The Beeches, Heyford Road, Steeple Aston, Oxfordshire OX25 4SN

Ecological Impact Assessment

March 2024

on behalf of **StudioDB Ltd**

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Client	StudioDB Ltd
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Report Contents

1 Executive Summary

Site Details	The Beeches is located to the west of Heyford Road within the village of Steeple Aston, in Oxfordshire OX25 4SN. The approximate Ordnance Survey grid reference for the site is SP 476 252.
Proposals	• Replacement of the existing swimming pool wing with a two-storey side extension. • Replacement of the existing front gable and rear extension with single-storey extensions. • Removal of the existing garage and erection of a replacement garage to be positioned to the west (this includes the removal of four existing trees) • Re-landscaping of the existing driveway to improve parking/turning areas (this includes the removal of two existing trees)
Methodology	The Extended UKHab survey and Initial Bat Survey & Preliminary Roost Assessment were undertaken on 22nd February by professional ecologist Reuben Hayden *MSc ACIEEM.*
Results	Habitats • The site comprises a detached dwelling and garage set within hardstanding (gravel and asphalt driveway), mixed woodland and vegetated garden (modified grassland, introduced shrub and non-native and ornamental hedgerows) habitats. • Other than the mixed woodland, habitats are considered to be of negligible or low ecological value. The mixed woodland is considered of high ecological value. Bats • The dwelling and garage are assessed as having 'negligible' potential for roosting bats (Collins, 2023). • All trees to be removed are assessed as having 'none' potential for roosting bats (Collins, 2023). Other Species • Trees within the site are likely to offer nesting opportunities to birds. • Log piles within the woodland could potentially offer shelter for common reptiles and hedgehogs. • Deadwood could potentially offer feeding habitat for invertebrates such as the stag beetle.
Impact Assessment	Habitats • Proposals will result in the loss of hard-standing, introduced shrub and six scattered trees.

	Bats
	• There are no foreseeable impacts on roosting bats, commuting or foraging bats. • New external lighting has the potential to affect bat behaviour.
	Other Species
	• If present, brumating reptiles may be disturbed by the removal of log piles (if undertaken within the brumating period) • Badgers and hedgehogs passing through the site during the construction phase of development are at risk of injury and trapping due to inadvertent pitfall hazards. • If nesting birds are present within the woody habitats at the time of clearance works, there is the potential for the destruction of active birds' nests and the killing/injury of eggs/young.
Recommendations	Recommendations are made with regard to the protection of retained hedgerows and trees. Careful work practices are recommended to protect birds, badgers, reptiles and hedgehogs. Recommendations are made with native landscape planting (with a focus on compensatory tree planting) as well as species-specific enhancement including bird/bat boxes.

2 Introduction

2.1 Site Description & Context

The Beeches, referred to as the 'site' for the purpose of this report, is located to the west of Heyford Road within the village of Steeple Aston in Oxfordshire OX25 4SN. The approximate Ordnance Survey grid reference for the site is SP 476 252.

The site comprises a detached dwelling and garage set within hard-standing (gravel and asphalt driveway), mixed woodland and vegetated garden habitats. Given that the proposals only include works to the dwelling and garage and the habitats immediately surrounding these buildings, the focus of this report will be with regard to this.

To the east there are further dwellings with associated gardens, to the west there is a paddock, to the south there is arable land and to the north there is fallow land which appears to comprise grassland. The wider landscape is characterised by the village of Steeple Aston surrounded by arable land and improved grassland within a network of hedgerows and pockets of woodland (mainly plantation). The River Cherwell is located approximately 300m south-east of the site and likely provide suitable commuting and foraging habitat for local wildlife such as bats.

2.2 Proposals

The proposals include:

- Replacement of the existing swimming pool wing with a two-storey side extension.
- Replacement of the existing front gable and rear extension with single-storey extensions.
- Removal of the existing garage and erection of a replacement garage to be positioned to the west (this includes the removal of four existing trees)
- Re-landscaping of the existing driveway to improve parking/turning areas (this includes the removal of two existing trees)

Please see Appendix 3 for proposal plans.

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 likely 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.

2.4 Biodiversity Statement

The proposals are included within a Householder Planning Application and therefore are exempt from Statutory Biodiversity Net Gain (defined by the Environment Act 2021).

3 Methodology

3.1 Desk Study

The Multi-Agency Geographic Information for the Countryside (www.magic.gov.uk) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the site and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius.

