

## Biodiversity Enhancement Strategy

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Breckey Ley,  
Old Town Lane,  
Nowton,  
Suffolk IP29 5LT.



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Recipient: Mr. Graham Snudden & Agents:

Date: 12/11/2023

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## 1 Introduction

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Anglian Ecology was commissioned by Mr. Graham Snudden to provide a Biodiversity Enhancement Strategy (BES) for Breckey Ley, in relation to Planning application Ref: DC/22/0105/FUL to West Suffolk Council.

Proposal: Planning Application - a. single dwelling, b. demolition of the Dower House, c. single storey workshop with covered parking, d. orangery, e. new landscaping including tree planting, driveway, two natural ponds and infilling a disused outdoor pool, f. alterations to the residential curtilage.

This BES is prepared to discharge West Suffolk Council's Condition 11 for works namely:

Condition 13. 'Prior to any works above slab level a Biodiversity Enhancement Strategy for protected and Priority species shall be submitted to and approved in writing by the local planning authority.

The content of the Biodiversity Enhancement Strategy shall include the following:

- 13 *Purpose and conservation objectives for the proposed enhancement measures;*
  - a) *detailed designs to achieve stated objectives;*
  - b) *locations of proposed enhancement measures by appropriate maps and plans;*
  - c) *timetable for implementation demonstrating that works are aligned with the proposed phasing of development;*
  - d) *persons responsible for implementing the enhancement measures;*
  - e) *details of initial aftercare and long-term maintenance (where relevant).*

*The works shall be implemented in accordance with the approved details prior to occupation and shall be retained in that manner thereafter. Reason: To enhance protected and Priority species & habitats and allow the LPA to discharge its duties under the s40 of the NERC Act 2006 (Priority habitats & species) as updated by the Environment Act 2021 and to secure biodiversity enhancements commensurate with the scale of the development, in accordance with policy DM12 of the West Suffolk Joint Development Management Policies Document 2015, Chapter 15 of the National Planning Policy Framework and all relevant Core Strategy Policies.'*

Field ecologists from Aspect Ecology conducted an Ecological Appraisal of this site in December 2021<sup>1</sup> and, together with the requirements within, the recommendations of their report must be followed.

The purpose and conservation objectives for the proposed enhancement measures are detailed within, together with information on the proposed locations of the enhancement measures. Details of initial aftercare and long-term maintenance (where relevant) are also given.

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<sup>1</sup> Breckey Ley, Bury St Edmunds, Ecological Appraisal, Aspect Ecology 2021.

## 2 Personnel

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Sue Morgan is a Chartered Ecologist, Chartered Environmentalist, and qualified botanical surveyor, with over 20 years' experience of surveying similar sites, structures, and protected species habitats.

She works on projects for the Church of England, the National Trust, County and District Councils, the Suffolk Wildlife Trust, multi-national engineering consultancies, and private landowners. She holds Natural England licenses to survey for protected species. She is also a qualified teacher and delivers training courses for adults on ecological surveying, woodland management, and protected species, please visit: [www.anglianecology.co.uk](http://www.anglianecology.co.uk) for more information. She is a Chartered Member of the Institute of Ecology & Environmental Management (MCIEEM) and a past Convener of its East of England Section, and a Chartered member of the Institute of Environmental Management (MIEMA).

### NATURAL ENGLAND LICENCES:

Natural England Licence Holder for the Surveying of Barn Owls Number CL29/00106.

Natural England licence Holder for the Surveying and Disturbance of Schedule I birds: Natural England Registration Numbers; 2022-61354-SCI-SCI-1, (stone curlew), 2022-61478-SCI-SCI (woodlark).

Natural England Licence holder Class Licence CL18 Registration number: 2015-11320-CLS-CLS for the surveying & handling of bats in all counties of England.

Natural England Survey Class Licence WML-CL08 Registration number 2015-19101-CLS-CLS. (great crested newts).

Natural England Survey Class Licence holder 2016-21569-CLS-CLS (dormice).

### BIOLOGICAL SURVEYING:

Advanced Certificate in Biological Surveying, The University of East Anglia and The Field Studies Council, 1999.

### 3 The Purpose and Conservation Objectives for the Proposed Enhancements

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The purpose of the enhancement measures are in line with UK wildlife legislation and planning policy especially the revised National Planning Policy Framework (NPPF) Last updated 5 September 2023. Much of the pressure on biodiversity is related to development and land use. Consequently, the planning and development process has a fundamental role to play in controlling and relieving this pressure.

This important role for the planning system has been recognised in legislation and the Government's planning guidance. The principle is continued through the draft Regional Planning Guidance for the East of England to 2021 (RPG14) and apply at local level through development plans.

Within the Local Government Act 2000 (Part 1, Section 2.1.c), local authorities are given powers to improve the environmental well-being of their area, of which biodiversity is a key element.

