BIODIVERSITY ENHANCEMENT SCHEME

FOR

CHURCH LANE, LAUGHTON

Date of report	23rd June 2025
Date of survey	12th June 2025
Author	Ella Waghorn
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CORYLUS ECOLOGY

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1.0 INTRODUCTION

1.1 Overview

1.1.1 Corylus Ecology Ltd was commissioned to undertake a Phase 1 habitat survey and detailed protected species surveys for Church Lane, Laughton hereinafter referred to as the 'Site, to inform an Ecological Impact Assessment report in 2022. A biodiversity enhancement scheme is now being issued at the request of the LPA for discharge of conditions, Condition 9 reads:

'Prior to the commencement of the development above foundation level, a scheme for the enhancement of the site for biodiversity purposes, in accordance with Ecological Impact Assessment (7 November 2022), to include timescales for implementation and future management, shall be submitted to and approved in writing by the Local Planning Authority. The approved scheme of enhancements shall be implemented in accordance with the approved details prior to the first use of the building hereby approved and thereafter so retained.'

1.1.2 The Site is located 200m south of the village Laughton, East Sussex at OS grid reference TQ 50192 12925. It measures approximately 0.41ha and comprises of grassland, with hedgerows bordering the north, east and southern boundaries. Church Lane runs along the east of the Site with a post and wire fence along the western boundary previously separating the Site from another field, now replaced by Heras fencing. The surrounding landscape is dominated by fields and farmland, with residential dwellings immediately to the south and north.

1.1.3 A Preliminary Ecological Appraisal (PEA) was carried out initially in May 2022 which included a detailed Phase 1 Habitat survey. Following on from the PEA more detailed surveys, specifically for reptiles, were undertaken within July, September and October 2022. Information from the initial PEA was used to inform the design of the scheme to reduce potential impacts on ecological interests.

1.1.4 The objectives of this report are:

- Provide a scheme of appropriate biodiversity enhancements for the Site,
- Provide a timetable for implementation of the works,
- Advise on how the enhancements will be maintained and retained after construction.

1.1.5 This report has been prepared for the exclusive use of Unique Homes Ltd. No part of this report should be considered as legal advice.

1.2 Site walkover

1.2.1 On the 12th June 2025, an update site walkover survey was undertaken to ensure that habitat conditions were unchanged from those found within the Ecological Impact Assessment Report (ECIA, Corylus Ecology, 2022), and additionally that habitat management had been undertaken prior to the groundworks.

2.0 HABITAT SAFEGUARDING, CREATION AND ENHANCEMENT RECOMMENDATIONS

2.1 Habitat Safeguarding

2.1.1 *Retained Habitat Protection*

Any retained habitats will be protected from construction activity for the duration of the works. Protection will involve clear marking out of the retained areas to avoid accidental machinery incursions and damage, for the duration of the build phase. They can be marked out with Heras fencing with accompanying signage. No construction materials will be stored in these areas. In this instance, this relates to the hedgerows on the north, east and southern boundary.

2.1.2 All retained trees and hedgerows will be protected from construction related damage during the construction phase following BS 5837: 2012 'Trees in relation to design, demolition and construction', which ensures provision of adequate protection. This will be demarcated with Heras fencing with accompanying signage.

2.1.3 In the case of any trees being felled or hedges being removed, this work is ideally carried between September 1st and February 28th inclusive, to avoid bird nesting season, otherwise this vegetation will need to be checked prior to work by an ecologist to look for nesting birds. Nesting birds, nests and eggs are protected by law, so if any nests are found no work can be carried out until chicks have fledged and the nest is no longer in use.

2.1.4 Japanese rose *Rosa rugosa* located along the northern hedgerow, this is species is an invasive non-native plant included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This should be removed from the Site's side of the hedgerow and any waste containing the plant material will need to be removed to a licenced landfill as controlled waste. If root balls are within the Site boundary, these should be excavated to help prevent the further spread of the plant.

2.1.5 *Habitat Protection Already Established*

Some habitat protection, as described as above, was observed to already be in place during the update site walkover survey. Herace fencing has been established surrounding all boundary habitats – the northern, eastern, and southern hedgerows, as well as the ruderal habitat located in the north western corner. The barbed wire fence located along the Site's western boundary appears to have been replaced with Heras fencing. This fencing must remain in place for the duration of the build phase.

Sensitive Lighting Strategy

2.1.4 A sensitive lighting strategy is required to maintain a dark environment for light-sensitive invertebrates and nocturnal animals such as tawny owl *Strix aluco* and bats. Any artificial lighting should be designed to ensure that the Site and surrounding area are not artificially illuminated. In particular, the sensitive lighting strategy should avoid any lighting on existing and newly planted trees, shrubs and hedgerows. Any lighting will also need to avoid illuminating bird, bat and insect boxes installed for biodiversity enhancement. Further guidance on minimising the impacts of artificial lighting is provided in Appendix 1 and includes the use of timers and motion-sensor lighting to minimise unnecessary illumination.

2.2 Protected Species

Bat Habitat

2.2.1 No trees on Site were considered to have potential for roosting bats. As a whole the Site is considered to support 'Low' quality habitat, with the hedgerows providing the best habitat for commuting and foraging bats.

2.2.2 The following mitigation measures with regards to bats, are recommended:

- Retain the hedgerows along the Site boundaries.
- Adopt a sensitive lighting strategy to ensure that there is no increase in artificial lighting, this should ensure no light spill on the above-mentioned treeline and hedgerow, see Appendix 1.
- Any planting should be of native trees and fruit trees and use hedgerows as boundary treatments.

Breeding Bird Habitat

2.2.3 With regard to breeding birds, the hedgerows on the north, east and south boundaries have the potential to support breeding birds. All wild birds, including eggs and chicks, are protected against injury or killing and their nests are protected against damage or destruction when in use by the Wildlife and Countryside Act (1981). It is therefore, recommended that any clearance work of vegetation and buildings is undertaken outside of the core bird breeding season, limiting this work to the period 1st September to 28th February (inclusive).