Other Internet resources interrogated as part of the desk study include:

- Google Earth Pro
- Old Maps - www.old-maps.co.uk
- Where's the path - https://wtp2.appspot.com/wheresthepath.htm

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 was consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation was used to place the site into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to provide a baseline to the habitat assessment.

3.2 Field Surveys

3.2.1 *Extended UKHab Survey*

An extended UK Habitat (UKHab) Classification Survey was undertaken on 22nd February 2024 by Reuben Hayden *MSc ACIEEM*. A walkover of the site was conducted, and a description of the habitats present was prepared using standard UKHab Survey methodology (UKHab, 2023). Habitats were also assessed for their potential to support protected and/or notable species.

Target notes were also prepared on features of particular ecological interest within the site 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).

3.2.1.1 Weather Conditions

The weather on the day was mild with light rain (10°C) with overcast skies (90% cloud cover) and a gentle breeze (Beaufort Scale 3).

3.2.2 *Initial Bat Survey & Preliminary Roost Assessment (Buildings & Trees)*

An Initial Bat Survey and Preliminary Roost Assessment (PRA) of the buildings (dwelling and garage) and trees proposed to be removed were also undertaken on 22nd February 2024 by Reuben Hayden *MSc ACIEEM*.

Mr Hayden holds a licence from Natural England to survey for bats within all counties of England (WML-CL17-Level 1 2021-54302-CLS-CLS) and has over 4 years of experience in undertaking bat surveys.

A detailed internal and external survey of the dwelling and garaged 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, 2023) and the Bat Workers Manual (JNCC, 2012).

The study also takes into account the nature of the buildings and the ecological context of the site, including the following factors which may increase the likelihood of roosting bats being present (Collins, 2023):

- Age of the building (pre-20th Century or early 20th 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 mortise 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

The following criteria are used to determine the level of 'bat roost potential suitability' within buildings (Collins, 2023):

Potential Suitability	Roosting Habitats in Structures
None	No habitat features on site likely to be used by any roosting bats at any time of the year.
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity or hibernation).
High	A structure 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. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.

Trees proposed for removal were also assessed for their potential to shelter roosting bats following Good Practice Guidelines (Collins, 2023). The survey was undertaken from ground level, with trees inspected for potential roost features, using binoculars as necessary.

Potential roost features (PRFs) that may be used by bats include (Collins, 2023):

PRFs Formed by Disease & Decay	PRFs Formed by Damage	PRFs Formed by Association
• Woodpecker holes • Squirrel holes • Knot holes • Pruning cuts	• Lightning strikes • Hazard beams • Subsidence cracks • Shearing cracks	• Fluting • Ivy

PRFs Formed by Disease & Decay	PRFs Formed by Damage	PRFs Formed by Association
• Tear outs • Wounds • Cankers • Compression forks • Butt rots	• Transverse snaps • Welds • Lifting bark • Desiccation • Fissures • Frost cracks	

The following criteria are used as guidelines for assessing the potential suitability of trees for bats (Collins, 2023):

Suitability	Description of Roosting Habitats
NONE	Either no PRFs in the tree or highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present. The definition of PRF types is below: PRF-I: PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. PRF-M: PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Where the possibility that bats are present cannot be eliminated or evidence of bats is found during the PRA survey, then further surveys (such as PRF aerial inspection, winter hibernation, presence/absence and/or roost characterisation) are likely to be necessary if impacts on the roosting habitat (or the bats using it) are predicted.

In addition to the bat survey, the buildings and trees were checked for evidence of nesting birds including old birds' nests, bird droppings, feathers and eggs.

3.3 Limitations on Survey Data

There were no limitations on the survey data, and all areas of the site could be accessed thoroughly and safely (including the loft space of the dwelling).

As with any survey undertaken on a certain date, the data presented within this report provide information at particular points in time and present a 'snap-shot' of the ecological status of the site. Ecosystems and species behaviour/activity are dynamic and can change over time.

Whilst this report presents a characterisation and evaluation of habitat and species status at the time of the study, it should not be taken as an exhaustive representation of the ecological status of the site either at present or into the future.

4 Results

4.1 Ecological Context

4.1.1 *Sites of Nature Conservation Importance*

4.1.1.1 Statutory Sites

There are no sites of international nature conservation importance, such as a Special Areas of Conservation (SAC), located within a 5km radius of the site. The closest site of international nature conservation importance is Oxford Meadows SAC, which is located approximately 14.8km south of the site.