Restoration and enhancement may be necessary to rebuild what has been lost as well as maintain what we have at present. It is also important that monitoring post development is undertaken through the land-use planning system.

The loss of biodiversity and the subsequent negative environmental impact runs contrary to the aims and objectives of sustainable development. In principle, sustainable development should not lead to a 'net loss' in biodiversity or natural resources. The client's attention is also drawn to the document 'Biodiversity Net Gain Interim Planning Guidance Note for Suffolk' May 2023<sup>2</sup>.

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<sup>2</sup> be found at: [chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://www.westsuffolk.gov.uk/planning/Planning\\_Policies/upload/Biodiversity-net-gain-guidance-document-May-2023.pdf](chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://www.westsuffolk.gov.uk/planning/Planning_Policies/upload/Biodiversity-net-gain-guidance-document-May-2023.pdf)

The Biodiversity Enhancement Scheme for this site focuses on the following:

- Appointment of an Ecological Clerk of Works for this three-phase project to advise, supervise and check the correct implementation of new enhancement and mitigation measures.
- Extensive new tree planting, including many fruit bearing trees.
- Extensive new soft landscaping utilising native plant species wherever possible and to include both wildflower and native grassland areas.
- One new 'wildlife' pond.
- At least one Sparrow Terrace and one Tired Apex Swift Box.
- At least four new bat boxes.
- A new purpose-built bat roost.
- New log piles and bug hotels.

The above EcoW supervised enhancements will benefit the following species: Birds, reptiles, bats, small mammals, and invertebrates.

## 4 The Site

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The site is located at the southern edge of Bury St Edmunds, Suffolk. The site is bounded on all sides by roads lined with woodland and hedges, with occasional scattered private dwellings. Nowton Park, comprising mixed woodland, parkland and agricultural land with scattered properties extends to the east, while agricultural pasture and arable land extends beyond the site's southern and western boundaries. Land further to the north comprises suburban development within the southern extent of Bury St Edmunds.

The site itself comprises a significantly larger area, the majority of which would not be affected by the proposed works. The site comprises approximately 30.9ha of land separated into northern (11.5ha) and southern (19.4ha) components as shown on Plan 6173/ECO1. Construction works would be undertaken only within in the north-western quarter of the northern compartment, in the area of the existing Dower House and its surrounding garden.

The site comprises a mosaic of grassland and woodland habitats. Several buildings and structures are present in the north of the northern compartment, comprising the Dower House, the Lodge, a stable and outbuildings associated with the Dower House, and a former swimming pool. The area of the proposed development otherwise principally comprises the lawn of the Dower House. A new access road will be provided around the southern edge of woodland to the east of the Dower House and buried services will follow this and the route of the existing entrance road. Services will enter the site from the north through existing woodland<sup>3</sup>.

For further details please accompanying architect's plans, the Construction Environmental Management Plan<sup>4</sup>, and Aspect ecology's Ecological Appraisal<sup>5</sup>

There is currently habitat for small mammals, reptiles, bats, and breeding birds within the site area. Bats and birds may be roosting and nesting in the boundary hedgerows and trees, and within the Stables Block to the immediate west of the proposed site area. There is also habitat for all the above within the immediately adjoining wider site areas.

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<sup>3</sup> Breckey Ley, Bury St Edmunds, Ecological Appraisal, Aspect Ecology 2021.

<sup>4</sup> Breckey Ley, Construction Environmental Management plan, Anglian ecology, November 2023.

<sup>5</sup> Breckey Ley, Bury St Edmunds, Ecological Appraisal, Aspect Ecology 2021.

## 5 Avoidance, Mitigation and Enhancement Measures

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Please see site plan in the Appendix for suggested location of all enhancement features. This section discusses the mitigation and enhancement measures in accordance with relevant wildlife legislation and planning policy. Please also refer to the documents listed below to provide full details of these measures.

