



ecosupport

Cottage Farm, Lovedean

BEMP

Author(s):

Lyndsey McBean BSc (Hons)
PGCert ACIEEM & Aaron
Domblides BSc Hons

Client:

Bargate Homes

3rd June 2021

Report	Biodiversity Enhancement & Mitigation Plan (BEMP)
Site Name	Cottage Farm, Lovedean
Author(s)	Lyndsey McBean BSc (Hons) PGCert ACIEEM & Aaron Domblides BSc (Hons)
Client	Bargate Homes
Date of Issue	3 rd June 2021
Status	Final Copy

Table of Contents

1.0 INTRODUCTION	3
1.1 Brief.....	3
1.2 Aim	4
1.3 Site Description.....	4
2.0 LEGISLATION.....	5
2.1 Local Planning Policy	5
2.2 National Planning Policy	5
<i>2.2.1 National Planning Policy Framework (NPPF)</i>	<i>5</i>
3.0 ECOLOGICAL BASELINE SUMMARY	6
3.1 Habitats.....	6
<i>3.1.1 Species Poor Semi-improved Grassland</i>	<i>6</i>
<i>3.1.2 Hedgerow</i>	<i>6</i>
<i>3.1.3 Buildings.....</i>	<i>6</i>
3.2 Protected Species	6
<i>3.2.1 Foraging and Commuting Bats</i>	<i>6</i>
<i>3.2.2 Reptiles</i>	<i>6</i>
<i>3.2.3 Nesting and Breeding Birds</i>	<i>7</i>
<i>3.2.4 Mammal holes</i>	<i>7</i>
3.3 Desk Based Search/Designated Sites.....	7
<i>3.3.1 Designated Sites</i>	<i>7</i>
<i>3.3.2 Ponds</i>	<i>7</i>
<i>3.3.3 Protected Species.....</i>	<i>7</i>
4.0 MITIGATION, COMPENSATION AND ENHANCEMENTS.....	8
4.1 Commuting and Foraging Bats.....	8
<i>4.1.1 Sensitive Lighting Strategy</i>	<i>8</i>
4.2 Nesting and Breeding Birds.....	9
4.3 Reptiles	9
<i>4.3.1 Exclusion Fencing</i>	<i>9</i>
<i>4.3.2 Precautionary Catch.....</i>	<i>10</i>
<i>4.3.3 Log Pile</i>	<i>10</i>
4.4 Mammals	10
4.5 Tree Protective Fencing	10
4.6 Enhancements.....	11
<i>4.6.1 Bird Boxes.....</i>	<i>11</i>
<i>4.6.2 Bat Bricks</i>	<i>11</i>
<i>4.6.3 Native Tree Planting</i>	<i>12</i>
<i>4.6.4 Wildflower Planting of Open Space/Grassland Parkland Meadow.....</i>	<i>15</i>
<i>4.6.5 Hedgehogs.....</i>	<i>15</i>
5.0 CONCLUSION.....	17
6.0 REFERENCES.....	18

1.0 INTRODUCTION

1.1 Brief

Outline planning permission has been granted for the construction of 56 dwellings on a parcel of land to the west of Lovedean Lane, Lovedean (under planning application reference APP/20/00455 (Havant Borough Council) and 54139/001 (East Hampshire District Council)). This BEMP report is being submitted alongside a reserved matters application for 43 dwellings.

This report is to address condition 11 of the outline planning granted by Havant Borough Council included within the planning approval, which states:

'Prior to the commencement of any development activities a site-wide ecological mitigation, compensation and enhancement plan shall be submitted to, and agreed in writing by, the Local Planning Authority. Such details shall be in accordance with the outline mitigation, compensation and enhancement measures detailed within the Ecological Survey (EcoSupport, January 2020). Any such measures shall thereafter be implemented in accordance with the agreed details, unless otherwise agreed in writing by the Local Planning Authority.'

Reason - To provide ecological protection and enhancement in accordance with Conservation Regulations 2017, Wildlife & Countryside Act 1981, NERC Act 2006, NPPF and Policy CS11 of the Havant Borough Local Plan (Core Strategy) 2011 and the National Planning Policy Framework.'