There are no statutory sites of national nature conservation importance, such as Sites of Special Scientific Interest (SSSI), within a 1km radius of the site. The closest site of national nature conservation importance is Horsehay Quarries SSSI, which is located approximately 2.7km north-west of the site.

The site is located within the outer impact zones of Horsehay Quarries SSSI and Middle Barton Fen SSSI. The impact zones include the following categories:

- Infrastructure (Airports, helipads and other aviation proposals).
- Air Pollution (Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).

4.2 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.

The UKHab codes for the habitats within the site are presented within Table 1.

Table 1. UKHab habitat codes for the site.

Primary Code	Additional Codes	Description
u1b	-	Developed land; sealed surface
u1c	-	Artificial unvegetated, unsealed surface
w1h6	-	Other woodland; mixed; mainly conifer
-	828	Vegetated garden (including modified grassland, introduced shrub, individual trees and non-native and ornamental hedgerows)

4.2.1 *Buildings*

4.2.1.1 Dwelling

Within the centre of the site, there is a three-storey detached, brick-built dwelling. The building has a series of pitched roofs of modern ceramic tiles, a mix of wooden open and soffited eaves and single-storey extensions on the western (swimming pool wing) and southern elevations (modern extension).

Within this study, the areas of focus for the survey are concentrated around the swimming pool wing, front gable and rear modern extension, which are to be impacted by proposals.

Above the western half of the three-storey section of the dwelling there is a loft space with a floor to ridge height of approximately 2.5m. The loft space has a common rafters design with a wooden sarking underlay covered in a layer of insulation. This is the only loft space within the dwelling and all other interior rooms are vaulted and sealed from the exterior. There are no natural light ingresses and the loft space is completely dark. No access points into the loft space and no evidence of bats were noted during the survey. Please see Figure 1 below to see where the loft space is located.

Figure 1. Location of loft space within the dwelling (outlined in red).

The areas of focus are all brick-built with a covering of external render and pitched roofs of modern ceramic tiles. These areas have no loft spaces and have sky lights and windows that provide illumination into the interior spaces. Within these areas, the walls, eaves and roofing are all in excellent repair and exhibit no gaps or crevices that could provide shelter to bats between the underlay and tiling. The only potential roosting feature noted on the entire dwelling is a missing tile beneath the eastern chimney stack. This section of the building will not be impacted by the proposals and given this is the only potential feature present, it is considered of sub-optimal quality. Please see Figure 2 for this potential roosting feature.

Figure 2. Missing tile below the eastern chimney stack of the dwelling (circled in red).

Bats will choose to roost within different locations within the summer and winter periods (see Figure 3), favouring dark, enclosed, humid and cool locations for hibernation such as caves and cellars. These locations must maintain a constant low temperature (2-8°C), but temperatures must also not go below freezing. In addition, bats favour places that are undisturbed and retain relatively high humidity during the winter period.

The building, including the loft space, is not considered to be suitable for hibernation due to the fact that the internal spaces are unsuitable and exhibits no features that could be used by hibernating bats and are unlikely to maintain the constantly cool and humid conditions which are required by overwintering bats.

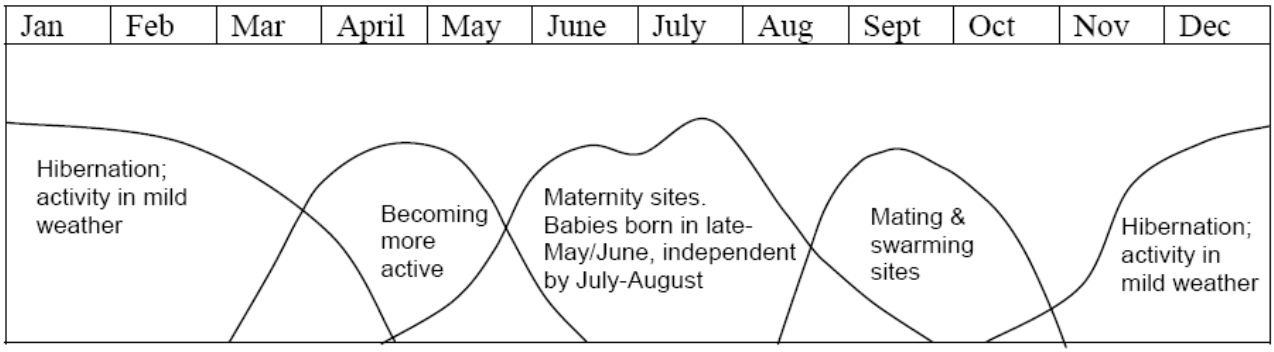


Figure 3. Diagram showing the yearly life cycle of a bat. Taken from the Bat Mitigation Guidelines by Mitchell-Jones (2004).

