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**New Inn Cottage, East End, near Witney,  
Oxfordshire OX29 6PZ**

**Preliminary Ecological Appraisal**

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**January 2021**

***on behalf of Mr M. Horne***

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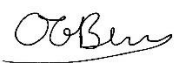
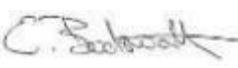
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<b>Job name</b>	New Inn Cottage, East End, near Witney, Oxfordshire OX29 6PZ
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## 1 Executive Summary

<b>Site Details</b>	New Inn Cottage is a stone-built dwelling situated within the hamlet of East End, near Witney, Oxfordshire OX29 6PZ. The approximate Ordnance Survey grid reference of the property is SU 875 803.
<b>Proposals</b>	There is a proposal to construct a first-floor extension to the main cottage. The proposals also include the demolition of the existing greenhouse to be replaced with a detached double garage.
<b>Methodology</b>	An extended Phase 1 Habitat Survey, Initial Bat Survey and Preliminary Roost Assessment were undertaken on 6 <sup>th</sup> January 2021.
<b>Evaluation</b>	<ul style="list-style-type: none"> <li>• The site comprises a dwelling, greenhouse and garden of amenity grassland (lawn), a pond, hard-standing, trees and ornamental planting.</li> <li>• None of the habitats are considered to meet the criteria for habitats of 'principal importance' as listed within Section 41 of the NERC Act 2006.</li> <li>• The Habitat Suitability Index of the pond is 0.35. The pond has 'poor' suitability for breeding great crested newts.</li> <li>• Garden trees, hedges and shrubs are considered suitable for nesting birds.</li> <li>• All trees are assessed as having 'negligible' potential to offer shelter to bats (Collins, 2016).</li> <li>• No evidence of bats was found in the buildings and all buildings are assessed as having 'negligible' potential to offer shelter to bats (Collins, 2016).</li> </ul>
<b>Impact Assessment</b>	<ul style="list-style-type: none"> <li>• The proposals may result in limited loss of amenity grassland, hard-standing and some ornamental planting. This will not result in any significant ecological impacts.</li> <li>• There are no foreseeable impacts on bats.</li> <li>• Removal of woody vegetation during the bird nesting period may result in disturbance, destruction of nests and killing and injury of young and eggs.</li> <li>• There are no foreseeable impacts on amphibians.</li> </ul>
<b>Recommendations</b>	Precautionary measures are recommended, as well as species-specific enhancement, such as bat roost features.

## 2 Introduction

### 2.1 Site Description & Context

New Inn Cottage, referred to as the 'site' for the purposes of this report, is a two-storey, stone-built dwelling situated within the hamlet of East End, near Witney, Oxfordshire OX29 6PZ. The approximate Ordnance Survey grid reference of the property is SU 875 803.

The site comprises a stone-built dwelling, arranged in a 'U' shape, with a pitched roof of slate tiles arranged over multiple pitches, with open gables. The dwelling has both one and two-storey sections as well as an open-sided parking/storage area within the western wing. There are no loft spaces but there are two attic rooms within the house.

The dwelling is set within a managed garden dominated by amenity grassland (lawn), hard-standing and ornamental planting comprising mostly trees and shrubs. Other features include a garden pond within the north-west section of the garden and a greenhouse within the southern area of the garden. The property is bounded by wooden fencing, garden hedges and stone walls.

The site is situated within the hamlet of East End. To the north, south and east are detached dwellings, gardens and roads; to the west is an area of plantation woodland. The wider landscape is rural in nature, comprising agricultural fields interspersed by a network of roads and hedgerows. Of particular note is Sturt Copse Site of Special Scientific Interest (SSSI), located approximately 210m north-east of the site. This is an area of ancient ash *Fraxinus excelsior* – wych elm *Ulmus glabra* woodland.

### 2.2 Proposals

There is a proposal for a first-floor extension. The proposals also include the demolition of the existing greenhouse to be replaced with a detached double garage.

### 2.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The report discusses the potential impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species. The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species. The need for further ecological survey work is discussed in light of the impact assessment.

One specific aim of the study is to survey the buildings for bats, and evidence of roosting bats, as well as other protected species such as nesting birds. The report discusses the potential impacts on bats and their roost sites and makes recommendations for appropriate mitigation, compensation and enhancement measures in this regard. The potential impacts are assessed in accordance with the legal protection afforded to bats under The Conservation of Habitats & Species Regulations 2017.

### 2.4 Bat Ecology

Bats are the only mammals to have developed the ability of true flight. At present, over 1,100 species of bat are recognised worldwide, making bats the second largest mammal group after rodents. As well as flight, bats have evolved a system of navigation and orientation using echolocation which has allowed many species to become nocturnal. There are 18 species of bat that occur within the British Isles, of which 17 are known to breed here. More species occur in the south and west of the country, with species numbers declining towards the north and into Scotland.

All bat species in the UK are nocturnal and feed exclusively on insects (they are insectivorous) which they catch in flight during their night-time activity, using echolocation to locate and home-in on their

prey. Bats will roost during the daytime and seek out dark, enclosed and undisturbed places in which to do so, often using a variety of roosting sites within their home range. Different roost sites are used for different purposes (such as mating, giving birth and hibernation) and at different periods of a bat's life cycle.

During the summer, female bats will gather together in a maternity or breeding roost. In the UK, this starts to occur towards the end of May and the females will seek out a warm and undisturbed site in which to give birth. Because maternity roosts require a particular set of environmental attributes (such as location, temperature, orientation and size), breeding bats tend to return to roost and breed in the same locations year after year. Given that bats live a relatively long time (anywhere from 10-20 years), and only give birth to one pup a year, maternity colonies are crucial to the reproduction and survival of the local population and can be very sensitive to environmental change.