2.2.4 If these dates do not coincide with clearance work, then the vegetation/buildings will be checked by a suitably experienced ecologist before the works commence. If any breeding birds are noted, works in the vicinity of the nest would have to cease until fledging has occurred.

Reptile Habitat

2.2.5 Suitable habitat for reptiles is considered to be limited to the base of the hedgerows. Only grass snake has been recorded onsite, therefore no translocation will be undertaken, rather the Site will be subject to careful habitat manipulation during the reptile active period (i.e. not during hibernation) to encourage reptiles to move out of the developable area. Prior to the works, the grassland will continue to be managed regularly with the grass cut short to reduce the suitability for reptiles. A sustained period of cutting pressure throughout the Site should be maintained until the ground works start.

2.2.6 Evidence of such habitat manipulation being completed was observed during the site walkover survey, with grass appearing to have been frequently and recently cut to approximately 5cm. Due to the consistent habitat manipulation, and very low numbers of reptiles found on site (a peak count of one juvenile grass snake being recorded) it is believed that a destructive search as suggested in the EcIA report would not be necessary before commencement of construction. Instead, it is recommended that continued management of any retained grassland habitat in which the grass is regularly cut short is prolonged throughout construction.

Amphibian Habitat

2.2.7 The site provides poor quality terrestrial habitat for amphibians. The nearest pond is some 53m to the west of the western boundary of the Site, with another located 71m east. These two offsite ponds have been previously surveyed and found no evidence of great crested newts (GCN) present; therefore, Reasonable Avoidance Measures (RAMS) will be employed. These include:

- Site (Heras) fencing to be installed to prevent damage to terrestrial habitat beyond the development site. If a site compound for machine storage or material storage is required this will need to be on hardstanding and not on any vegetated habitats.
- All rubbish material, including spoil piles, brick, rubble and roofing materials to be placed directly into skips to be removed from site. Piles of bricks and other building materials can be used as shelter by amphibians if not stored correctly. The Site will need to be well organized and kept tidy with waste materials removed quickly, so they are not left as potential refuge sites for small animals. Before removing any materials, which have been stored on the ground, the area will be carefully checked for animals.
- Store building materials on pallets raised off the ground wherever possible;
- Any trenches which are left open overnight during construction works should have planks of wood placed in them to provide an exit ramp for terrestrial animals which may fall into them. As a precaution each morning any ditches or holes will be checked by the site manager. Trenches should be checked for animals before they are infilled.

2.3 Recommendations with regard to NPPF

2.3.1 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, December 2024) sets out planning policies on protection of biodiversity and geological conservation through the planning system. Section 15, paragraph 174, of the NPPF states that "*Planning policies and decisions should contribute to and enhance the natural and local environment by:*

"*a) 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);*

"*b) 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;*

"*c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*

"*d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs".*

Native Hedgerows

2.3.2 Regarding the NPPF, if any new hedgerows are to be planted, in this case relating to the planting of a new hedgerow along the western boundary, a range of native species will be planted. Suitable species include hazel *Corylus avellana,* hawthorn *Crataegus monogyna*, cherry *Prunus avium*, field maple *Acer campestre*, guelder rose *Vibnrnum opulus*, spindle *Euonymus europaeus* and wild privet *Ligustrum vulgare*. Shrubby species and climbers including bramble, dog-rose *Rosa canina* and honeysuckle *Lonicera periclymenum* are also features of a wildlife-friendly hedgerow and should be included.

Wildflower Planting

2.3.3 A range of nectar-rich plants will also be planted within the retained areas of grassland in order to create an attractive wildflower grassland (see Appendix 2). Flowering plants should be made available for as long as possible through the year by planting a combination of plants which flower during spring, summer and autumn. Species such as lavender Lavendula spp., heathers Erica spp. and rosemary *Rosmarinus officinalis* are good nectar sources for bumblebees and other insects, as well as being quite low maintenance. Planting of native herbaceous species alongside ornamental species that have a known wildlife benefit, such as those that produce winter berries is acceptable. Care should be taken to avoid planting non-native, invasive species that have no known wildlife benefits, such as cotoneaster *Cotoneaster* spp. Planting of some night-flowering species is also recommended as they are good for attracting moths, which are a food source for bats. Examples include night-blooming jasmine *Cestrum nocturnum*, night-flowering catchfly *Silene noctiflora*, and night phlox *Zaluzianskya ovata*.

2.3.4 The created wildflower areas will be managed through a system of rotational cutting. Each year, half of the areas will be cut in July once flowering plants have had the opportunity to set seed, followed by a second cut in September. The sections cut will alternate annually, ensuring each area experiences both disturbance and recovery periods, creating a mix of both short and long grassland with continuous flowering throughout. Arisings should be removed to prevent a build-up of nutrients and retained at the edges of the Site to provide habitat piles for wildlife.

2.3.5 Climbing plants can soften the visual impact of new building features whilst enhancing biodiversity by attracting invertebrates such as moths, which are prey for bats. Climbing plants also provide bird nesting and foraging opportunities. Species such as honeysuckle, ivy *Hedera helix*, climbing hydrangea *Hydrangea petiolaris*, clematis *Clematis* spp, summer jasmine *Jasminium officinale*, winter jasmine *J. nudiflorum* and single-flowered roses *Rosa* spp. are all suitable. The plants would require an appropriate growing medium, trellis support and appropriate aftercare.