This report also addresses condition 10 of the outline planning granted by East Hampshire District Council within the planning approval which states that

'Prior to the commencement of any development activities a site-wide ecological mitigation, compensation and enhancement plan shall be submitted to, and agreed in writing by, the Local Planning Authority. Such details shall be in accordance with the outline mitigation, compensation and enhancement measures detailed within the Ecological Survey (EcoSupport, January 2020). Any such measures shall thereafter be implemented in accordance with the agreed details, unless otherwise agreed in writing by the Local Planning Authority. Reason - To provide ecological protection and enhancement in accordance with Conservation Regulations 2017, Wildlife & Countryside Act 1981, NERC Act 2006, NPPF and Policy CP21 of the East Hampshire District Local Plan: Joint Core Strategy.'

The plans agreed as part of the planning permission granted involve the demolition of 149 Lovedean Lane and the associated outbuilding and one tree on-site (see reserved matters planning layout P1638.01 (November 2020)). This report focuses on the enhancement of the development site to mitigate for lost habitat but also to ensure the development contributes towards a net gain for biodiversity.

This report should be read in conjunction with the Ecological Assessment (Ecosupport Ltd, 2020).

1.2 Aim

The aim of this report is to devise a site wide Biodiversity Enhancements and Mitigation Plan to contribute towards a net gain for biodiversity post-development. This will ensure all features of ecological value and all legally protected species are protected, that their presence on site is retained in perpetuity, and to address the comments received from the council.

1.3 Site Description

The site subject to assessment (**Fig 1**) (central Ordnance Survey Grid Reference SU 68539 12577) is located to the west of Lovedean Lane, Lovedean, Hampshire. It is bound to the east by housing and residential gardens associated with Lovedean Lane and to the south by residential development along Ashley Close and James Copse Road. To the west lies grazed pasture, separating the site from nearby woodland. North of the site a recently approved development is currently under construction. Due to the site's location on the edge of the settlement of Lovedean, the immediate vicinity comprises a mixture of rural landscape (to the west) and dense residential development (to the east).

Figure 1. Redline location of the site (Google Maps, 2020).



2.0 LEGISLATION

2.1 Local Planning Policy

Policy 'CP21 BIODIVERSITY' states that development proposals must maintain, enhance and protect the District's biodiversity and its surrounding environment.

New development is required to maintain, enhance and protect district-wide biodiversity, in particular its nature conservation designations. As well as extending specific protection to, and encouraging the enhancement of, other sites and features which are of local value for wildlife, proposals must contribute towards maintaining a district-wide network of local wildlife sites, wildlife corridors and stepping stones between designated sites and other areas of biodiversity value or natural green space. This will help to prevent the fragmentation of existing habitats and allow species to respond to the impacts of climate change. Development must also ensure wildlife enhancements are incorporated into the design to achieve a net gain in biodiversity by designing in wildlife and by ensuring that any adverse ecological impacts are avoided where possible or, if unavoidable, that they are appropriately mitigated for, with compensatory measures only used as a last resort. Finally, the Core Strategy specifically mentions the importance of protecting and, where appropriate, strengthening populations of protected species.

2.2 National Planning Policy

2.2.1 National Planning Policy Framework (NPPF)

The revised National Planning Policy and Framework (NPPF) (last updated February 2019) replaces the previous NPPF (published 2012, revised July 2018) and sets out the Government's vision for biodiversity in England in line with the country's 25 Year Environment Plan. The revised NPPF is supported by the National Planning Practice Guidance (NPPG) (published January 2016, last updated July 2019). The relevant section of the Guidance concerning biodiversity is 'Natural Environment: Biodiversity, Geodiversity and Ecosystems'. Under this Guidance, Local Authorities' duty to have due regard to the conservation of biodiversity under the NERC Act (2006) is highlighted.

Chapter 15 of the revised NPPF, 'Conserving and Enhancing the Natural Environment', together with associated guidance within the NPPG, outlines key principles related to the natural environment.

Development plans should contribute to and enhance the natural environment. Plans should take both an individual and strategic approach to minimising biodiversity impacts, creating, conserving, restoring, and enhancing priority habitats and habitat networks, protecting and aiding in the recovery of priority species and their populations, and providing measurable biodiversity net gains. Individual developments must consider how they can contribute to habitat networks in the wider area (including as part of the Nature Recovery Network), thereby increasing their resilience to current and future pressures.