Relatively little is known about hibernation roosts, as tracking and locating hibernating bats is very difficult. However, many species (particularly those within the genera *Myotis* and *Rhinolophus*) have been found within underground sites such as caves, mines and cellars, where the temperature remains constant and low throughout the winter allowing the bats to remain in a state of torpor. The spring and autumn are periods of transition and bats can use a number of different locations on a temporary basis, often moving between roosts as environmental conditions change and temperatures fluctuate. In the autumn, bats will mate and it has been shown that male and female bats will gather at particular locations (such as a building, cave or tree) to meet, socialise and mate.

Bats choose to roost in a number of different locations, depending on the species, their activity pattern and the period of their lifecycle. Certain species, such as the pipistrelles, favour crevices and small cavities for roosting and will use features such as cracks, crevices and small rot holes in the boughs and trunks of trees and within certain features of buildings such as boxed eaves, gaps under roof tiles, hanging tiles and soffit boards. Other species favour large, uncluttered roof spaces and lofts within buildings where they can hang up on the underside of the roof and use the interior space for flying prior to emergence. Hollow trees, cellars, caves, barns, churches and cavity walls can also all be used for roosting, given suitable access. Certain species, such as the noctule, favour roosting sites within trees whilst others tend to favour buildings. Roost sites may be used by only a very small number of bats, such as solitary males, or may offer shelter to tens or hundreds of bats within maternity and hibernation roost sites.

The suitability of roosting sites is also highly influenced by the location or context of a tree, building or cave. Roost sites are most often favoured when they are within close proximity to foraging habitats and where those habitats are connected to one another within the landscape by features such as hedgerows, woodlands, rivers or sunken lanes along which bats disperse and 'commute' from place to place. Suitable foraging habitats are any places where insect prey is diverse and abundant such as woodlands, ponds, lakes, rivers, scrub, hedgerows and unimproved grassland or pasture. Thus, the ecological context of a site is very important for determining if bats may be present within a roost and the potential for a roost to be present tends to be much higher within rural or village locations.

### **3 Methodology**

#### **3.1 Extended Phase 1 Habitat Survey**

An extended Phase 1 Habitat Survey was undertaken on 6<sup>th</sup> January 2021 by Oliver Bevan *MEnvSci*. A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC, 2010).

Target notes were also prepared on features of particular ecological interest and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006).

### 3.2 Weather Conditions

Surveys were conducted on 6<sup>th</sup> January 2021. The weather on the day was cold (2°C), overcast (100% cloud cover) and dry with a light breeze (Beaufort Scale 1).

### 3.3 Initial Bat Survey & Preliminary Roost Assessment

An initial bat survey (daytime building inspection) and preliminary roost assessment (PRA) were also undertaken on 6<sup>th</sup> January 2021 by Mr Bevan.

A detailed internal and external survey of the buildings was undertaken using a 1 million candle-power torch in order to look for bats and/or evidence of bats and to assess the potential of the buildings to support roosting bats. Internal rooms, loft spaces (if present) and external elevations were inspected for evidence of bats including, bat droppings, urine stains, feeding remains (such as moth wings) and characteristic fur staining around access points.

The bat survey was undertaken according to best practice guidelines published by the Bat Conservation Trust (Collins, 2016) and the *Bat Workers Manual* (JNCC, 2010).

Trees and buildings were assessed for their potential to offer shelter to roosting bats in accordance with best practice guidelines published by the Bat Conservation Trust (Collins, 2016). The trees were assessed from ground level (using binoculars) as either having high, moderate, low or negligible potential to shelter roosting bats according to the criteria shown in Table 1.

Table 1. Criteria for the assessment of buildings and trees for roosting bats (Collins, 2016)

Potential	Features
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation significance.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Potential roost features (PRFs) in trees that may be used by bats include (Collins, 2016):

- woodpecker holes;
- rot holes;
- hazard beams;
- other vertical or horizontal cracks and splits (such as frost cracks) in stems or branches;
- partially detached bark;
- knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;
- man-made holes (e.g. cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems;
- cankers (caused by localised bark death) in which cavities have developed;



- other hollows or cavities, including butt-rots;
- double leaders forming compression forks with included bark and potential cavities;
- gaps between overlapping stems or branches;
- partially detached ivy with stem diameters in excess of 50mm; and bat, bird or dormouse boxes

The study also takes into account the structure and ecological context of buildings, including the following factors which may increase the likelihood of roosting bats being present:

- Age of the building (pre-20<sup>th</sup> Century or early 20<sup>th</sup> Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces
- Large (>20 cm) roof timbers with mortice/tenon joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool.
- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting.

### 3.4 Great Crested Newt Habitat Assessment

The garden pond was assessed for its suitability to support great crested newts *Triturus cristatus* according to the criteria and method developed by Oldham *et al.* 2000. This was undertaken during the Phase 1 Habitat Survey. The work by Oldham, and others, hypothesises that the likely presence of breeding great crested newts can be predicted by a number of habitat features such as pond size, location, shading, the presence of fish, wildfowl and aquatic plants.

These data are used to calculate a Habitat Suitability Index (HSI); represented as a number from 0 to 1. The higher the number, the more likely the pond is to be occupied by breeding great crested newts. Following Oldham's study, further work by Dr Lee Brady has resulted in a categorical scale for using HSI scores to define pond suitability for great crested newts. This scale is shown in Table 2.