2.4 Protected Species Enhancements

Birds

2.4.1 A good way to enhance biodiversity on Site is to encourage birds to nest within the gardens. A range of nesting boxes will be provided. The boxes should be installed at a minimum height of 3m, preferably in a sheltered location close to the vegetated boundaries of the Site. The following boxes are recommended:

- Three nest boxes for house sparrow and swift should be incorporated into the soffits of the dwellings when they are being constructed. Sparrows are colonial, so three of these slots should be created in two separate locations. Ready-made boxes such as *the nhbs Soffit and Fascia Swift box* are widely available. They should be installed during the construction process in groups beneath the eaves of the buildings and they should be placed out of direct sunlight and avoiding prevailing wind and rain, preferably on the northern elevations and at least 5m above ground level. They should not be placed directly above any windows or doors.
- The *Vivara Pro Seville 32mm WoodStone Nest Box* would attract a range of species including blue tit, coal tit, great tit, tree sparrow, house sparrow and nuthatch. One of these boxes should be placed at a height of 1.5 – 3m on a retained tree.
- The *Vivara Pro Barcelona WoodStone Open Nest Box* is suitable for a range of small birds: wrens, robins, spotted flycatchers, pied and grey wagtails, song thrushes and blackbirds. One of these boxes should be positioned between 1.5 – 3m, ideally in undergrowth (such as ivy or a planted climber) on a wall to provide some cover.

Bats

2.4.2 The Site has 'Low' potential for bat use, interest for bats can be increased by adding a bat box to the new dwelling or on an existing tree, examples such as the *improved crevice bat box* or others found on nhbs.com would be suitable. The installation of the suggested box is easy and can straightforwardly be attached to most types of external brick, timber or concrete walls or on trees, though avoiding being installed above any doors or windows. The western elevation would be a suitable position.

Reptiles

2.4.3 There is scope within the proposals to enhance the habitats for reptiles. A new hedgerow proposed along the western boundary will connect the Site to the wider landscape and provide additional reptile habitat. This hedgerow will be planted onto a hedge bank which will create hibernation and foraging potential. Additionally, the retained areas along the eastern boundary can be enhanced for reptiles with the following features:

- Three log piles will be constructed using logs with a maximum diameter of 200mm. Each log pile will be secured with stakes to prevent piles from collapsing and with wire to prevent removal or dismantling. These should be positioned in vegetation, within the western hedgerows
- One artificial hibernacula will be constructed to the specification shown in Appendix 3. A hole will be dug out either by hand or by a mini digger to a depth of 500mm and back filled with timber logs and dead wood to a height of 500mm above ground. The hibernaculum will then be covered and capped with a 50mm – 100mm layer of topsoil and seeded with native acid grassland seed mix. Logs will be exposed at ground level to maintain gaps for reptile access. The hibernacula will be approximately 1.5m wide by 2m long and will run along a northeast to south-east direction so there is a southerly facing slope to maximise basking habitat. The digging of the hibernacula will be supervised by the project ecologist. This will be located to the west of the Site.

Amphibians

2.4.4 The proposed enhancements above for reptiles are also suitable as enhancements of terrestrial habitat for GCN and amphibians. The use of Aco kerbs in combination with gully pots will be used to reduce the risk of amphibians falling into drains.

Hedgehogs

2.4.5 Enhancements to encourage hedgehogs *Erinaceus europaeus* to forage in the local habitats and move across the landscape will be included. At least one hedgehog nest box should be positioned along the western boundary, tucked within some vegetation for cover. The *Hedgehog Nest Box* or *HH7 Hogilo Hedgehog House* are both suitable choices of hedgehog house. The use of chicken wire should be avoided as hedgehogs get caught in the holes of the chicken wire. Alternative methods of protecting newly planted shrubs and trees such as tree guards should be used, remove the guards when plants are big enough to

prevent damage. Any fencing will also have 13cm x 13cm holes cut out the bottom to allow hedgehogs to move through the landscape.

Invertebrates

2.4.6 Some invertebrate hotels will be placed in the gardens to support pollinators and other invertebrates. These should be placed in an area facing south to gain cover of sunlight for as much of the day as possible, suitable choices such as those below can be found on NHBS website.

- One Schwegler Clay and Reed Insect Nest box to the east; and
- One solitary beehive within the retained hedgerow to the north or south

2.5 Schedule for Implementation

2.5.1 All of the biodiversity enhancements that have been recommended within this report will be implemented during the construction phase and will be maintained afterwards. See Figure 1 for positioning of bird boxes and other species enhancements. See Appendix 2 for the timetable of works.

2.5.2 The specified planting will be carried out within the first planting season (October-March) after construction and thereafter maintained and retained.

2.6 Maintenance and Retention

2.6.1 Maintenance to trees and hedgerows should be carried out, outside of the bird breeding season to prevent disturbance and destruction of bird nests. All new planting is to be watered as required to maintain it in a healthy condition during the critical first two full growing seasons, following the quantities in line with BS8545:2015 Annex G. Any dead or dying back trees or shrubs are to be replaced with plants to same specification in November following losses. A 2m wide buffer of long, unmanaged grassland will be allowed to establish at the base of the boundary hedgerows to provide habitat for reptiles, amphibians, small mammals and invertebrates. This will be cut once a year to a minimum height of 200mm, this allows for flowering and reseeding.

2.6.2 Any nest boxes or species measures that get damaged or go missing to be replaced to same specification as soon as possible.

2.6.3 The maintenance schedule will follow timings as seen in Appendix 4 the timetable of works.

REFERENCES

Corylus Ecology. 2022. *The Weald Laughton: Ecological Impact Assessment*

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

Ministry of Housing, Communities & Local Government. 2024. National Planning Policy Framework

NHBS. 2023. *NHBS website*. Available from www.nhbs.com

Stace, C. 2019. *New Flora of the British Isles. 4th Edition*. Cambridge University Press

FIGURES

1 x bat box is recomended to be placed on a suitable retained tree.

3 x swift boxes to be placed under/in the soffits on north/east elevation of the new dwellings in two locations.

3 x log piles to be constructed within planted western scrub/hedgerow

1 x artificial hibernacula to be constructed to the west of the site

At minimum 1 x hedgehog nest box located to the west within vegetation

1 x Vivara Pro Barcelona Nest Box placed at a height of 1.5 - 3m on a wall

Native wildflower planting within retained grassland can enhance biodiversity, including nectar rich plants, night flowering plants, and climbing plants.