Given the above discussion, the building (focused on the swimming pool wing, front gable and rear modern extension) is assessed as having '**negligible**' potential (Collins, 2023) to offer shelter to roosting bats.

4.2.1.2 Garage

The garage is a detached building with a rectangular footprint, located to the north of the dwelling. The building is modern and built within the last few years, comprising of wooden panel walls and a pitched roof of bitumen felt. There are no loft spaces or other enclosed spaces within the building.

The building is in an excellent state of repair, lacking any obvious gaps or crevices that could be used for shelter by roosting bats.

No bats or evidence of bats were observed during the survey.

The building is not considered to be suitable for hibernation due to the fact that it exhibits no features that bats could use for hibernation and is unlikely to maintain the constantly cool and humid conditions which are required by overwintering bats.

Given the above, the garage is assessed as having '**negligible**' (Collins, 2023) potential suitability for roosting bats.

4.2.2 *Hard-standing (Developed land; sealed surface & Artificial unvegetated, unsealed surface)*

Surrounding the dwelling and garage there are areas of gravel, asphalt and patio hardstanding which are devoid of vegetation.

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

4.2.3 *Other Woodland; Mixed; Mainly Conifer*

To the north and west of the dwelling and garage, there is an area of mixed woodland. The canopy comprises semi-mature to mature trees, dominated by fir *Abies* sp., pine *Pinus* sp. and beech *Fagus sylvatica*. The shrub layer include species of yew *Taxus baccata* and field maple *Acer campestre*.

The ground floor comprises bare ground which is mostly devoid of vegetation and covered by leaf litter/tree debris but includes patches of sparse vegetation. The sparse ground flora includes common species found under woodland canopies such as snowdrop *Galanthus* sp., lords-and-ladies *Arum maculatum*, daffodil *Narcissus* sp., crocus *Crocus* sp., ground ivy *Glechoma*

hederacea, herb Robert *Geranium robertianum*, wood avens *Geum urbanum* and dandelion *Taraxacum agg*.

The origin of the woodland is unknown, although the presence of pine and fir indicates that some of the trees are likely to have been planted, possibly for their ornamental value. The ground flora is not indicative of an ancient woodland, and comprises common and widespread species. The MAGIC website does not indicate that the woodland is an ancient woodland. Given this, it is considered that the habitat does not meet the criteria for a woodland habitat of principal importance as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

However, the trees, shrubs and ground flora are considered to be of ecological value within the context of the site, as they are likely to provide habitats for birds, small mammals, fungi and invertebrates.

4.2.4 *Vegetated Garden*

Within the immediate surroundings of the dwelling and garage, there are vegetated garden habitats comprising of modified grassland, introduced shrub and flowerbeds and non-native and ornamental hedgerows.

4.2.4.1 Modified Grassland

To the south of the dwelling, there is a formally managed areas of modified grassland (lawn) with a sward height of approximately 5cm.

The grassland was dominated by grasses such as perennial rye *Lolium perenne* and annual meadow grass *Poa annua*. Herbaceous species included white clover *Trifolium repens*, daisy *Bellis perennis*, yarrow *Achillea millefolium,* creeping buttercup *Ranunculus repens*, ribwort plantain *Plantago lanceolata*, mouse-ear chickweed *Cerastium fontanum* and primrose *Primula* sp.

The modified grassland is not considered to meet the criteria for a grassland habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006.

It is considered to be of low ecological value.

4.2.4.2 Introduced Shrub & Flowerbeds

Within the garden areas of the site, there is landscape and flowerbed planting in the form of ornamental shrubs and flowers. The assemblage includes species such as lavender *Lavandula* sp., daffodil and spurge *Euphorbia* species.

Given that the planting is for ornamental purposes and most include non-native species, the introduced shrub is considered to be of low ecological value within the context of the site.

4.2.4.3 Non-native and Ornamental Hedgerows

Interspersed with the introduced shrub, there are ornamental hedgerows of Leyland cypress *Cupressus* × *leylandii*. Given that the hedgerows comprise of non-native species, they are not considered to meet the criteria for hedgerows of 'principal importance' as listed within Section 41 of the NERC Act 2006.

