe	S

**Natural England states:** You can legally collect small quantities of wildflower seed for your own use, but you must get permission from the land's owner, tenant or other authority, as necessary. Although seed collecting is allowed, you should not dig up native plants – many rare species are protected by law. You can collect seed of even rare plants, but cannot sell/trade seed or progeny.

### KEY

T = tree; S = shrub; C = climber; B = bulbs and corms; A = annual; Bi = biennial; H = herbaceous perennial

## RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

### HEDGES, SHRUB BORDERS AND WOODLAND EDGE (cont.)

<b>Ranunculus ficaria</b> <i>lesser celandine</i>	H
<b>Rhamnus catharticus</b> <i>Purging buckthorn</i>	S
<b>Rosa canina</b> <i>Dog rose</i>	S
<b>Rosa rubiginosa</b> <i>sweet briar</i>	S
<b>Rubus fruticosus</b> <i>blackberry</i>	S
<b>Salix atrocinerea</b> <i>grey willow</i>	S - male forms best
<b>Salix caprea</b> <i>goat willow</i>	S - male forms best
<b>Sanicula europaea</b> <i>sanicle</i>	H
<b>Sedum telephium</b> <i>orpine</i>	H
<b>Silene dioica</b> <i>red campion</i>	H
<b>Silene latifolia</b> subsp. <i>alba</i> <i>white campion</i>	H
<b>Smyrniolum olusatrum</b> <i>alexanders</i>	Bi
<b>Sorbus aria</b> <i>common whitebeam</i>	T
<b>Sorbus aucuparia</b> <i>rowan/mountain ash</i>	T
<b>Sorbus torminalis</b> <i>wild service tree</i>	T
<b>Stachys officinalis</b> <i>betony</i>	H
<b>Stellaria holostea</b> <i>greater stitchwort</i>	H
<b>Symphytum officinale</b> <i>common comfrey</i>	H
<b>Teucrium scorodonia</b> <i>wood sage</i>	H
<b>Tilia cordata</b> <i>small-leaved lime</i>	T
<b>Viburnum lantana</b> <i>common wayfaring tree</i>	S
<b>Viburnum opulus</b> <i>guelder rose</i>	S
<b>Vicia cracca</b> <i>common tufted vetch</i>	H
<b>Vicia sativa</b> <i>common vetch</i>	H

### DISTURBED GROUND

<b>Agrostemma githago</b> <i>corncockle</i>	A
<b>Anchusa arvensis</b> <i>bugloss</i>	A
<b>Anthemis arvensis</b> <i>corn chamomile</i>	A
<b>Anthemis cotula</b> <i>stinking chamomile</i>	A
<b>Centaurea cyanus</b> <i>cornflower</i>	A
<b>Cichorium intybus</b> <i>chicory</i>	H
<b>Dipsacus fullonum</b> <i>common teasel</i>	Bi
<b>Echium vulgare</b> <i>viper's bugloss</i>	Bi
<b>Glebionis segetum</b> <i>corn marigold</i>	A
<b>Iberis amara</b> <i>wild candytuft</i>	A
<b>Lamium amplexicaule</b> <i>Henbit deadnettle</i>	A
<b>Matricaria recutita</b> <i>scented mayweed</i>	A

### DISTURBED GROUND (cont.)

<b>Mentha arvensis</b> <i>corn mint</i>	H
<b>Myosotis arvensis</b> <i>field forget-me-not</i>	A/H
<b>Myosotis arvensis</b> <i>Common forget-me-not</i>	A
<b>Onopordum acanthium</b> <i>cotton thistle</i>	Bi
<b>Papaver dubium</b> <i>long-headed poppy</i>	A
<b>Papaver rhoeas</b> <i>common poppy</i>	A
<b>Sinapis arvensis</b> <i>charlock</i>	A
<b>Sonchus arvensis</b> <i>perennial sowthistle</i>	H
<b>Tussilago farfara</b> <i>coltsfoot</i>	H
<b>Verbascum thapsus</b> <i>great mullein</i>	Bi

### FLOWER BEDS

<b>Calluna vulgaris</b> <i>heather / ling</i>	S
<b>Erica ciliaris</b> <i>Dorset heath</i>	S
<b>Erica cinerea</b> <i>bell heather</i>	S
<b>Erica tetralix</b> <i>cross-leaved heath</i>	S