Hedgerow to be planted along western boundary and enhancing retained hedgerow with native species mix

1 x Vivara Pro Seville Nest Box to be placed at a height of 1.5-3m on a retailed tree

1 x Schwegler Clay and Reed insect nest box

Aco kerbs used in combination with gulley pots

1 x solitary beehive within north or south retained hedgerow

APPENDIX 1 – TECHNICAL GUIDANCE ON ARTIFICIAL LIGHTING

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

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

From: *Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT). 2023. Guidance Note 08/23: Bats and Artificial Lighting.*

APPENDIX 2 – PLANTS FOR POLLINATORS

RHS Plants for Pollinators
Garden plants
rhs.org.uk/plantsforpollinators

RHS Registered Charity No: 222879 / SC038262

Get your garden buzzing

- Fill gardens with **RHS Plants for Pollinators** plants
- Grow **a range of plants** for year-round flowering
- **Avoid** plants with double or multi-petalled flowers
- **Never use pesticides** on plants in flower
- Provide nest sites for **wild bees**

Subspecies and cultivars of plants listed here are also **Plants for Pollinators**, except for those that provide significantly reduced floral resources (i.e. pollen and nectar). This includes most doubles. See p.2 for **key to codes**.

Winter

Nov – Feb

Clematis cirrhosa Spanish traveller's joy	C
***Crocus* species** crocus (winter-flowering)	B
Eranthis hyemalis winter aconite	B
× *Fatshedera lizei* tree ivy	S
Galanthus nivalis common snowdrop	B
***Helleborus* species and hybrids** hellebore (winter-flowering)	H
Lonicera* × *purpusii Purpus honeysuckle	S
***Mahonia* species** Oregon grape	S
Salix aegyptiaca musk willow	S
Sarcococca confusa sweet box	S

Photo: RHS / Carol Sheppard (bumblebee on *Salvia farinacea* 'Victoria').

Sarcococca hookeriana sweet box	S
Viburnum tinus laurustinus	S

Spring

Mar – May

Acer campestre Native plant; field maple	S or T
Acer platanoides Norway maple	T
Acer pseudoplatanus sycamore	T
Acer saccharum sugar maple	T
Aesculus hippocastanum horse chestnut	T
Ajuga reptans Native plant; bugle	H
Arabis alpina* subsp. *caucasica alpine rock cress	H
Armeria juniperifolia juniper-leaved thrift	H
***Aubrieta* species** aubretia	H
Aurinia saxatilis gold dust	H
Berberis darwinii Darwin's barberry	S
Berberis thunbergii Japanese barberry	S
***Bergenia* species** elephant ear	H
Buxus sempervirens Native plant; common box	S
Caltha palustris Native plant; marsh marigold	H
***Ceanothus* species** California lilac	S
Cercis siliquastrum Judas tree	T
***Chaenomeles* species** Japanese quince	S
Cornus mas Cornelian cherry	S
Cotoneaster conspicuus Tibetan cotoneaster	S
Crataegus monogyna Native plant; common hawthorn	S or T
***Crocus* species** crocus (spring-flowering)	B
Doronicum* × *excelsum leopard's bane	H
Enkianthus campanulatus redvein enkianthus	S
Erica carnea alpine heath	S
Erica* × *darleyensis Darley Dale heath	S
***Erysimum* species** wallflower	Bi or H
Euphorbia amygdaloides Native plant; wood spurge	H
Euphorbia characias Mediterranean spurge	H
Euphorbia cyparissias cypress spurge	H
Euphorbia epithymoides cushion spurge	H
Euphorbia* × *martini Martin's spurge	S
Euphorbia nicaeensis Nice spurge	H
***Geranium* species** cranesbill	H
Geum rivale Native plant; water avens	H
***Hebe* species** hebe	S
***Helleborus* species & hybrids hellebore** (spring-flowering)	H
Iberis saxatilis alpine candytuft	H
Iberis sempervirens perennial candytuft	H
Ilex aquifolium Native plant; common holly	T
Lamium maculatum spotted dead nettle	H
Lunaria annua honesty	Bi
***Mahonia* species** Oregon grape (spring-flowering)	S
Malus baccata Siberian crab	T
Malus domestica edible apple	T
Malus floribunda Japanese crab	T
Malus hupehensis Hupeh crab	T
Malus sargentii Sargent's crab apple	T
Mespilus germanica common medlar	T
Muscari armeniacum Armenian grape hyacinth	B
***Nectaroscordum* species** honey garlic	B
Ornithogalum umbellatum common star of Bethlehem	B
Pieris formosa lily-of-the-valley bush	S
Pieris japonica lily-of-the-valley bush	S
Primula veris common cowslip	H
Primula vulgaris Native plant; primrose	H
Prunus avium Native plant; wild & edible cherries	T
Prunus domestica wild & edible plums	T
Prunus dulcis almond	T
***Prunus incisa* 'Kojo-no-mai'** cherry 'Kojo-no-mai'	S
Prunus insititia damson	T
Prunus laurocerasus cherry laurel	S
Prunus mume Japanese apricot	T
Prunus padus Native plant; bird cherry	T
***Prunus pendula* f. *ascendens* 'Rosea'** flowering cherry	T
Prunus persica peach	T
Prunus spinosa Native plant; blackthorn	S
Prunus tenella dwarf Russian almond	S
Prunus* × *yedoensis flowering cherry	T
***Pulmonaria* species** lungwort	H
Pyrus communis pear	T
Ribes nigrum blackcurrant	S
Ribes rubrum Native plant; common redcurrant	S
Ribes sanguineum flowering currant	S
Salix caprea Native plant; goat willow (male form only)	S or T
***Salix hastata* 'Wehrhahnii'** halberd willow 'Wehrhahnii'	S
Salix lanata Native plant; woolly willow (male form only)	S
Skimmia japonica skimmia	S
Smyrnium olusatrum Native plant; alexanders †	Bi
Stachyurus chinensis stachyurus	S
Stachyurus praecox stachyurus	S
Vaccinium corymbosum blueberry	S