Table 2. HSI categories for pond suitability

HSI	Pond suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
> 0.8	Excellent

The studies by Oldham and Brady indicate that great crested newts tend to avoid ponds with low HSI scores. Ponds with relatively low HSI scores (poor to below average) typically only support great crested newt when they are located close to another occupied pond. Low scoring ponds are therefore only likely to support great crested newts in areas of high pond density. Ponds with relatively high HSI scores (good - excellent) frequently support great crested newts and survey work undertaken in England indicates that great crested newts are present in more than 90% of 'excellent' ponds.

### 3.5 Limitations

Whilst it is considered that a thorough habitat survey has been undertaken, and robust data and conclusions have been delivered within the assessment, the study provides only a snapshot of the species present at the time of the survey and should be considered with this in mind.

There were no constraints of access. Although the survey was undertaken in January, when some plant species may not be obvious, it is considered that a robust habitat survey has been undertaken, given the nature of the habitats that are present within the site.

## 4 Results & Evaluation

### 4.1 Habitats

Photographs of the site are presented in Appendix 1. Appendix 2 illustrates the location of the site and provides an aerial photograph of the site within the surrounding landscape.

#### 4.1.1 Buildings

##### 4.1.1.1 Dwelling

The dwelling at New Inn Cottage is a stone-built building arranged roughly in a 'U' shape. The eastern wing of the dwelling comprises a two-storey section containing utility rooms and a workshop. A small amount of timber weatherboarding is present on the western elevation of this section. The southern portion of the dwelling is also two-storey and comprises the main living area. The western wing of the dwelling comprises a garage and open sided parking/storage area.

The roof is formed of two double pitched wings and an 'M' shaped roof to the south. The 'M' shaped southern portion has four pitches and two ridgelines. The gables of the building are open. The roof is predominately constructed of slate roof tiles and concrete ridge tiles. However, the ridge tiles on the eastern wing of the dwelling are clay. This western wing of the building adjoins the adjacent dwelling to the north. A simple concrete-block lean-to also adjoins the western side of this wing.

There are no loft spaces within the dwelling, but there are two attic rooms in the eastern section of the dwelling. These rooms have a floor to ridge height of approximately 2m. The northern of these rooms serves as a workshop/storage area. This room has a vaulted and rendered ceiling and is considered inaccessible to bats. The southern of these two rooms serves as a storage area. This room has a bitumen and hessian underlay to the roof. Both rooms have no natural light ingress.

The external stone walls of the dwelling are in an excellent state of repair, with no cracks, crevices or cavities that could be used by roosting bats for shelter. The roof tiles are also in a good state of repair, with no slipped or missing roof tiles or ridge tiles. Timber weatherboarding is tight-fitting with no warped, missing or lifted boards noted.

Given the above discussion the dwelling is assessed as having 'negligible' potential (Collins, 2016) to offer shelter to roosting bats within an undetectable location.

##### 4.1.1.2 Greenhouse

A stone greenhouse is present in the southern portion of the garden. The greenhouse has stone walls topped with glazed windows and a transparent roof. The roof and walls are in a good state of repair with no cavities or crevices that could be occupied by roosting bats.

The greenhouse is assessed as having 'negligible' potential (Collins, 2016) to offer shelter to roosting bats.

#### 4.1.1.3 Shed

A timber shed is present in the northern area of the garden. The shed is constructed from timber boarding and has a simple timber frame, with a pitched roof of mineral felt; there is no loft space.

The shed is assessed as having 'negligible' potential (Collins, 2016) to offer shelter to roosting bats.

#### 4.1.2 Amenity Grassland (Lawn)

Amenity grassland (lawn) is present throughout the garden of New Inn Cottage. The grassland is well-managed with an approximate sward height of 3-5cm. The grassland shows obvious signs of improvement with a lush sward of grasses and a low diversity and abundance of herbaceous species including only creeping buttercup *Ranunculus repens* and daisy *Bellis perennis*.

The habitat is not considered to meet the criteria for a habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006, and is considered to be of negligible/low ecological value.

#### 4.1.3 Planted Beds

Planted beds are present through much of the garden. Within the northern and eastern areas of the garden, these beds appear to be ornamental, whilst to the south there are vegetable patches. The planted beds comprise largely ornamental species including rose *Rosa* sp., Welsh poppy *Meconopsis cambrica*, primrose *Primula* sp., daffodil *Narcissus* sp., and butterfly bush *Buddleja davidii*.

The planted beds are considered to be of low ecological value.

#### 4.1.4 Hard-standing

Several areas of hard-standing are present within the site. These include a gravel parking area to the north of the dwelling and slate paving in the garden.

Areas of hard-standing are considered to be of negligible ecological value.

#### 4.1.5 Pond

An ornamental garden pond with an approximate area of 20m<sup>2</sup> is located in the north-western corner of the site. The pond has a plastic sheet lining and is stocked with ornamental goldfish.

The pond is considered to be of low ecological value.

#### 4.1.6 Trees

A number of trees are present within and bounding the garden including coppiced hazel *Corylus avellana*, ash *Fraxinus excelsior*, apple *Malus domestica*, poplar *Populus* sp., and oak *Quercus robur*. Trees are all young to semi-mature, with no mature specimens. The majority of trees are present in a treeline along the south-western site boundary.

The trees are considered to be of ecological value within the context of the site.