### LONG GRASS, ABOVE 50CMS

<b>Arctium minus</b> <i>lesser burdock</i>	Bi
<b>Carduus crispus</b> <i>welted thistle</i>	Bi
<b>Carduus nutans</b> <i>musk thistle</i>	Bi
<b>Chamaenerion angustifolium</b> <i>rosebay willowherb</i>	H
<b>Cirsium arvense</b> <i>creeping thistle</i>	H
<b>Cirsium vulgare</b> <i>spear thistle</i>	Bi
<b>Conopodium majus</b> <i>pignut</i>	H
<b>Cynoglossum officinale</b> <i>hound's tongue</i>	H
<b>Daucus carota</b> <i>wild carrot</i>	Bi
<b>Geranium pratense</b> <i>meadow cranesbill</i>	H
<b>Heracleum sphondylium</b> <i>hogweed</i>	Bi
<b>Hypericum perforatum</b> <i>perforate St John's wort</i>	H
<b>Knautia arvensis</b> <i>field scabious</i>	H
<b>Lathyrus pratensis</b> <i>meadow vetchling</i>	H
<b>Pastinaca sativa</b> <i>wild parsnip</i>	Bi
<b>Succisa pratensis</b> <i>devil's bit scabious</i>	H
<b>Tanacetum vulgare</b> <i>tansy</i>	H

#### KEY

T = tree; S = shrub; C = climber; B = bulbs and corms; A = annual; Bi = biennial; H = herbaceous perennial



## RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

### LONG GRASS, ABOVE 50CMS (cont.)

<b>Thalictrum flavum</b> <i>meadow rue</i>	<b>H</b>
<b>Tragopogon pratensis</b> <i>goat's beard</i>	<b>Bi</b>
<b>Verbascum nigrum</b> <i>dark mullein</i>	<b>Bi/H</b>

### MEDIUM HEIGHT GRASS, UP TO 50CMS

<b>Achillea millefolium</b> <i>common yarrow</i>	<b>H</b>
<b>Achillea ptarmica</b> <i>sneezewort</i>	<b>H</b>
<b>Agrimonia eupatoria</b> <i>agrimony</i>	<b>H</b>
<b>Anthyllis vulneraria</b> <i>kidney vetch</i>	<b>H</b>
<b>Armeria maritima</b> <i>thrift/sea pink</i>	<b>H</b>
<b>Blackstonia perfoliata</b> <i>yellowwort</i>	<b>A</b>
<b>Campanula glomerata</b> <i>clustered bellflower</i>	<b>H</b>
<b>Centaurea nigra</b> <i>common knapweed/hardheads</i>	<b>H</b>
<b>Centaurea scabiosa</b> <i>greater knapweed</i>	<b>H</b>
<b>Centaurea erythraea</b> <i>common centaury</i>	<b>Bi</b>
<b>Echium vulgare</b> <i>viper's bugloss</i>	<b>Bi</b>
<b>Erigeron acris</b> <i>blue fleabane</i>	<b>A/H</b>
<b>Filipendula vulgaris</b> <i>dropwort</i>	<b>H</b>
<b>Helianthemum nummularium</b> <i>common rockrose</i>	<b>H</b>
<b>Hypochaeris radicata</b> <i>cat's ear</i>	<b>H</b>
<b>Inula conyzae</b> <i>ploughman's spikenard</i>	<b>H</b>
<b>Leontodon autumnalis</b> <i>autumn hawkbit</i>	<b>H</b>
<b>Leontodon hispidus</b> <i>rough hawkbit</i>	<b>H</b>
<b>Leucanthemum vulgare</b> <i>ox-eye daisy</i>	<b>H</b>
<b>Linaria vulgaris</b> <i>common toadflax</i>	<b>H</b>
<b>Malva moschata</b> <i>musk mallow</i>	<b>H</b>
<b>Ononis repens</b> <i>common restharrow</i>	<b>H</b>
<b>Origanum vulgare</b> <i>wild marjoram</i>	<b>H</b>
<b>Pilosella officinarum</b> <i>mouse-ear hawkweed</i>	<b>H</b>
<b>Ranunculus acris</b> <i>meadow buttercup</i>	<b>H</b>
<b>Ranunculus bulbosus</b> <i>bulbous buttercup</i>	<b>H</b>
<b>Reseda lutea</b> <i>wild mignonette</i>	<b>Bi/H</b>
<b>Rhinanthus minor</b> <i>yellow rattle</i>	<b>A</b>
<b>Scabiosa columbaria</b> <i>small scabious</i>	<b>H</b>
<b>Silene vulgaris</b> <i>bladder campion</i>	<b>H</b>
<b>Solidago virgaurea</b> <i>goldenrod</i>	<b>H</b>