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

Key to codes: T tree **S** shrub **C** climber **B** bulb / corm **A** annual **Bi** biennial **H** herbaceous perennial
† denotes an archaeophyte (a naturalised plant introduced into Britain before 1500)

Summer

June – Aug

***Achillea* species** yarrow	H
Actaea japonica baneberry	H
Aesculus indica Indian horse chestnut (resistant to leaf-mining moth)	T
Aesculus parviflora bottlebrush buckeye	S
***Agastache* species** giant hyssop	H
Ageratum houstonianum flossflower	A
Alcea rosea hollyhock	Bi
***Allium* species** ornamental and edibles (when allowed to flower)	B
***Alstroemeria* species** Peruvian lily	B
Amberboa moschata sweet sultan	A
Amsonia tabernaemontana eastern bluestar	H
Anchusa azurea large blue alkanet	A
Anchusa capensis Cape alkanet	A
Angelica archangelica angelica	Bi
Angelica gigas purple angelica	Bi
Angelica sylvestris Native plant; wild angelica	Bi
Anthemis tinctoria dyer's chamomile	H
Antirrhinum majus snapdragon	A or H
***Aquilegia* species** columbine	H
Arabis allionii Siberian wallflower	H
Argemone platyceras crested poppy	A or H
Armeria maritima Native plant; thrift	H
Aruncus dioicus goat's beard (male form only)	H
Asparagus officinalis common asparagus	H
Astrantia major greater masterwort	H
Borago officinalis borage	A
***Brachyglottis* (Dunedin Group) 'Sunshine'** brachyglottis 'Sunshine'	S
Brachyglottis monroi Monro's ragwort	S
Buddleja davidii butterfly bush	S
Buddleja globosa orange ball tree	S
Buphthalmum salicifolium yellow ox-eye	H
Bupleurum fruticosum shrubby hare's ear	S
Calamintha nepeta Native plant; lesser calamint	H
Calendula officinalis common marigold	A
Callicarpa bodinieri* var. *giraldii beautyberry	S
Callistephus chinensis China aster	A
Calluna vulgaris Native plant; heather	S
Campanula carpatica tussock bellflower	H
Campanula glomerata Native plant; clustered bellflower	H

Photo: RHS / Helen Bostock (six-spot burnet moth on *Verbena bonariensis*).

Campanula lactiflora milky bellflower	H
Campanula latifolia Native plant; giant bellflower	H
Campanula medium Canterbury bells	Bi
Campanula persicifolia peach-leaved bellflower	H
Campsis radicans trumpet honeysuckle	C
Caryopteris* × *clandonensis caryopteris	S
Catalpa bignonioides Indian bean tree	T
Catananche caerulea blue cupidone	H
Centaurea atropurpurea purple knapweed	H
Centaurea cyanus cornflower †	A
Centaurea dealbata mealy centaury	H
Centaurea macrocephala giant knapweed	H
Centaurea montana perennial cornflower	H
Centaurea nigra Native plant; common knapweed	H
Centaurea scabiosa Native plant; greater knapweed	H
Centranthus ruber red valerian	H
Centratherum punctatum Manaos beauty	A
***Cerinthe major* 'Purpurascens'** honeywort 'Purpurascens'	A
***Cirsium rivulare* 'Atropurpureum'** purple plume thistle	H
Clarkia unguiculata butterfly flower	A
Clematis vitalba Native plant; old man's beard, travellers' joy	C
Cleome hassleriana spider flower	A
Consolida ajacis giant larkspur	A
Convolvulus tricolor dwarf morning glory	C/A
***Coreopsis* species** tickseed	H or A

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Cornus alba red-barked dogwood	S
Cosmos bipinnatus cosmea	A
Cosmos sulphureus yellow cosmos	A
Crambe cordifolia greater sea kale	H
Crataegus monogyna Native plant; common hawthorn	S or T
Cucurbita pepo marrow, courgette	A
Cuphea ignea cigar flower	A
Cynara cardunculus including **Scolymus Group** globe artichoke and cardoon	H
Cynoglossum amabile Chinese forget-me-not	H
Dahlia species dahlia	H
Delosperma floribundum ice plant	H
Delphinium elatum candle larkspur	H
Dianthus barbatus sweet william	Bi
Dictamnus albus dittany	H
***Digitalis* species** foxglove	Bi
Dipsacus fullonum Native plant; common teasel	Bi
Echinacea purpurea purple coneflower	H
***Echinops* species** globe thistle	H
Echium vulgare Native plant; viper's bugloss	A
Elaeagnus angustifolia oleaster	S
Erica cinerea Native plant; bell heather	S
Erica erigena Irish heath	S
Erica vagans Native plant; Cornish heath	S
***Erigeron* species** fleabane	H
Eriophyllum lanatum golden yarrow	H
Eryngium alpinum alpine eryngo	H
Eryngium giganteum Miss Willmott's ghost	Bi
Eryngium planum blue eryngo	H
Eryngium* × *tripartitum eryngo	H
***Erysimum* species** wallflower	H or S
***Escallonia* species** escallonia	S
Eschscholzia californica California poppy	A
Eupatorium cannabinum Native plant; hemp agrimony	H
Eupatorium maculatum Joe Pye weed	H
Euphorbia cornigera horned spurge	H
Euphorbia donii spurge	H
Euphorbia sarawschanica Zeravshan spurge	H
Ferula communis giant fennel	H
Foeniculum vulgare Native plant; common fennel †	H
Fragaria* × *ananassa garden strawberry	H
***Fuchsia* species** fuchsia – hardy types	S
Gaillardia* × *grandiflora blanket flower	H
Gaura lindheimeri white gaura	H
Geranium pratense Native plant; meadow cranesbill	H
***Geranium* species** cranesbill (summer-flowering)	H
***Geum* species** avens (summer-flowering)	H
Gilia capitata blue thimble flower	A
Glandularia* × *hybrida garden verbena	A
Glebionis segetum Native plant; corn marigold †	A
Gypsophila elegans annual baby's breath	A
***Hebe* species** hebe	S
***Helenium* species** Helen's flower	H
Helianthus annuus common sunflower (avoid pollen-free cultivars)	A
Helianthus debilis cucumberleaf sunflower	A
Heliopsis helianthoides smooth ox-eye	H
Heliotropium arborescens common heliotrope	A
Heracleum sphondylium Native plant; hogweed	Bi
Hesperis matronalis dame's violet	H
Hydrangea anomala* subsp. *petiolaris climbing hydrangea	C
Hydrangea paniculata paniculate hydrangea (only cultivars with many fertile flowers, e.g. 'Kyushu', 'Big Ben', 'Floribunda', 'Brussels Lace')	S
***Hydrotelephium spectabile* & hybrids** ice plant	H
Hydrotelephium telephium Native plant; orpine	H
Hyssopus officinalis hyssop	S
Iberis amara Native plant; wild candytuft	A
Ilex aquifolium Native plant; common holly	T
***Inula* species** harvest daisy	H
Jasminum officinale common jasmine	C
Kalmia latifolia mountain laurel	S
Knautia arvensis Native plant; field scabious	H
Knautia macedonica Macedonian scabious	H
Koelreuteria paniculata pride of India	T
Lathyrus latifolius broad-leaved everlasting pea	H
Laurus nobilis bay tree	S
Lavandula angustifolia English lavender	S
Lavandula* × *intermedia lavandin	S
Lavandula stoechas French lavender	S
Lavatera olbia tree lavatera	S
Lavatera trimestris annual lavatera	A
Leucanthemum* × *superbum Shasta daisy	H
Leucanthemum vulgare Native plant; ox-eye daisy	H
Liatris spicata button snakewort	H
Ligustrum ovalifolium garden privet	S
Ligustrum sinense Chinese privet	S
Limnanthes douglasii poached egg flower	A
Limonium platyphyllum broad-leaved statice	H
Linaria maroccana annual toadflax	A