The ornamental hedgerows are considered to be of low ecological value within the context of the site.

4.3 Species

4.3.1 *Plants*

No rare or scarce plants were found within the site.

4.3.2 *Reptiles*

The habitats within the site are not considered to be suitable for reptiles, including grass snakes, with a lack of suitable habitat (such as tussocky grassland) that could support abundant prey and provide cover. The mixed woodland also lacks a dense shrub layer and ground flora that could provide shelter to reptiles. There are log piles within the woodland however, which could provide shelter habitat to reptiles.

Given that the majority of the site is managed as a formal garden and there being a lack of suitable habitat to provide prey numbers suitable for a population of reptile, it is considered highly unlikely that reptiles will be utilising the site.

Given this, there are shelter features such as log piles within the site which could be utilised by reptiles if they are present within the local landscape, and the presence (be it slim) cannot be ruled out from the site. If reptiles were to be found within the site, it is considered they would be in low numbers and be of a common species such as the slow worm *Anguis fragilis*.

4.3.3 *Amphibians*

There are no ponds or standing open waterbodies within the site that amphibians could use for breeding. Study of Ordnance Survey maps shows three ponds within 500m of the site. These are all further than 250m from the site.

Similar to reptiles, the majority of habitats within the site offer no significant shelter or cover to amphibians whilst on land. There are log piles within the woodland however, which could provide shelter habitat to amphibians.

As defined by NatureSpace, the site is located within a 'Green Risk Zone'. This zone means there is moderate habitat suitability and great crested newts may be present. It is believed that great crested newts *Triturus cristatus* can disperse up to 500m from a breeding pond, with the majority of individuals being found within 250m of the pond. Research by Creswell and Whitworth (2004) identified that the majority of great crested newts are found within approximately 50m of a breeding pond, given suitable habitat in close proximity to the pond, and they also found a significant drop-off in capture of great crested newts beyond 100m of a pond.

Given that the closest ponds are further than 250m and the terrestrial habitats of the site are considered predominately unsuitable for amphibians, it is likely that amphibians (including the great crested newt) are absent from the site.

4.3.4 *Birds*

Shrubs, scattered trees and hedgerows offer potential nesting opportunities to breeding birds, which may include species such as dunnock *Prunella modularis*.

The site is unsuitable for ground nesting bird species such as skylarks *Alauda arvensis*, and no skylarks were observed or heard during the survey.

4.3.5 *Bats*

4.3.5.1 Bats & Buildings

The dwelling and garage are assessed as having 'negligible' potential to offer shelter to roosting bats (Collins, 2023).

4.3.5.2 Bats & Trees

All of the trees to be removed are assessed as having 'none' potential to offer shelter to roosting bats (Collins, 2023). This is due to their young age and lack of any potential bat roosting features.

It is of note that the four trees proposed for removal which are west of the garage, have already been removed. These trees were a mix of fir and beech.

4.3.5.3 Bats & Habitats

The majority of vegetated habitats within the site (vegetated garden) are considered to have 'low' potential suitability (Collins, 2023) for foraging and commuting bats. It is considered that these habitats may be used by small numbers of foraging and commuting bats.

The woodland and hedgerow habitats are however considered to have 'moderate' potential suitability (Collins, 2023) for foraging and commuting bats. These habitats are considered to have continuous habitat connected to the wider landscape that could be used by bats for flight-paths and foraging.

4.3.6 *Invertebrates*

The majority of habitats within the site are of limited botanical diversity and are considered unlikely to support a diverse or uncommon assemblage of invertebrates.

Within the woodland there a number of trees have been felled and have been left as deadwood piles. Deadwood habitats can support saprophytic species such as the stag beetle *Lucanus cervus,* a species listed within Section 41 of the NERC Act 2006.

4.3.7 *Other Species*

No badger *Meles meles* setts were noted within the site and no field signs of badgers were observed, such as dung pits, foraging scrapes and mammal tracks. Badgers are however, likely to be present within the wider landscape and may migrate through the site to find higher quality foraging grounds.

The vegetated habitats provide potentially suitable habitat for foraging and sheltering hedgehogs *Erinaceus europaeus*, a species of 'principal importance' under Section 41 of the NERC Act 2006.

No other protected/notable species are considered relevant to the site.