#### 4.1.7 Hedges

Hedges bound the north-eastern and north-western boundaries, and a hedge runs through the centre of the garden from north-west to south-east. Both boundary hedges are dominated by cherry laurel *Prunus laurocerasus* and other ornamental, non-native species.

The central hedge runs for approximately 40m through the southern area of the garden. The dominant species is beech *Fagus sylvatica* although blackthorn *Prunus spinosa* and bramble *Rubus fruticosus* were also noted.

The hedges are considered to be of low ecological value.

#### 4.1.8 Other Boundaries

Other boundaries of the site include post and rail timber fencing and low stone walls. These boundary features are of negligible ecological value.

## 4.2 Species

### 4.2.1 Bats

No bats or evidence of bats were observed during the survey, and all of the buildings are assessed as having negligible potential to offer shelter to roosting bats (Collins, 2016). In particular, there is no evidence of bats within the two attic rooms and there are no external features, such as hanging tiles or gaps under wooden boarding, that could offer shelter to bats.

All trees within the site are young and lack features that roosting bats could use for shelter; all trees are assessed as having 'negligible' bat roost potential.

### 4.2.2 Amphibians

The result of the HSI calculation is an index of 0.35 (Table 3), indicating that the pond has 'poor' suitability for breeding great crested newts. The pond scores relatively low due to the presence of fish, coupled with the relatively poor water quality and its relatively small size.

Given this result, it is considered very unlikely that breeding great crested newts are present within the ornamental garden pond.

Table 3. HSI assessment of the garden pond.

Characteristic	Score
Sl <sub>1</sub> Location	1.00
Sl <sub>2</sub> Pond Area	0.05
Sl <sub>3</sub> Pond Drying	0.90
Sl <sub>4</sub> Water Quality	0.33
Sl <sub>5</sub> Shade	0.80
Sl <sub>6</sub> Fowl	1.00
Sl <sub>7</sub> Fish	0.01
Sl <sub>8</sub> Ponds	0.84
Sl <sub>9</sub> Terrestrial Habitat	0.67
Sl <sub>10</sub> Macrophytes	0.40
<b>Habitat Suitability Index</b>	<b>0.35</b>
<b>Suitability</b>	<b>Poor</b>

### 4.2.3 Birds

Three swallows' *Hirundo rustica* nests were noted within the open-sided (western section) of the building. No other nests or evidence of breeding birds were observed in association with the buildings.

Garden trees and hedges offer some limited nesting habitats to common and widespread bird species which could include species listed within Section 41 of the NERC Act 2006 such as the song thrush *Turdus philomelos*.

The habitats are not suitable for ground-nesting species.

#### 4.2.4 Hedgehogs

The garden offers potential foraging habitat for hedgehogs *Erinaceus europaeus*.

#### 4.2.5 Other Species

No evidence of any other protected species was found, including badgers *Meles meles*.

The garden habitats are considered to be unsuitable for reptiles.

## 5 Discussion

### 5.1 Relevant Legislation & Policy Guidance

#### 5.1.1 Bats

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in land use and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017. Taken together, these make it an offence to:

- (a) Deliberately capture or intentionally take a bat
- (b) Deliberately or intentionally kill or injure a bat
- (c) To be in possession or control of any live or dead wild bat or any part of, or anything derived from a wild bat
- (d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
- (e) Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection
- (f) Deliberately disturb any bat, in particular any disturbance which is likely
  - to impair their ability;
  - (i) to survive, breed, reproduce or to rear or nurture their young; or
  - (ii) in the case of hibernating or migratory species, to hibernate or migrate; or
  - to affect significantly the local distribution or abundance of the species to which they belong

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017 through the issuing of licences. Where a lawful operation is required to be carried out, but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed. However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary ‘to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’;
- ‘There is no satisfactory alternative’;
- The proposals ‘will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range’.

These are often referred to as the ‘three tests’ of the legislation.

#### 5.1.2 *Nesting Birds*

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August inclusive.

#### 5.1.3 *The Natural Environment and Rural Communities Act 2006*

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity.

It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework affords planning policy protection to the habitats of species listed by virtue of Section 41.

There are no habitats listed within Section 41 of the NERC Act 2006 that are relevant to the site.

Species listed within Section 41 of the NERC Act 2006 that are relevant to the site, or considered to be potentially relevant, include:

- A number of common bird species, such as dunnock *Prunella modularis* and song thrush (garden trees and shrubs offer potential, but limited, nesting opportunities)
- Hedgehog (garden offers limited habitat)

#### 5.1.4 *National Planning Policy Framework (NPPF)*

The revised National Planning Policy Framework was updated in February 2019 and sets out the government’s planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012, and revised in July 2018.

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- The cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The following should be given the same protection as habitats sites:

- ❖ Potential Special Protection Areas and possible Special Areas of Conservation;
- ❖ Listed or proposed Ramsar sites; and
- ❖ Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

## 5.2 Impact Assessment

### 5.2.1 Habitats

It is understood that proposals are to construct a first-floor extension to the main cottage. The proposals also include the demolition of the existing greenhouse, to be replaced with a detached double garage.

Habitat loss is likely to be limited to the cottage building as well as a limited area of amenity grassland and ornamental planting immediately adjacent to the greenhouse. These habitats are of negligible ecological value and habitat loss is unlikely to result in any significant ecological impacts.

The NPPF (as revised February 2019) states that planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts to existing habitats and providing net gains for biodiversity. It is considered that there are opportunities to provide biodiversity net gain within the site through species-specific measures, such as bat roost features.