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Linaria purpurea purple toadflax	H
Lobularia maritima sweet alyssum	A
Lonicera periclymenum Native plant; common honeysuckle	C
Lychnis coronaria rose campion	Bi or H
Lychnis flos-cuculi Native plant; ragged robin	H
Lysimachia vulgaris Native plant; yellow loosestrife	H
Lythrum salicaria Native plant; purple loosestrife	H
Lythrum virgatum wand loosestrife	H
Malope trifida large-flowered mallow wort	A
Malva alcea greater musk mallow	H
Malva moschata Native plant; musk mallow	H
Matthiola incana hoary stock	Bi
Mentha aquatica Native plant; water mint	H
Mentha spicata spearmint	H
Monarda didyma bergamot	H
***Myosotis* species** forget-me-not	Bi
Nemophila menziesii baby blue eyes	A
***Nepeta* species** catmint	H
Nicotiana alata flowering tobacco	A
Nicotiana langsdorffii Langsdorff's tobacco	A
Nicotiana sylvestris flowering tobacco	Bi
Nigella damascena love-in-a-mist	A
Nigella hispanica Spanish fennel flower	A
***Oenothera* species** evening primrose	Bi
***Olearia* species** daisy bush	S
Onopordum acanthium cotton thistle	Bi
Origanum onites pot marjoram	S
***Origanum* 'Rosenkuppel'** marjoram 'Rosenkuppel'	H
Origanum vulgare Native plant; oregano, wild marjoram	H
***Paeonia* species** peony	H
Papaver orientale oriental poppy	H
Papaver rhoeas Native plant; common poppy †	A
Parthenocissus tricuspidata Boston ivy	C
***Penstemon* species** beard-tongue	H
Perovskia atriplicifolia Russian sage	S
Persicaria amplexicaulis red bistort	H
Persicaria bistorta Native plant; common bistort	H
Phacelia campanularia Californian bluebell	A
Phacelia tanacetifolia fiddleneck	A
Phaseolus coccineus scarlet runner bean	A
***Phlomis* species** sage	S
Phlox paniculata perennial phlox	H
Photinia davidiana stranvaesia	S
Phuopsis stylosa Caucasian crosswort	H
Pileostegia viburnoides climbing hydrangea	C

Photo: RHS / Carol Sheppard (hoverfly on field scabious, *Knautia arvensis*).

Polemonium caeruleum Native plant; Jacob's ladder	H
***Potentilla* species** cinquefoil	H or S
Prostanthera cuneata alpine mint bush	S
Ptelea trifoliata hop tree	S
***Pyracantha* species** firethorn	S
Reseda odorata garden mignonette	A
Ridolfia segetum false fennel	A
Robinia pseudoacacia false acacia	T
***Rosa* species** rose	S
Rosmarinus officinalis rosemary	S
***Rubus fruticosus* agg.** Native plant; blackberry	S
Rubus idaeus Native plant; common raspberry	S
***Rudbeckia* species** coneflower	H or A
***Salvia* species** sage	A or H
Sanvitalia procumbens creeping zinnia	A
***Scabiosa* spp.** scabious	A/H

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Sidalcea malviflora checkerbloom	H
***Solidago* species** goldenrod	H
Sorbus aria Native plant; common whitebeam	T
Sorbus aucuparia Native plant; mountain ash, rowan	T
Spiraea japonica Japanese spiraea	S
Stachys byzantina lamb's ear	H
Stachys macrantha big sage	H
Stokesia laevis Stokes' aster	H
Symphoricarpos albus snowberry	S
Tagetes patula French marigold	A
Tamarix ramosissima tamarisk	S
Tanacetum coccineum pyrethrum	H
Tanacetum vulgare Native plant; tansy †	H
Telekia speciosa yellow ox-eye	H
Tetradium daniellii bee-bee tree	T
Teucrium chamaedrys Native plant; wall germander	H
***Thymus* species** thyme	S
Tilia* × *europaea common lime	T
Tilia maximowicziana lime	T
Tilia oliveri lime	T
Tilia platyphyllos Native plant; broad-leaved lime	T
Tithonia rotundifolia Mexican sunflower	A
Trachymene coerulea blue lace flower	A
***Trollius* species** globeflower	H
Tropaeolum majus garden nasturtium	A
***Verbascum* species** mullein	Bi
Verbena bonariensis purple top	H
Verbena rigida slender vervain	A
Veronica longifolia garden speedwell	H
Veronica spicata speedwell	H
Veronicastrum virginicum Culver's root	H
Viburnum lantana Native plant; common wayfaring tree	S
Viburnum opulus Native plant; guelder rose	S
Vicia faba broad bean	A
Weigela florida weigelia	S
Zauschneria californica Californian fuchsia	S
Zinnia elegans youth and old age	A