4.3.8 *Invasive Species*

No non-native invasive species were noted within the site.

5 Discussion

5.1 Legislative & 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'.

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 considered to be relevant to the site.

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

- Bird species such as dunnock (trees, shrubs and hedgerows provide potential nesting opportunities).
- Bat species such as brown long-eared bat (woodland and hedgerows provide potential foraging and commuting habitat)
- Invertebrate species such as stag beetle (deadwood piles offer potential feeding habitat)
- Hedgehog (vegetated habitats provide potential foraging and shelter habitat)

5.1.4 *The National Planning Policy Framework (NPPF)*

The National Planning Policy Framework was updated on 19th December 2023 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, revised in July 2018 and updated in February 2019 and July 2021.

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.

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 integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

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

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitat's 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.

5.1.5 *Environment Act 2021*

On 15th October 2019, the government introduced a new Bill to Parliament; The Environment Bill. This Bill was given Royal Assent on 9 November 2021, thereby passing the Environment Act 2021. This legislation has been introduced to ensure that England maintains and improves its environmental protection. The Act details a legal requirement for all developments (exemptions apply) to ensure that a minimum of 10% net gain in Biodiversity is delivered.

5.2 Impact Assessment

5.2.1 *Sites of Nature Conservation Importance*

There are no foreseeable direct or indirect impacts on sites of nature conservation importance as a result of the proposals.

There are no foreseeable impacts on Horsehay Quarries SSSI and Middle Barton Fen SSSI. The proposed development does not fall into the category of any potentially damaging activities such as infrastructure or air pollution.

5.2.2 *Habitats*

The proposals will result in the loss of hard-standing, modified grassland, introduced shrub and six scattered trees. Other than the trees, these habitats are all considered to be of negligible or low ecological value.

It is considered that with the replacement of lost scattered trees within the wider landholding, there are no foreseeable impacts on high value habitats.

The proposals will not result in any impacts on habitats of 'principal importance', as listed within Section 41 of the NERC Act 2006.

The NPPF 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 a gain in biodiversity could be achieved within the site through new native planting and planting of species of known value to wildlife within the proposed landscaping. Species-specific measures such as bat and bird boxes could also contribute to biodiversity net gain.

5.2.3 *Species*

5.2.3.1 Plants

There are no foreseeable impacts on rare or protected plant species.

5.2.3.2 Reptiles

There are no foreseeable impacts on reptiles or their habitats, however, if the log piles within the woodland are to be removed during the brumation period, there is a risk of disturbing brumating animals.

5.2.3.3 Amphibians

There are no ponds or waterbodies within the site that could form potential breeding habitat for great crested newts or other native amphibians. There is accordingly no foreseeable loss in amphibian breeding habitat.

As previously discussed within section 4.3.3, amphibians are considered likely absent from the site and such no impacts are predicted.

5.2.3.4 Birds

Removal of any scattered trees, introduced shrub or hedgerows during the bird breeding period has the potential to result in the damage or destruction of active birds' nests and the killing/injury of young and eggs.

5.2.3.5 Bats

5.2.3.6 Bats & Buildings

The dwelling and garage are assessed as having 'negligible' roosting potential for bats (Collins, 2023) and such there are no foreseeable impacts on roosting bats.

5.2.3.7 Bats & Trees

All trees still present and yet to be removed are assessed as having 'none' roosting potential for bats (Collins, 2023) and such there are no foreseeable impacts on roosting bats.

5.2.3.8 Bats & Habitats

The woodland and hedgerow habitats are proposed to be retained and protected during development, and such there are no foreseeable impacts on foraging or commuting bats.

External lighting can have an impact on bats by affecting their activity and behaviour. 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. 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).

New external lighting with the site could therefore have an adverse effect on foraging or commuting bats, partially foraging and dispersal behaviour along the site boundaries or along the brook. Although disturbance by lighting is unlikely to result in significant impacts under the legal protection afforded to bats (and thus will not require a Bat Licence), lighting may result in a change in bat activity which is not desirable.

5.2.3.9 Invertebrates

Fallen dead wood may offer habitat to invertebrates, including the stag beetle. It is considered that dead wood can be retained within the site, and with the retention of dead wood, there are no foreseeable impacts on saproxylic invertebrates.

5.2.3.10 Badgers & Hedgehogs

Badgers and hedgehogs passing through the site during the construction phase of development are at risk of injury and trapping due to inadvertent pitfall hazards. This is particularly the case when foundations are being excavated.