### 5.2.2 Species

#### 5.2.2.1 Bats

The dwelling and greenhouse are assessed as having 'negligible' potential to offer shelter to roosting bats. As a result of this conclusion, the proposed works are unlikely to result in any significant impacts on bats or the places that they use for breeding, shelter and/or protection (roosts).



Since no significant impacts on bats are predicted under The Conservation of Habitats and Species Regulations 2017, a European Protected Species (bat) licence will not be required for the proposed works to proceed. Since there are no predicted impacts on bats or their habitats, it is not necessary to consider the 'three tests' of The Conservation of Habitats and Species Regulations 2017 in this instance. No further surveys for bats are considered necessary at this stage.

External lighting can have an impact on bats by affecting their activity and behaviour. In that certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light to which insects are particularly sensitive.

Furthermore, insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey 1993). Lighting has shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.* 2009). Given this, any new external lighting associated with the new extension could affect bat behaviour, particularly given the proximity of woodland.

#### 5.2.2.2 Amphibians

There are no foreseeable impacts on amphibians or their habitats; the existing pond will be retained. Whilst the proposed works will result in some loss of ornamental planting, the loss is limited and unlikely to result in any significant impacts on amphibians and their terrestrial habitats.

#### 5.2.2.3 Birds

Without sensitive timing, or the adoption of careful work practices, removal of shrubs or other woody vegetation could result in the destruction of active birds' nests and the killing/injury of eggs/young. There are no predicted impacts on ground-nesting species.

There are no predicted impacts on swallows, or active swallow nests, within the open-sided section of the building. This structure will remain unaffected by the proposals.

#### 5.2.2.4 Other Species

There are no foreseeable impacts on other species including hedgehogs, badgers and reptiles.

## 6 Recommendations

### 6.1 Further Surveys

No further surveys are considered necessary at the present time.

### 6.2 Habitats

Appendix 3 recommends a number of suitable species for landscape and garden planting schemes, including non-native species for more formal areas, although the species mix should by no means be limited to this list. Planting should aim to provide ground cover for animals such as hedgehogs and invertebrates, and so low-growing ground cover should be encouraged.

Native species such as bugle, ivy and periwinkle could be used for this purpose, or ornamental species such as lady's mantle, elephant's ears or perennial geraniums may also be suitable for formal areas of ornamental planting. A diversity of structure should also be encouraged through the planting of small trees, with shrubs and herbaceous plant species established below.

## 6.3 Species

### 6.3.1 Bats

#### 6.3.1.1 Bat Roosting Opportunities

It is recommended that bat roosting features are incorporated into the proposals to provide an enhancement and biodiversity net gain. The inclusion of a modified ridge tile(s) is considered most appropriate for the proposals. These features are designed to provide shelter for one or two bats under ridge tiles. They do not allow bats to enter a roof space.

Bat tiles are simple to construct by raising a ridge tile above two of its neighbours and by leaving an un-mortared gap beneath (Figures 1 and 2).

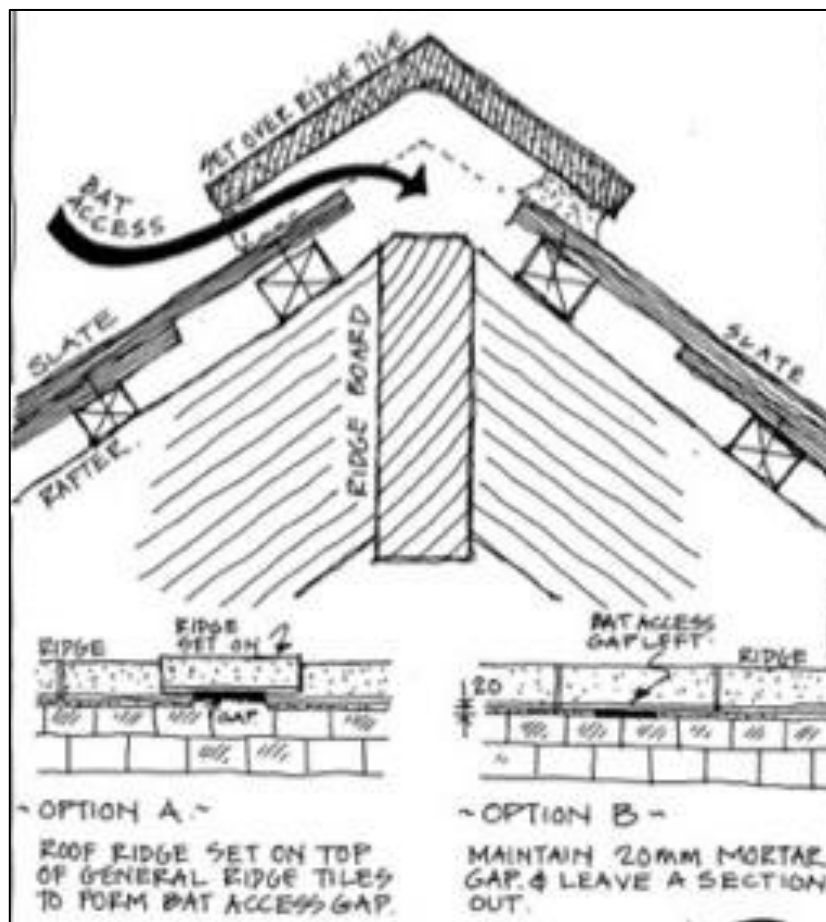


Figure 1. Design for a bat ridge tile to allow access beneath a ridge tile. Bat tiles such as these can provide access into self-contained batten cavities without the presence of a roof void.