Autumn

Sept – Oct

Aconitum carmichaelii Carmichael's monk's hood	H
Actaea simplex simple-stemmed bugbane	H
Anemone hupehensis Chinese anemone	H
Anemone* × *hybrida Japanese anemone	H
Arbutus unedo strawberry tree	S **or T**
Campanula poscharskyana trailing bellflower	H
Ceratostigma plumbaginoides hardy blue-flowered leadwort	H
***Chrysanthemum* species & hybrids** chrysanthemum	H
Clematis heracleifolia tube clematis	C
***Colchicum* species** autumn crocus	B
***Crocus* species** crocus (autumn-flowering types)	B
***Dahlia* species & hybrids** dahlia	H
Elaeagnus pungens silverthorn	S
Elaeagnus* × *submacrophylla Ebbinge's silverberry	S
Fatsia japonica Japanese aralia	S
Hedera colchica Persian ivy	C
Hedera helix Native plant; common ivy	C
Helianthus* × *laetiflorus perennial sunflower	H
Leucanthemella serotina autumn ox-eye	H
Machaeranthera tanacetifolia tansy-leaf aster	A
***Salvia* species** sage (autumn-flowering types)	H
***Symphyotrichum* species and hybrids** Michaelmas daisy	H
Tilia henryana Henry's lime (one of the last to flower)	T

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APPENDIX 3 - HIBERNACULA AND LOG PILE SPECIFICATION

Reptile Log Pile and Hibernacula Specification

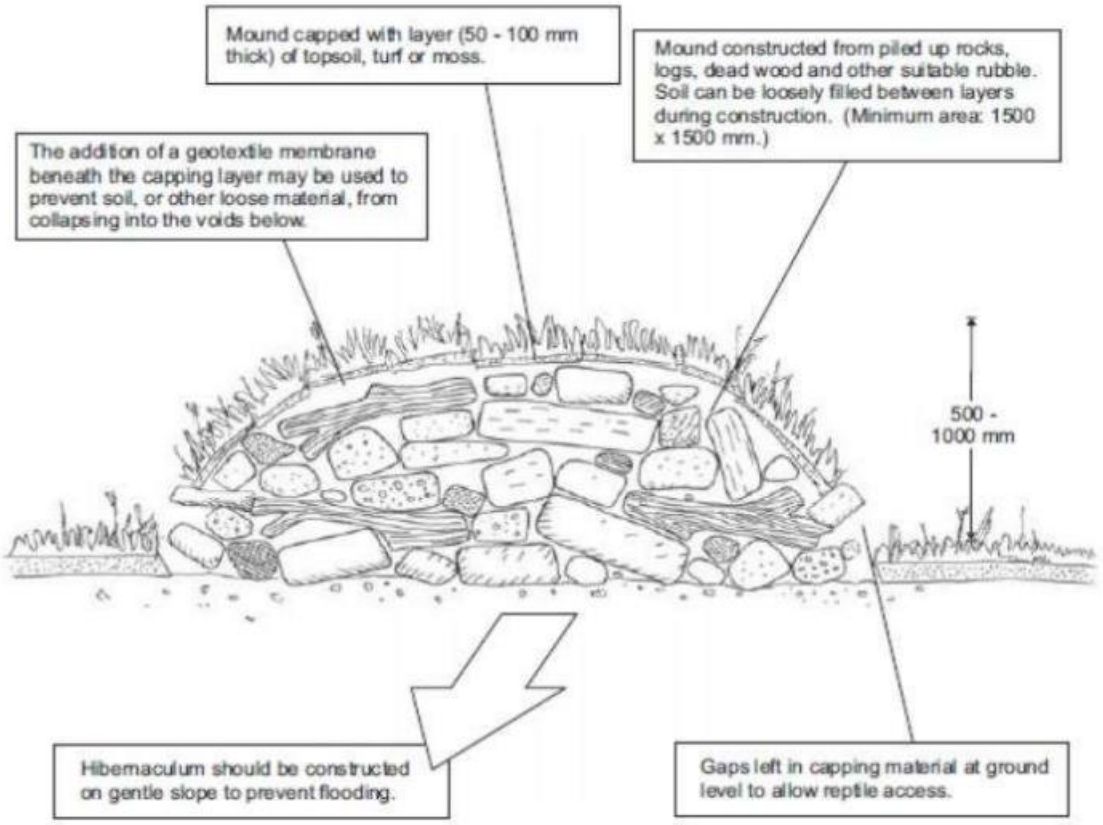
Log piles –Each log pile should be secured with stakes to prevent piles from collapsing, and also secured with wire to prevent removal or dismantling. These log piles will create summer refuge.

Hibernacula – Hibernacula will be built largely above the ground but dug in to a depth of up to 500mm and back filled with a mix of clean rubble, timber logs and dead wood to a height of up to 500mm above ground. The hibernacula will be covered with a terram membrane and capped with a 50mm – 100mm layer of soil and seeded with wildflower grass seed mix mentioned below. Rubble and logs will be exposed at ground level to maintain gaps for reptile access. The hibernacula can either be dug out by hand or by a minidigger.

The hibernacula will be 1.5m wide by 2m long and will run along an east-west direction so there is a southerly facing slope to maximise basking habitat.