3.0 ECOLOGICAL BASELINE SUMMARY

A walkover of the site was completed by Ecosupport Ltd in March 2018 to assess the site's suitability to support protected species. The following details the habitats noted and the identified potential for protected species on-site.

3.1 Habitats

3.1.1 Species Poor Semi-improved Grassland

The site comprises species-poor semi-improved grassland which is continually grazed and therefore lacks any significant sward structure. It is dominated by common grasses with herbaceous species limited to Creeping Buttercup (*Ranunculus repens*), Clover (*Trifolium* Sp.), Nettle (*Urtica dioica*), Dandelion (*Taraxacum* agg.), Dock (*Rumex* Sp.) and Daisy (*Bellis perennis*).

3.1.2 Hedgerow

This feature is dominated by Hazel (*Corylus avellana*), with Elm (*Ulmus minor*), Bramble (*Rubus fruticosus*), occasional mature Hawthorn (*Crataegus monogyna*), Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*) and Oak (*Quercus robur*). The understorey is relatively sparse, although Ivy (*Hedera helix*), Lord's-and-Ladies (*Arum maculatum*) and Nettle were recorded.

3.1.3 Buildings

The 149 Lovedean Lane dwelling was considered to be in a good state of repair. It comprised a brick-built bungalow with pyramidal roof, covered in Ludlow concrete tiles. A single storey detached garage, of similar construction, was also recorded. All construction materials were in good condition and well-sealed (i.e. no gaps were recorded at the soffit or between roof tiles).

A full and systematic assessment of the loft of the dwelling was undertaken. No bats or evidence of bats were recorded and no daylight was seen entering the loft.

3.2 Protected Species

3.2.1 Foraging and Commuting Bats

Relatively low levels of bat activity were recorded during the activity transects. Activity was dominated by Common Pipistrelle, with occasional Soprano Pipistrelles recorded, as well as single registrations of Serotine (*Eptesicus serotinus*). Highest levels of activity were recorded along existing boundary vegetation.

For the static bat detector surveys, Common Pipistrelles were the dominant species recorded, with Soprano Pipistrelle, Myotis spp., Serotine, Long-eared Bat, Noctule (*Nyctalus noctula*), Leisler's Bat (*Nyctalus leisleri*) and Nathusius Pipistrelle (*Pipistrellus nathusii*) also present on site in low numbers.

3.2.2 Reptiles

During the survey a maximum count of one Slow Worm was recorded, located along the site's northeastern boundary.

3.2.3 Nesting and Breeding Birds

The hedgerows and scattered trees throughout the site hold potential to support breeding and nesting birds.

3.2.4 Mammal holes

Two Rabbit (*Oryctolagus cuniculus*) burrows were recorded along the hedgerow, with a number of further excavations recorded in the northeastern-most corner. These were considered likely to belong to Fox (*Vulpes vulpes*) due to their size, shape and distinctive aroma. No evidence of Badger was recorded on site or within the immediate environ.

3.3 Desk Based Search/Designated Sites

3.3.1 Designated Sites

A desk study was completed in 2019 including a 1km radius data request of protected and notable species, and information regarding statutory and non-statutory designated sites, to Hampshire Biodiversity Records Centre (HBIC).

A number of Local Nature Reserves were identified within the vicinity of the application site, including Yeoll's Copse, Dell Piece West, Catherington Lith and Hazleton Common.

In addition, five Sites of Importance to Nature Conservation (SINCs) were identified within 1km of the site including the following:

- James' Copse Paddock
- Wecock Common
- James' Copse & Outlier
- Yoells Copse
- Wecock Wood

3.3.2 Ponds

A pond was identified 203m northwest of the site. This appeared to be within private ownership, and as such on-site assessment was not possible. Therefore, in order to ensure no impacts to GCN would occur, Natural England's Rapid Risk Assessment tool was utilised, under the worst-case assumption that a breeding population of GCN exists within this pond. This allowed an assessment to be undertaken as to whether the proposals would be likely to impact upon GCN in the event of their presence within dispersal distance of a breeding pond. This achieved a result of 'Offence Highly Unlikely' and as a result, no further assessment was considered required to support the overall ecological assessment.