### PONDS, POND MARGINS AND WET SOILS

<b>Alisma plantago-aquatica</b> <i>water plantain</i>	<b>H</b>
<b>Angelica sylvestris</b> <i>wild angelica</i>	<b>Bi</b>
<b>Butomus umbellatus</b> <i>flowering rush</i>	<b>H</b>
<b>Caltha palustris</b> <i>marsh marigold</i>	<b>H</b>
<b>Cardamine pratensis</b> <i>cuckoo flower/lady's smock</i>	<b>H</b>
<b>Cirsium dissectum</b> <i>meadow thistle</i>	<b>H</b>
<b>Epilobium hirsutum</b> <i>great willowherb</i>	<b>H</b>
<b>Eupatorium cannabinum</b> <i>hemp agrimony</i>	<b>H</b>
<b>Filipendula ulmaria</b> <i>meadowsweet</i>	<b>H</b>
<b>Galium palustre</b> <i>marsh bedstraw</i>	<b>H</b>
<b>Geum rivale</b> <i>water avens</i>	<b>H</b>
<b>Hypericum tetrapterum</b> <i>square-stalked St John's wort</i>	<b>H</b>
<b>Iris pseudacorus</b> <i>yellow iris</i>	<b>H</b>
<b>Lotus pedunculatus</b> <i>greater bird's-foot trefoil</i>	<b>H</b>
<b>Lychnis flos-cuculi</b> <i>ragged robin</i>	<b>H</b>
<b>Lycopus europaeus</b> <i>gypsywort</i>	<b>H</b>
<b>Lysimachia nummularia</b> <i>creeping Jenny</i>	<b>H</b>
<b>Lysimachia vulgaris</b> <i>yellow loosestrife</i>	<b>H</b>
<b>Lythrum salicaria</b> <i>purple loosestrife</i>	<b>H</b>
<b>Mentha aquatica</b> <i>water mint</i>	<b>H</b>
<b>Menyanthes trifoliata</b> <i>bogbean</i>	<b>H</b>
<b>Myosotis scorpioides</b> <i>water forget-me-not</i>	<b>H</b>
<b>Nasturtium officinale</b> <i>common watercress</i>	<b>H</b>
<b>Nuphar lutea</b> <i>yellow water lily</i>	<b>H</b>
<b>Nymphaea alba</b> <i>white water lily</i>	<b>H</b>
<b>Oenanthe aquatica</b> <i>fine-leaved water dropwort</i>	<b>A/Bi</b>
<b>Oenanthe crocata</b> <i>hemlock water dropwort</i>	<b>H</b>
<b>Persicaria amphibia</b> <i>amphibious bistort</i>	<b>H</b>
<b>Persicaria bistorta</b> <i>common bistort</i>	<b>H</b>
<b>Polemonium caeruleum</b> <i>Jacob's ladder</i>	<b>H</b>
<b>Pulicaria dysenterica</b> <i>common fleabane</i>	<b>H</b>
<b>Ranunculus aquatilis</b> <i>common water crowfoot</i>	<b>A/H</b>
<b>Ranunculus flammula</b> <i>lesser spearwort</i>	<b>H</b>
<b>Ranunculus fluitans</b> <i>river water crowfoot</i>	<b>H</b>
<b>Ranunculus lingua</b> <i>greater spearwort</i>	<b>H</b>
<b>Ranunculus sceleratus</b> <i>celery-leaved buttercup</i>	<b>A</b>
<b>Sagittaria sagittifolia</b> <i>arrowhead</i>	<b>H</b>
<b>Sanguisorba officinalis</b> <i>great burnet</i>	<b>H</b>
<b>Scrophularia auriculata</b> <i>water figwort</i>	<b>H</b>

#### KEY

T = tree; S = shrub; C = climber; B = bulbs and corms; A = annual; Bi = biennial; H = herbaceous perennial





## RHS PERFECT FOR POLLINATORS WILDFLOWER LIST

### PONDS, POND MARGINS AND WET SOILS (cont.)

<b>Scutellaria galericulata</b> <i>common skullcap</i>	<b>H</b>
<b>Stachys palustris</b> <i>marsh woundwort</i>	<b>H</b>
<b>Valeriana officinalis</b> <i>common valerian</i>	<b>H</b>
<b>Veronica beccabunga</b> <i>brooklime</i>	<b>H</b>

### SHINGLE/GRAVEL GARDEN

<b>Cakile maritima</b> <i>sea rocket</i>	<b>A</b>
<b>Crambe maritima</b> <i>sea kale</i>	<b>H</b>
<b>Crithmum maritimum</b> <i>rock samphire</i>	<b>H</b>
<b>Eryngium maritimum</b> <i>sea holly</i>	<b>H</b>
<b>Glaucium flavum</b> <i>yellow horned-poppay</i>	<b>Bi/H</b>
<b>Sedum acre</b> <i>siting stonecrop</i>	<b>H</b>
<b>Sedum album</b> <i>white stonecrop</i>	<b>H</b>
<b>Silene uniflora</b> <i>sea campion</i>	<b>H</b>

#### KEY

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