Figure 2. Detail of a roof showing a bat ridge tile (indicated by the arrow) incorporated within a slate-tiled roof.

Alternatively, conventional bat boxes could be installed; these could be traditional wooden boxes, or longer lasting woodcrete boxes (e.g. Schwegler boxes) specifically designed for buildings and houses (e.g. the Schwegler 1FQ or 1WQ bat boxes). If these boxes are adopted, it is recommended that they are installed as high as possible on the exterior walls, just under the eaves. South-facing façades should be favoured. Bat boxes can also be erected on trees.

#### 6.3.1.2 Lighting

It is recommended that external lighting should be avoided, unless it is necessary for reasons of security and safety. In particular, light spillage around new bat roosting features and along boundaries should be avoided, so that a dark corridor is created around the peripheries of the site in order to facilitate the movement of bats, as well as other nocturnal wildlife.

Where external lighting is required, it should be kept at low level and a low intensity, with hoods and baffles used to direct the light to where it is required (Bat Conservation Trust 2018, Emery 2008). To minimise the impact on bats, the use of low pressured sodium lamps is recommended in preference to mercury or metal halide lamps which have a UV element that can affect the distribution of insects and attract bats to the area, affecting their natural behaviour (Bat Conservation Trust 2018).

The key principals for choosing a suitable type of lamp are:

- Avoid blue-white short wavelength lights: these have a significant negative impact on the insect prey of bats. Use alternatives such as warm-white (long wavelength) lights as this will reduce the impact on insects and therefore bats.
- Avoid lights with high UV content: (e.g. metal halide or mercury light sources) or reduce/completely remove the UV content of the light. Use UV filters or glass housings on lamps which filter out a lot of the UV content.

Selecting an appropriate lamp unit that is designed to be environmentally friendly will minimise light spill, but further controls can be imposed by installing directional accessories such as baffles, hoods and louvres on lamps to direct light away from ecologically sensitive areas.

LED (Light Emitting Diode) units are an effective way to direct the light into small target areas and are recommended for lighting the proposed parking and turning area. Composite LEDs can be switched off to reduce/direct the light beam to specific areas.

### 6.3.2 *Amphibians*

Measures should be put in place to avoid any potential killing or injury of amphibians. It is considered that this can be achieved through vegetation clearance, to encourage any amphibians to move away from the area of the proposed garage.

It is recommended that vegetation in the works area is cleared to 5cm, avoiding disturbances to the ground. Subsequent cuts should be slowly reduced by 1cm at a time, until a short vegetation height of 2-3cm is achieved.

In the highly unlikely event that amphibians are present, clearance will encourage them to move away from the proposed area of works.

The area should be cut regularly to maintain a short vegetation height, and it is recommended that the low vegetation height is maintained for at least two weeks prior to the commencement of works. This vegetation height should be maintained until works have been completed.

If, at any time, a great crested newt is encountered, works should stop, and advice sought from a suitably experienced ecologist.

### 6.3.3 *Birds*

It is recommended that any removal of shrubs or woody vegetation is undertaken outside of the bird nesting period, avoiding March to August inclusive.

### 6.3.4 *Badgers*

There is no evidence of badger setts within the site, or badger activity. Badgers are currently considered to be absent.

However, vigilance should be maintained for signs of badger activity including digging, holes, dung, dung pits (latrines) and foraging scrapes.

If digging and/or holes are found during works, all groundwork should stop, and advice sought from a suitably qualified and experienced ecologist. If the ecologist confirms the presence of an active badger sett, that is occupied by badgers, then works may have to stop until a badger licence can be obtained from Natural England.

As a precautionary measure, all excavations over 50cm deep will be covered at night, to prevent pitfall hazards to badgers. All excavations under 50cm in depth will be provided with a wooden ramp, to allow badgers to exit.

All excavations and trenches will be covered overnight or will be provided with ramps to allow any trapped animals to escape.

### 6.3.5 Hedgehogs

If a hedgehog is discovered during works, it should be either allowed to move to a safe area under its own power or be moved by hand to a relatively nearby, safe location, such as an adjacent garden. Hedgehogs should be moved no further than 200m from where they are found as they may have dependant young that rely on their return for survival.

When handling hedgehogs, gloves should be worn to protect the handler from their spines, infection and parasites.

In the unlikely event that an occupied hedgehog nest is disturbed, or a baby hedgehog is encountered (eyes shut) all works should stop in the vicinity and advice be sought from an appropriate wildlife hospital (such as Tiggywinkles) or animal charity (such as the RSPCA). If the nest has been exposed or destroyed then the entire nest should be covered over, for example with a bucket. Baby hedgehogs should not be handled with bare hands as this can result in abandonment by their mother.

As a precautionary measure, all excavations over 50cm deep will be covered at night, to prevent pitfall hazards to hedgehogs. All excavations under 50cm in depth will be provided with a wooden ramp, to allow hedgehogs to exit.

## 7 References

Bat Conservation Trust, 2018. *Bats and artificial lighting in the UK: Bats and the Built Environment series*. The Bat Conservation Trust, London.

CIEEM, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

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JNCC, 2010. *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. JNCC First published 1990; reprinted in 2010.

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8 Appendix 1. Photographs



Photograph 1. The dwelling at New Inn Cottage, viewed from the north, showing the eastern wing that will be affected by the works.



Photograph 2. The dwelling viewed from the south-east.



Photograph 3. The dwelling viewed from the west.



Photograph 4. Open-sided western wing of the dwelling.



Photograph 5. The eastern wing of the dwelling, viewed from the west.