Hibernaculum on impermeable ground

Where ground conditions are impermeable, then an 'above-ground' or mounded design should be utilised in order to prevent the hibernaculum from flooding. This design should also be used if it is not possible to excavate a pit for any other reason.



APPENDIX 4 – WORKS TIMETABLE

Appendix 1: Schedule of Ecological Mitigation Works and Persons Responsible.

Key:

Year 1

Duration of construction works from start to finish

End of works

Ecological Feature	Earliest Proposed Start Date	Works Phase	Mitigation Works Including Management	Timing of Mitigation												Ecological Watching Brief/Additional information	Persons Responsible
				J	F	M	A	M	J	J	A	S	O	N	D		
Habitat Management	Pre-works	Pre-works, work phase	Regular management of grassland to prevent it becoming more suitable for reptiles and breeding birds. Cut to 150mm.													Not required	Appointed contractor
Habitat Creation Tree and Hedgerow planting	During landscaping	Construction phase	Native trees such as hazel *Corylus avellana,* hawthorn *Crataegus monogyna*, cherry *Prunus avium*, field maple *Acer campestre*, guelder rose *Vibnmum opulus*, spindle *Euonymus europaeus* and wild privet *Ligustrum vulgare*. Shrubby species and climbers including bramble, dog-rose *Rosa canina* and honeysuckle *Lonicera periclymenum* are also features of a wildlife-friendly hedgerow and should be included. Planting should be undertaken between October – December and each plant should be protected with a staked tree/hedge guard. Biodegradable mulch mats to maintain a weed free circle will be pegged as necessary around each plant. Tall grass will be allowed to grow at the base of the hedgerows.													None required, but site conditions to be checked by project ecologist	Contractor

Habitat Creation Tree and Hedgerow Planting	During landscaping	Construction and post-construction	Once hedgerows are established, prune in late winter (January/February) when fruit and berries have been eaten by small mammals and birds and plants will be dormant.													Not required	Contractor
	During landscaping	Construction and post-construction phase	Sufficient watering for all new habitat creations should be undertaken by the contractor to establish and maintain healthy plants during the first two full growing seasons. All failed/defective plants or seeded areas within the first 5-years of installation shall be replaced and/or reseeded at the soonest available planting season to ensure a continued coverage of growth. Replacement plants should be of the same species and specification of the failed specimens.													Not required	Contractor
Planting Maintenance	During landscaping	Construction and post-construction	Herbicide applications to be limited to 'calm days' (no wind) and undertaken by suitably qualified operatives													Not required	Contractor
	During landscaping	Construction and post-construction	Tree stakes, ties and guards should be checked annually for adjustment and/or replacement/removal as required													Not required	Contractor
	October – February of all years	Pre-works and construction phase	Vegetation clearance of overgrown vegetation in hedgerows and treeline, outside of breeding bird season. Clearance of scrub and trees to above ground level using chainsaw and brush cutters. Clearance will need to take into account the suitable timings to complete the destructive search for other species.													Not required	Corylus Ecology and contractor

	During Landscaping (after the implementation of new planting)	Post-Construction Phase	Maintenance to trees and hedgerows will be carried out, including pruning to maintain healthy growth. Any dead or dying trees or shrubs are to be replaced with plants to the same specification in November following losses. A 2m wide buffer of long, unmanaged grassland will be allowed to establish at the base of hedgerows. This will be cut once a year to a minimum height of 200mm to allow for flowering and reseeding.													Not required	Contractor
Vegetation Clearance in Relation to Protected Species	Project start- (If it is to be carried out outside of hibernation period/ or in breeding season)	Construction phase	Vegetation clearance to be carried out in a sensitive manner, with relation to breeding birds													Supervised by project ecologist	Corylus Ecology and contractor
Bird Mitigation	During construction	Construction phase	Installation of three swift boxes beneath eaves of northern or eastern elevation in two locations. One Vivaro Pro Barcelona WoodStone Open Nest box for small birds such as wren on wall or undergrowth. One Vivaro Pro Seville Woodstone open nestbox for tits or sparrows on retained tree.													Not required, but compliance check by project ecologist	Corylus Ecology and contractor
Mammal Mitigation	During Construction	Construction Phase	Implementation of protective measures, no excavations to be left open overnight. If unavoidable then a plank of wood should be placed in the hole to allow any animal that falls in can climb back out.													Not required	Contractor

Habitat Protection	Project Start	Construction phase	Implementation of standard pollution control measures including design of emergency procedures.											Not required	Contractor
	Project Start	Construction phase	Installation of retained tree and hedgerow protection following BS5837:2012 to provide adequate protection											Not required	Contractor
	During landscaping	Construction phase	Installation of protective fencing along new hedgerows and grassland to stop the accidental damage from heavy machinery.											Not required	Contractor
Hedgehog Mitigation	During Landscaping	Construction Phase	Installation of at least one hedgehog box along the western boundary, tucked into the vegetation. Ensure boundaries have access for hedgehogs so they can move across the landscape (hedgehog fencing/ hedgehog holes in fence)											Not required, but compliance checked by ecologist	Corylus ecology and contractor
Invertebrate Mitigation	During construction	Construction Phase	Installation of one solitary bee hive in northern or southern hedgerow. Installation of one clay and reed insect nest box, positioned in suitable area, preferably facing south.											Not required, but compliance checked by project ecologist	Contractor
Bat Mitigation	During construction	Construction phase	Addition of at least one improved crevice bat box on one of the retained trees in northern treeline											None required, but compliance check by project ecologist	Contractor
Reptile Mitigation	During Landscaping	Construction phase	Instillation of three log piles and one artificial hibernaculum within the western hedgerow/scrub.											Not required, but compliance checked by ecologist	Contractor

Amphibian Mitigation	During Construction	Construction Phase	Instillation of Aco kerbs in combination with gully pots to reduce risk of amphibians falling in.											Not required, but compliance checked by ecologist	Contractor