3.3.3 Protected Species

Records of Slow Worm (*Anguis fragilis*) and Hedgehog (*Erinaceus europaeus*) were identified within 1km of the application site. At least five species of bat have also been recorded in the local area including *Myotis* spp., Noctule (*Nyctalus noctula*), Soprano and Common Pipistrelle (*Pipistrellus pygmaeus* and *Pipistrellus pipistrellus*) and Brown Long-eared Bat (*Plecotus auritus*). Records of 13 Red Listed bird species were also highlighted within the data search.

4.0 MITIGATION, COMPENSATION AND ENHANCEMENTS

This chapter deals with mitigation, compensation and enhancement. Mitigation refers to measures that can be undertaken to avoid or reduce ecological impacts. Compensation refers to measures taken in order to offset potential significant impacts and finally enhancements contributes towards a net gain for ecology.

4.1 Commuting and Foraging Bats

4.1.1 Sensitive Lighting Strategy

Lighting will be highly directional on-site so as to avoid spillage on to the boundary vegetation.

A sensitive lighting scheme will be adopted to reduce the impacts of lighting to bats to a minimum. A new document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has recently been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented to seek to ensure light spill into nearby hedgerows is kept at or below 1 Lux.

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

- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.*
- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill.*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.*
- *Luminaires should always be mounted on the horizontal, i.e. no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*
- *As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed’ (and directed away from nearby woodland) (Fig 2).*

Figure 2. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2011).



In addition, increasing the spacing between light units will reduce the intensity and spread of the light to minimize the area illuminated and give bats an opportunity to fly in relatively dark areas between lights. Reducing the height of light units will keep the light as close to the ground as possible, reducing the volume of illuminated space. This will also give bats a chance to fly over the light units in the dark area above the light (as long as the light does not spill above the vertical plane).

4.2 Nesting and Breeding Birds

In order to avoid disturbance of nesting birds or damage to their nests, clearance of any vegetation will be undertaken outside of the bird nesting season (typically March – August dependent on weather). If this is not possible, sections to be cleared should be thoroughly checked by an SQE immediately prior to clearance. If any active nests are found they should be left undisturbed with a suitable buffer of vegetation (5m) until the nestlings have fledged.

4.3 Reptiles

4.3.1 Exclusion Fencing

As detailed above it is considered unlikely the site supports a permanent, self-sufficient population of reptiles. Instead, neighbouring habitat provides favourable conditions. If the current level of grassland management were to cease at any time between the issuing of this report and the commencement of site clearance, however, the sward will become more structured, facilitating the colonisation of the site by reptiles.

To ensure this does not occur, the grassland on site will remain closely managed at all times prior to the commencement of site clearance activities. Immediately prior to the commencement of clearance (or immediately following the cessation of grassland management, if pre-commencement management cannot be continued), suitably robust reptile exclusion fencing will be installed around the northwestern boundary of the site. This will provide a division between the 'working' areas (i.e. those areas where humans and machinery will disturb the ground) and the retained areas (i.e. site boundary habitat). The

fencing will remain in place until all construction works are completed, after which it will be sensitively removed to allow reptiles to move onto the site.

4.3.2 Precautionary Catch

To add confidence that reptiles are not present on site at the time of site clearance commencing, a precautionary translocation exercise will be undertaken once the exclusion fencing has been installed. Artificial refugia will be distributed along site boundaries, allowed to bed in for at least seven days, and then checked a minimum of seven times by a suitably experienced Ecologist. If no reptiles are recorded it will be considered highly unlikely they are present and therefore works can proceed. If reptiles are identified, they will be caught and relocated the other side of the exclusion fencing, out of harm's way. Checks will then continue past the minimum seven checks, until five consecutive negative visits have been achieved in suitable conditions, in-line with best practice guidelines.

The precautionary translocation will be undertaken during the active reptile season, during suitable weather conditions (i.e. between 10°C and 20°C with little or no wind or rain). The optimum period for capture of reptiles is April to June and September, however it is possible to capture reptiles outside of this period providing weather conditions are suitable. Any reptiles caught will be moved to the other side of the fencing out of harm's way.

4.3.3 Log Pile

A log pile will be created adjacent to the existing trees along the north western boundary of the site. This will provide suitable refuge for reptiles once the building works have finished and the reptile fencing has been removed. This will also provide valuable resources for a range of other species.