The proposed development is not predicted to result in a significant loss of foraging or sheltering habitat for hedgehogs, given that the vegetated habitats will be retained.

5.2.3.11 Other Species

There are no foreseeable impacts on other rare or protected species.

6 Recommendations

6.1 Further Surveys

No further surveys are considered necessary.

6.2 Habitats

6.2.1 *Protection of Existing Habitats*

It is recommended that the retained trees and hedgerows are protected in accordance with British Standard 5837:2012, through the establishment of appropriate root protection zones.

6.2.2 *Landscape Planting*

It is recommended that any new areas of landscaping are designed, planted and managed to maximise their value to wildlife. One key element of this would be the species used within the planting, which should comprise native species where possible, as well as ornamental plants of known value to wildlife. The key will be to provide a variety of flowers and fruits throughout the year in order to provide food for insects and birds, as well as providing potential nest sites through the planting of trees and shrubs.

Appendix 5 recommends a number of suitable species for landscape 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 plants species established below.

In particular, compensatory native tree planting within the wider landholding is encouraged.

6.3 Species

6.3.1 *Birds*

6.3.1.1 Timing

The clearance of all woody vegetation should be timed to take place outside of the bird breeding season (avoiding March to August, inclusive) so as to avoid any impacts on active birds' nests.

Alternatively, if this is not possible, and vegetation clearance is required between March and August, an ecologist should be appointed to assess if there are any risks to breeding birds to ensure compliance with the legal protection afforded to nesting birds under the Wildlife and Countryside Act 1981. This may require a survey for nesting birds by the ecologist immediately prior to the vegetation clearance works (usually recommended within 24 hours). If nesting birds were present, clearance work would need to be delayed in the vicinity of the nest to avoid damage or destruction of the nest until the young have fledged.

6.3.1.2 Bird Box Enhancement

The erection of bird nesting boxes is recommended in order to provide suitable nest sites for species within the local area, as nest boxes can be excellent substitutes for the nesting potential of trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows. The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds.

On new buildings, the integration of bird boxes is particularly recommended as species such as the house sparrow will readily adopt such features as nest sites, with new integrated nesting features securing a biodiversity enhancement in the long term.

Recommended integrated boxes are:

- Vivara Pro WoodStone House Sparrow Nest Box
- Vivara Pro Build in Woodstone® Half Open Nest Box

Other recommended boxes are:

- Vivara Pro Seville 32mm WoodStone Nest Box
- Vivara Pro Barcelona WoodStone Open Nest Box

6.3.2 *Bats*

6.3.2.1 Licensing

As previously discussed, a bat licence is not required for the proposed works.

6.3.2.2 Timing

No timing constraints are considered necessary.

6.3.2.3 Bat Box Enhancement

The erection, or integration, of bat boxes on new buildings is recommended as an enhancement measure, and to provide gain for biodiversity under the NPPF.

Bat brick (sometimes also referred to as 'bat tubes') features can be obtained pre-fabricated and integrated directly into the fabric of the exterior walls of a building. The bricks/tubes have an external entrance slot which leads to an internal cavity for roosting (e.g., the Vivara Pro Build-in Woodstone Bat Tube). The brick/tube can be concealed behind external cladding, brickwork, stonework or render.

For example, bat bricks/ bat tubes can easily be installed into traditional or modern buildings with external wooden weatherboarding; the brick/tube being concealed behind the overlapping wooden boards with access via a gap under a lifted board which leads to the entrance slot of the brick/tube. Bats can fit through very small gaps and so a crevice of 2-2.5cm should be sufficient to allow access to the slot of the bat brick/tube.

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 Beaumaris Woodstone Bat Box). 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.

6.3.2.4 External Lighting

It is recommended that new external lighting is avoided within the site, unless it is necessary for reasons of security and safety. In particular, lighting should be avoided around any new bat roosting features.

The key in the first instance is to maintain or reduce existing light levels, and reduce blue content to protect the bat species present; this is in line with the mitigation hierarchy where impacts are avoided in the first instance by being planned out (Bat Conservation Trust, 2023).

If lighting is required, it should be kept at low level and at low intensity (Bat Conservation Trust, 2023 and Emery, 2008).

Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on key habitats and features:

- All luminaires should lack UV elements when manufactured. Metal halide, compact 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 light source (2700Kelvin or lower) should be adopted to reduce blue light component
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)

- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

6.3.3 *Badgers & Hedgehogs*

Badgers and hedgehogs passing through the site during the construction phase of development are at risk of injury and trapping due to inadvertent pitfall hazards. This is particularly the case when foundations are being excavated. It is therefore recommended that no ground works take place outside of daylight hours and at night any pits on site are appropriately covered over/fenced off, or that a ramp is put in place via which badgers can escape.

6.3.4 *Invertebrates*

It is recommended that all existing dead wood is retained within the site. If dead wood needs to be moved, this should be undertaken in a careful manner to ensure that all dead wood is retained. Felled trees should also be retained within the site as dead wood features and log piles.

7 References

Bat Conservation Trust, 2023. *Bats and artificial lighting at night*. The Bat Conservation Trust, London.

Collins, J., 2023. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.

Cresswell W. and Whitworth R., 2004. *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus*. English Nature Research Report 576. English Nature, Peterborough.

Emery, M., 2008. Effect of Street Lighting on Bats. Urbis Lighting Ltd., Anglia.

Joint Nature Conservation Committee, 2012. *Bat Worker's Manual*. Joint Nature Conservation Committee, Peterborough, UK.

Rydell J. & Racey, P. A. 1995. *Streetlamps and the feeding ecology of insectivorous bats*. Recent Advances in Bat Biology Zool Soc Lond Symposium abstracts

Stone, E.L., Jones, G., & Harris, S. 2009. *Street lighting disturbs commuting bats.* Current Biology 19:1-5.

UKHab Ltd, 2023. *UK Habitat Classification Version 2.0* (https://www.UKHab.org)

8 Appendix 1. Photographs

Photograph 1. The dwelling (showing the front gable) viewed from the north.

Photograph 2. The dwelling (showing the eastern roof of swimming pool wing) viewed from the north-east.

Photograph 3. The dwelling (showing the swimming pool wing) viewed from the north.

Photograph 4. The dwelling (showing the swimming pool wing) viewed from the south-west.

Photograph 5. The dwelling viewed from the south.

Photograph 6. The dwelling (showing the rear modern extension) viewed from the south-east.

Photograph 7. The interior of the swimming pool wing.

Photograph 8. The loft space above the three-storey section of the dwelling.

Photograph 9. The garage viewed from the east.

Photograph 10. The garage viewed from the west.

Photograph 11. The interior of the garage.

Photograph 12. The gravel hardstanding surrounding the dwelling and garage.

Photograph 13. The northern area of woodland, showing the beech and field maple trees to be removed (outline by red circles).

Photograph 14. Introduced shrub and ornamental hedge found to the east of the dwelling.

Photograph 15. The area of hardstanding and woodland to the west of the garage.

Photograph 16. The woodland within the northern area of the site, showing felled deadwood.

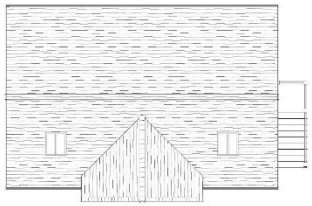
9 Appendix 2. Site Location Plans

Aerial photograph showing the location of the site, outlined in red. Source: *Google Satellite*

Map showing the location of the site, outlined in red, within the local area. Source: *OSM Standard*

10 Appendix 3. Proposal Plans


North Elevation
West Elevation
South Elevation
East Elevation
PLANNING
THE BEECHES, HEYFORD ROAD, STEEPLE ASTON, OX25 4SN
PROPOSED ELEVATIONS
21/12/23
DBR
1:100
23003-PL005-
StudioDB
architecture + design

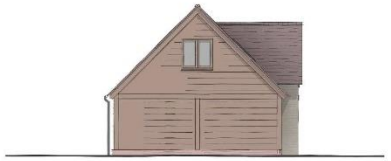


Roof Plan

Front Elevation

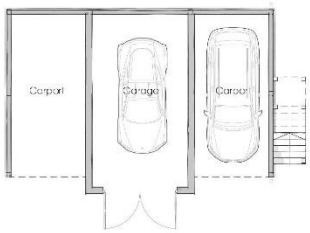
Side Elevation

Rear Elevation

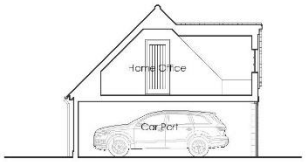


Side Elevation

First Floor Plan



Ground Floor Plan



Section A - A

11 Appendix 4. Species for Landscape & Ornamental Planting

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

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