Photograph 6. Northern interior of the eastern wing.



Photograph 7. Southern interior of the eastern wing, with bitumen and mineral underlay and simple timber frame.



Photograph 8. Tight-fitting timber weatherboarding on the eastern wing.



Photograph 9. Tight-fitting slate tiles of the eastern wing.



Photograph 10. Swallow nests within the western wing of the dwelling, indicated by the red circles.



Photograph 11. Stone greenhouse within the southern portion of the garden.



Photograph 12. Amenity grassland and planted beds within the east of the site.



Photograph 13. Amenity grassland, trees and planted beds within the west of the site.



Photograph 14. Amenity grassland, trees, planted beds and central hedgerow within the south of the site.



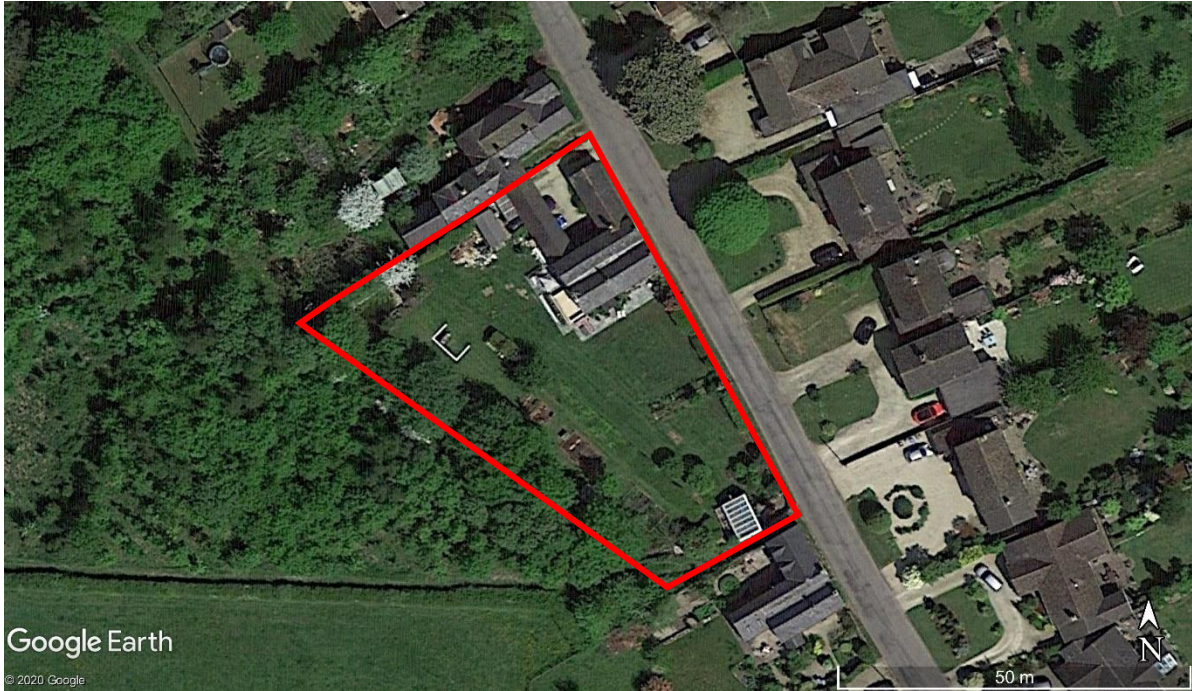
Photograph 15. Plantation woodland outside the western boundary of the site.



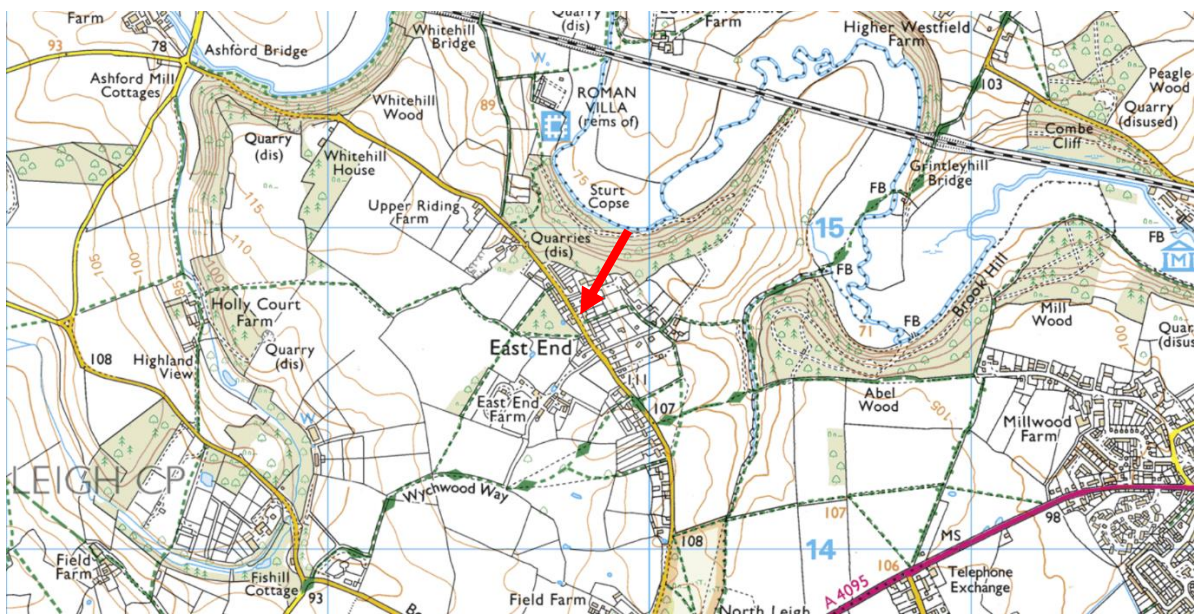
Photograph 16. Garden pond within the north-west of the site.