4.4 Mammals

During the construction phase of the development, all excavations on site will be covered nightly and/or include a suitable escape ramp for the protection of wildlife such as Badgers (a suitable escape can be provided by wooden planks placed at 45-degree angle or provision of a sloping end wall). Any temporarily exposed open pipe systems will also be checked and then suitably capped when not in use to prevent access by wildlife.

4.5 Tree Protective Fencing

Tree protective fencing will protect the retained hedgerow from direct impact and from severance or asphyxiation of the roots. Fences must be installed at the distance of the branch spread away from the tree trunk (British Standard 5837:2012 Trees in relation to construction) and/or at a distance half the height of the tree (whichever is greater) and be of suitably robust construction (chestnut paling, Heras or similar). No vehicles will be permitted access to the land within the protection zone and no materials will be stored within the protection zone. All protective fencing must be in place prior to the commencement of construction activities (including site clearance), and remain in place until all work is completed.

Such measures will also serve to protect any birds utilising the hedgerow to nest.

4.6 Enhancements

The below section focusses on the descriptions of enhancement features that will be installed to contribute towards a net gain for biodiversity. Details on the locations of these features can be seen in the enhancements plan (**Plan 1**).

4.6.1 Bird Boxes

Swift bricks will be incorporated within at least 25% of the new dwellings. The Ibstock 'Eco Home for Swifts' bricks will be installed (**Fig 3**) as they are a discreet and attractive box ideal for new dwellings. The brick should be installed under the eaves or in high walls in shaded areas out of direct sunlight/artificial light and away from windows. The installation of such bricks has also been shown to be beneficial for House Sparrows (*Passer domesticus*) which are a nationally declining species.

Figure 3. Ibstock eco home for swifts that will be incorporated into the new dwellings.



To ensure birds have safe opportunities for nesting on site a total of 3 bird boxes will be erected on retained trees. Those constructed of woodcrete are favourable, as they will last longer than wooden boxes. In addition, boxes with a variety of entrance hole sizes and open fronted designs will be selected, to suit a variety of species, as follows:

- 32mm entrance hole will attract Great Tit, Redstart, Nuthatch and House Sparrow.
- 26mm entrance hole suits Blue, Marsh, Coal Tit and possibly Wren.

4.6.2 Bat Bricks

Bat bricks will also be incorporated into at least 25% of the new dwellings. The bat bricks used should be the Ibstock Bat Brick B as they are available in a variety of different brick colours and requires no maintenance (**Fig 4**). These bricks should be positioned as close to the eaves as possible and away from windows and sources of artificial light. The boxes should also be fitted a minimum of 3m above ground level, although 5-7m is preferable to prevent disturbance from people and predators. To increase the chances of bats roosting in the bat boxes they will be placed in sunny positions (preferably south facing) and adjacent to vegetation features so as to be located near to existing flight paths.

Figure 4. The Ibstock bat brick 'B' that will be incorporated into the new dwellings.



4.6.3 Native Tree Planting

As part of the new landscaping of the site, native scattered trees will be planted in various locations.

Ideally fruit bearing trees, providing food sources for birds and small mammals during the autumn and winter, and nest sites during the spring and summer, will be selected, as well as those with high nectar yields for invertebrates. Species that should be considered include:

- Hawthorn (*Crataegus monogyna*),
- Alder Buckthorn (*Frangula alnus*),
- Blackthorn (*Prunus spinosa*),
- Wild Cherry (*Prunus avium*),
- Crab Apple (*Malus sylvestris*),
- Elder (*Sambucus nigra*),
- Rowan (*Sorbus aucuparia*).

Additional 'infill' understorey planting will be completed to extend already existing areas of boundary vegetation (see **Plan 1**). This should be planted up using 90/120 bare root whips planted at a density of 1 every 2 meters, thus leaving room for the development of a ground layer. The whips will be a mixture of Field Maple (*Acer campestre*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Holly and Rowan (*Sorbus aucuparia*).

The species composition of the new hedgerow to the west of the site will be an equal mix of 90/120 bare root whips consisting of the following species that are of known benefit to foraging and commuting bats:

Figure 5. Screenshot from appendix within Gunnell et al., (2012) indicating plant species of known benefit to bats that will form the basis of on-site planting.