## 9 Appendix 2. Site Location Plans



Aerial photograph showing the approximate location of New Inn Cottage, East End, outlined in red.



Ordnance Survey map showing the approximate location of the site (indicated by the red arrow) within the local area.

## 10 Appendix 3. Species for Landscape and Ornamental Planting

Common Name	Botanical Name
<b>Trees</b>	
Field maple*	<i>Acer campestre</i>
Beech*	<i>Fagus sylvatica</i>
Hornbeam*	<i>Carpinus betulus</i>
Willow*	<i>Salix sp.</i>
Silver birch*	<i>Betula pendula</i>
Rowan*	<i>Sorbus aucuparia</i>
Whitebeam*	<i>Sorbus aria</i>
Alder*	<i>Alnus glutinosa</i>
Wild cherry*	<i>Prunus avium</i>
Flowering cherry	<i>Prunus sp.</i>
Flowering pear	<i>Pyrus calleryana</i>
Crab apple*	<i>Malus sylvestris</i>
Fruiting apple	<i>Malus sp.</i>
English oak*	<i>Quercus robur</i>
Elm*	<i>Ulmus sp.</i>
Small-leaved lime*	<i>Tilia cordata</i>
<b>Shrubs</b>	
Holly*	<i>Ilex aquifolium</i>
Hazel*	<i>Corylus avellana</i>
Wayfaring tree*	<i>Viburnum lantana</i>
Wild service tree*	<i>Sorbus torminalis</i>
Buckthorn*	<i>Rhamnus cathartica</i>
Guelder rose*	<i>Viburnum opulus</i>
Hawthorn*	<i>Crataegus monogyna</i>
Hebe	<i>Hebe sp.</i>
Rosemary	<i>Rosmarinus</i>
Ceanothus	<i>Ceanothus sp.</i>
Weigela	<i>Weigela sp.</i>
Dog rose	<i>Rosa canina</i>
Dogwood*	<i>Cornus sanguinea/alba</i>
Rose (single flowered varieties)	<i>Rosa sp.</i>
Wild privet*	<i>Ligustrum vulgare</i>
Garden privet	<i>Ligustrum ovalifolium</i>
Lilac	<i>Syringa vulgaris</i>
Escallonia	<i>Escallonia sp.</i>
Lavender	<i>Lavandula sp.</i>
Flowering currant	<i>Ribes sp.</i>
Honeysuckle*	<i>Lonicera periclymenum</i>
Mexican orange blossom	<i>Choisya sp.</i>
Spiraea	<i>Spiraea sp.</i>
Amelanchier	<i>Amelanchier lamarckii/canadensis</i>
Cotoneaster	<i>Cotoneaster sp.</i>
Yew*	<i>Taxus baccata</i>

<b>Common Name</b>	<b>Botanical Name</b>
Broom	<i>Cytisus sp.</i>
Rose of Sharon	<i>Hypericum calycinum</i>
Firethorn	<i>Pyracantha sp.</i>
Butterfly bush	<i>Buddleia davidii</i>
Clematis	<i>Clematis sp.</i>
<b>Perennials</b>	
Elephant's ears	<i>Bergenia cordifolia</i>
Sage	<i>Salvia sp.</i>
Lamb's ears	<i>Stachys byzantia</i>
Periwinkle*	<i>Vinca major &amp; Vinca minor</i>
Ivy*	<i>Hedera helix</i>
Bugle*	<i>Ajuga reptans</i>
Lady's mantle	<i>Alchemilla mollis</i>
Geraniums	<i>Geranium sp.</i>
Globe thistle	<i>Echinops ritro</i>
Monk's hood	<i>Aconitum sp.</i>
Yarrow*	<i>Achillea millefolium</i>
Teasel*	<i>Dipsacus fullonum</i>
Oriental poppy	<i>Papaver orientalis</i>
Michaelmas daisy	<i>Aster sp.</i>
Bear's breeches	<i>Acanthus spinosus</i>
Montbretia	<i>Crocsmia sp.</i>
Purple coneflower	<i>Echinacea purpurea</i>
Ornamental onion	<i>Allium sp.</i>
Catmint	<i>Nepeta sp.</i>
Verbena	<i>Verbena sp., Verbena bonariensis</i>
Marjoram	<i>Origanum majorana</i>
Thyme	<i>Thymus sp.</i>
Crocus	<i>Crocus sp.</i>
Daffodil	<i>Narcissus sp.</i>
Snowdrop	<i>Galanthus nivalis</i>
Winter aconite	<i>Eranthis sp.</i>
Bluebell*	<i>Hyacinthoides non-scripta</i>
Primrose*	<i>Primula veris</i>
Forget-me-not*	<i>Myosotis sp.</i>
Grape hyacinth	<i>Muscari botryoides</i>
Hollyhock	<i>Althaea rosea</i>
Lenten rose	<i>Helleborus orientalis</i>
Foxglove*	<i>Digitalis purpurea</i>
Greater knapweed*	<i>Centaurea scabiosa</i>
Great mullein*	<i>Verbascum thapsus</i>
Toadflax*	<i>Linaria vulgaris</i>
Meadow crane's-bill*	<i>Geranium pratense</i>
*indicates native species	