Plant species	Common name	Native (N)	Type	Benefit	Soil	Light	Extensive Green Roofs	Living walls	Rain gardens	Hedges /Trees	Beds /Borders
<i>Acer campestre</i>	Field maple	N	T/S	C	Any	Sun/shade				Y	
<i>Acer platanoides</i>	Norway maple		T	S	Well drained / alkaline	Sun/shade				Y	
<i>Acer saccharum</i>	Sugar maple		T	S	Any	Sun/shade				Y	
<i>Achillea millefolium</i>	Yarrow	N	HP	C,F	Well drained	Sun	Y				
<i>Ajuga reptans</i>	Bugle	N	HP	C,F	Any	Sun/shade	Y		Y		
<i>Anthyllis vulneraria</i>	Kidney vetch	N	HP	F	Well drained	Sun	Y				
<i>Aubrieta deltoidea</i>	Aubrieta		H	F	Well drained	Sun/shade		Y			
<i>Betula pendula</i>	Silver birch	N	T	C	Sandy/Acid	Sun				Y	
<i>Cardamine pratensis</i>	Cuckoo-flower	N	HP	F	Moist	Sun/shade			Y		Y
<i>Carpinus betulus</i>	Hornbeam	N	T	C	Clay	Sun				Y	
<i>Centaurea nigra</i>	Common knapweed	N	HP	C,F	Dry, not acid	Sun	Y				Y
<i>Centranthus ruber</i>	Red valerian		HP	F	Well drained / alkaline	Sun	Y				Y
<i>Clematis vitalba</i>	Old man's beard	N	C	F	Well drained / alkaline	Sun				Y	
<i>Corylus avellana</i>	Hazel	N	S	C	Any dry	Sun/shade		Y		Y	
<i>Crataegus monogyna</i>	Hawthorn	N	S	S,C	Any	Sun/shade				Y	
<i>Daucus carota</i>	Wild carrot	N	Bi	S,C,F	Any	Sun	Y				Y
<i>Dianthus spp.</i>	Pinks	N	A-Bi	F	Well drained	Sun	Y	Y			Y
<i>Digitalis purpurea</i>	Foxglove	N	Bi	C	Well drained	Shade / partial shade				Y	Y
<i>Erica cinerea</i>	Bell heather	N	S	F	Sandy	Full sun					Y
<i>Erysimum cheiri</i>	Wallflower		Bi-P	F	Well drained	Sun		Y			
<i>Eupatorium cannabinum</i>	Hemp agrimony	N	H	F	Moist	Sun/shade			Y		Y
<i>Fagus sylvatica</i>	Beech	N	T	C,R	Well drained alkaline	Sun/shade				Y	
<i>Foeniculum vulgare</i>	Fennel		H	F	Well drained	Sun					Y
<i>Fraxinus excelsior</i>	Common ash	N	T	C,R	Any	Sun/shade				Y	
<i>Hebe spp.</i>	Hebe species		S	F	Well drained	Sun/shade				Y	Y
<i>Hedera helix</i>	Ivy	N	C	F,C	Any	Sun/shade		Y	Y	Y	Y
<i>Hesperis matronalis</i>	Sweet rocket		H	F	Well drained / dry	Sun/shade					Y
<i>Hyacinthoides non-scripta</i>	Bluebell	N	B	F	Loam	Shade/ partial shade		Y		Y	Y
<i>Ilex aquifolium</i>	Holly	N	T	C	Any	Sun/shade				Y	
<i>Jasminum officinale</i>	Common jasmine		C	F	Well drained	Sun		Y			Y
<i>Lavandula spp.</i>	Lavender species		S	F	Well drained / sandy	Sun		Y			Y
<i>Linaria vulgaris</i>	Toadflax	N	HP	C	Well drained /alkaline	Sun	Y				Y
<i>Lonicera periclymenum</i>	Honeysuckle	N	C	F	Well drained	Sun		Y		Y	
<i>Lotus corniculatus</i>	Bird's foot trefoil	N	HP	F	Well drained /dry	Sun	Y				Y

Plant species	Common name	Native (N)	Type	Benefit	Soil	Light	Extensive Green Roofs	Living walls	Rain gardens	Hedges /Trees	Beds /Borders
Lunaria annua	Honesty		Bi	F	Any	Sun/ partial shade	Y				Y
Malus spp.	Apple		T	C	Any	Sun				Y	Y
Matthiola longipetala	Night-scented stock		A	F	Well drained /moist	Sun			Y		Y
Myosotis spp	Forget-me-not species	N	A	F	Any	Sun	Y	Y			Y
Nicotiana glauca	Ornamental tobacco		A	F	Well drained /moist	Sun/ partial shade			Y		Y
Oenothera spp.	Evening primrose species		Bi	F	Well drained /dry	Sun	Y				Y
Origanum vulgare	Marjoram	N	HP	F	Well drained /dry	Sun	Y	Y			Y
Populus alba	White poplar	N	T	C	Clay loam	Sun				Y	
Primula veris	Cowslip	N	HP	F	Well drained /moist	Sun/ partial shade	Y				Y
Primula vulgaris	Primrose	N	HP	F	Moist	Partial shade	Y	Y		Y	Y
Prunus avium	Wild cherry	N	T	C	Any	Sun				Y	Y
Prunus domestica	Plum		T	C	Well drained /moist	Sun				Y	Y
Prunus spinosa	Blackthorn	N	S	C	Any	Sun/ partial shade				Y	
Quercus petraea	Sessile oak	N	T	C,R	Sandy loam	Sun/shade				Y	
Quercus robur	Common oak	N	T	C,R	Clay loam	Sun/shade				Y	
Rosa canina	Dog rose	N	S	C	Any	Sun			Y	Y	Y
Salix spp.	Willow species	N	S	S,C	Moist	Sun/shade			Y	Y	
Sambucus nigra	Elder	N	T	C	Clay loam	Sun				Y	
Saponaria officinalis	Scapwort	N	HP	F	Any	Sun					Y
Saxifraga oppositifolia	Saxifrage	N	HP	C	Well drained	Sun	Y	Y			Y
Scabiosa columbaria	Small scabious	N	HP	F	Well drained /alkaline	Sun	Y				Y
Sedum spectabile	Ice plant		HP	F	Well drained /dry	Sun	Y				Y
Silene dioica	Red campion	N	HP	F	Any	Shade/ partial shade		Y	Y	Y	Y
Sorbus aucuparia	Rowan	N	T	C	Well drained	Sun				Y	
Stachys lanata	Lamb's ears		HP	F	Well drained /dry	Sun	Y				Y
Symphytum spp.	Michaelmas daisies		HP	F	Any	Sun					Y
Tagetes patula	French marigold		A	F	Well drained /moist	Sun					Y
Thymus serpyllum	Creeping thyme	N	HP/S	F	Well drained /dry	Sun	Y	Y			Y
Tilia x europaea	Common lime		T	C	Any	Sun/shade				Y	
Trifolium spp.	Clover species	N	H	F	Any	Sun	Y				Y
Valeriana spp.	Valerian species	N	HP	F	Moist	Sun/ partial shade			Y		Y
Verbascum spp	Mulleins	N	BU/HP	C	Well drained	Sun	Y				Y
Verbena bonariensis	Verbena		HP	F	Well drained /moist	Sun					Y
Viburnum lantana	Wayfaring tree	N	S	C	Any	Sun/shade				Y	Y
Viburnum opulus	Guelder rose	N	S	C	Moist	Sun/shade			Y	Y	
Viola tricolor	Pansy	N	A	F	Well drained /moist		Y	Y			Y

Type**HP** - Herbaceous perennial**Bi** - Biennial**BiP** - Biennial perennial**T** - Tree**S** - Shrub**H** - Herb**A** - Annual**B** - Bulb**C** - Creeper/ climber**Benefit****C** - Moth caterpillar food plant**S** - Sap sucking insects (eg whiteflies)**F** - Flowers attract adult moths**R** - Good roost potential

4.6.4 Wildflower Planting of Open Space/Grassland Parkland Meadow

4.6.4.1 Preparation

On completion of construction works, all landscaped areas will be rotavated in preparation for future planting. This will not only prepare the ground to provide a good seed bed but will also remove any emerging undesirable ruderal vegetation (including Nettle and Bramble) to prevent competition with the new planting. Once the soil has been rotavated to a sufficient depth, the surface should be raked to produce a fine, firm surface free of obstructions.

4.6.4.2 Seed Planting

The open space/grassland parkland meadow must be sown with the EM1 seed mixture. This seed mixture includes but is not limited to Common Bent (*Agrostis capillaris*), Crested Dogtail (*Cynosurus cristatus*), Slender-creeping Red-rescue (*Festuca rubra*), Yarrow (*Achillea millefolium*), Common Knapweed (*Centaurea nigra*), Wild Carrot (*Daucus carota*), Field Scabious (*Knautia arvensis*), Oxeye Daisy (*Leucanthemum vulgare*), Wild Parsnip (*Pastinaca sativa*), Ribwort Plantain (*Plantago lanceolata*), Salad Burnet (*Poterium sanguisorba*), Selfheal (*Prunella vulgaris*) and Red Campion (*Silene dioica*). The sowing of these seeds will be completed either during the spring or the autumn when the temperatures are warm and the ground is dry. The seed must be surface sown at an even distribution throughout the entire landscaped area.

4.6.4.3 First Year Management/Monitoring

The landscaped areas must be regularly maintained to a height of 40-60mm every 3-4 weeks during the growing season to prevent the establishment of weeds. All arisings must be taken from site to prevent the addition of too many nutrients into the soil. If necessary, glyphosate-based weed killer can be used to spot treat any areas with dense patches of Nettles or Bramble.

4.6.4.4 Years 2-5 Management/Monitoring

A traditional meadow management will be adopted after the first year to allow the development of the grassland mixture and the flowering of herbaceous species to provide maximum benefit to local wildlife. This form of management will involve a main summer hay cut (August) to a height of 50mm. This should be completed sensitively with strimmers in a two-staged cut with all cuts completed in a directional fashion from the centre of the site outwards. The first cut should be completed to a height of 100mm and the second cut (at least 24 hours apart) to a height of 50mm. All arisings should be left for 1-7 days to shed seeds and then raked and removed from site. The re-growth should then be strimmed again as required to maintain a height of 40-60mm through to late autumn/winter as required.

4.6.5 Hedgehogs

Provision will be made to promote site connectivity and extended foraging ranges and opportunities for the European Hedgehog, as per best practice (see **Plan 1**). Holes measuring 10cm x 10cm will be made at the base of boundary fences/gravel boards into and between each garden and the surrounding habitats. Small signage will be installed on the fence above both sides of these access points to ensure they remain open upon completion of the development. The People's Trust for Endangered Species provide such signage, the purchase of which also supports conservation efforts: <https://ptes.org/shop/hedgehog-highways-signs/hedgehog-highway-labels/>. Additionally, three Hedgehog homes (such as the Igloo

Hedgehog home or Hogitat Hedgehog house) will be provided within or adjacent to areas of planted / retained trees / scrub and will provide a rapidly declining species with a place to shelter / hibernate.

5.0 CONCLUSION

This document has been prepared to bring together all the existing ecological information for Cottage Farm, Lovedean with the aim of addressing all of the ecological constraints identified and to provide opportunities for enhancement that are consistent with the aims of national and local planning policy. It is considered that should all aspects of this document be implemented, adequate mitigation can be achieved to minimise impacts to existing population of protected and notable species, and a net gain in the site's biodiversity value will be achieved.

6.0 REFERENCES

Bat Conservation Trust / Institute of Lighting Professionals (2018) *Guidance Note 08/18 Bats and Artificial Lighting in the UK*

East Hampshire District Council (2014) 'East Hampshire District Local Plan: Joint Core Strategy' Available online at:
<http://www.easthants.gov.uk/sites/default/files/documents/DP01EastHampshireDistrictLocalPlanJointCoreStrategy.pdf>

Ecosupport Ltd (2020) Cottage Farm, Lovedean Lane Ecological Survey

Gunnell, K., Grant, G., & Williams, C., (2012) *Landscape and Urban Design for Bats and Biodiversity*

HMSO. (2010). The Conservation of Habitats and Species Regulations 2010. HMSO. Statutory Instrument 2010 No. 490. HMSO, London.

Ministry of Housing Communities & Local Government (2019) *National Planning Policy Framework*. HMSO, London