- 1 23.01-PR-01 Breckey Ley Workshop Programme P06, Fenella Snuddon, 30/10/2023,
- Breckey Ley, CEMP Data, G. Snuddon, 01/11/2023.
- Proposed Landscape Plan, Niall McLaughlin Architects, Reference: 2015-PL-095, Revision: B, Date of first issue: 07.01.2022.
- Breckey Ley, Diagram - Infiltration Tanks overlaid on Landscape Plan, Niall McLaughlin Architects, Ref: 2015-PL-082, Revision A, Date of first issue: 20.01.23.
- Breckey Ley, Diagram - Infiltration Tanks overlaid on Proposed Site, Niall McLaughlin Architects, Ref: 2015-PL-083, Revision: A, Date of first issue: 20.01.2023.
- Breckey Ley, Proposed South & East Outbuildings Elevation, Niall McLaughlin Architects, Ref: 2015-PL-204, Revision: A, Date of first issue: 25.03.2022.
- Breckey Ley, Proposed South Orangery Elevation, Niall McLaughlin Architects, Ref: 2015-PL-205, Revision: A, Date of first issue: 25.03.2022.
- Breckey Ley, Incoming Services Layout, Skelly and Couch, Project 1517, Drwg No: 401, Ref: S2 For information, Rev: P3, Date: March 2022.
- Breckey Ley, Proposed Trees, Luke Heydon Gardens, Drawing No: 001 Trees 05/11/23.
- Breckey Ley, Proposed Wildlife Pond, Luke Heydon Gardens, Drawing No: 001 Pond, 02/11/23.
- Breckey Ley, Proposed Garden Lights, Luke Heydon Gardens, Drawing No: 001 Lights, 06/11/23.
- 1517 – Breckey Ley, External Lighting Report, Skelly & Couch Ltd, Rev 2.0 / 14/01/2022.
- Breckey Ley Workshop, Drwg No's: 23.01-DR-10 Proposed elevations, 23.01-DR-15 Proposed sections, 23.01-DR-10 Proposed plan.
- Ecological Appraisal, Aspect Ecology, 2021.
- Bat Scoping Survey, Breckey Ley, Nowton, Suffolk, Anglian Ecology, July 2021.
- Report on Bat Activity Surveys, Breckey Ley, Nowton, Suffolk, August 2021.
- Breckey Ley, Bury St Edmunds, Ecological Appraisal, Aspect Ecology, Project Number: ECO-6173.
- Breckey Ley Construction Environmental Management Plan, Anglian Ecology, November 2023.
- Bat Method statement, Anglian Ecology, November 2023.
- Land off Nowton Road, Baseline Tree Survey BS5837:2012, - RAVEN Veteran Tree Identification. FLAC Instruction ref: CC41-1007, March 2021.
- Landscape and Visual Appraisal, Breckey Ley, Bury St Edmunds, Bidwell's, January 2023.



## 5.1 ECoW

An appropriately competent person e.g., an Ecological Clerk of Works (ECoW,) should be appointed to provide on-site ecological expertise during the provision of the enhancement features; to ensure these are situated correctly and completed in accordance with the correct methodology. This will allow the LPA to discharge its duties under the UK Habitats Regulations, the Wildlife & Countryside Act 1981 as amended, and s40 of the NERC Act 2006 (Priority habitats & species).

The ECoW must be appointed prior to works and due to the potential presence of protected species on this site must deliver a Toolbox Talk to all contractors immediately before works commence. The following requirements must be outlined:

- Direct mortality to many species during the construction phase can be avoided through implementation of best practice, details of which should be followed by all site personnel.
- The presence of an ECoW is required on site during vegetation removal and cutting operations.
- Scrub should be hand searched prior to mechanical vegetation removal and cutting operations as they may potentially support reptiles and hedgehogs.
- Care should also be taken to ensure that no trenches or ground excavations are left open without a means of brown hares, small mammals, and reptiles being able to find their way out. Any dug pits or unfilled deep foundation work should either be covered or have mammal ramps positioned in them to allow any trapped animals to escape.
- All piles of spoil, timber, or rubble should be kept clear of the ground, by removal either to a skip, or by being elevated, to ensure that potential refugia sites are not inadvertently created.
- There should be no lighting of bonfires. Any brash and log piles on site should be searched by hand before removal/skipping and if hedgehogs or other small mammals are discovered that they should be translocated to a suitable location.
- All chemicals and plant machinery should be stored in allocated areas away from trees and possible wildlife corridors and kept to hardstanding areas.

## 5.2 Trees, shrubs, grasses, and wildflowers (new planting).

### 5.2. 1 Avoidance and Mitigation

All existing areas of shrub and scrub to the wider site boundaries must be left. All trees must be retained unless there has been specific agreement from the LPA to removal, and in these cases the trees should be checked for any breeding bird or potential bat roost immediately prior to felling by the ECoW.

The ECoW must search all remaining areas of tall ruderals and scrub prior to any removal by mechanical means. Immediately prior to works a search of any potential refuge sites within the development area will be carried out by the ECoW to check for sheltering amphibians, small mammals, and reptiles.

### 5. 2. 1 Enhancement

There will be extensive new planting of native trees on site. Please refer to: Breckey Ley, Proposed Trees, Luke Heydon Gardens, Drawing No: 001 Trees 05/11/23, and Proposed Landscape Plan, Niall McLaughlin Architects, Reference: 2015-PL-095, Revision: B, Date of first issue: 07.01.2022, reproduced below.

Native fruit and berry bearing species such as hazel (*Corylus avellana*), bird cherry (*Prunus avium*), and field maple (*Acer campestre*), will be used, along with *Malus sp*, *Pyrus sp*, and oak (*Quercus robur*).

This planting will enhance ecological connectivity around the site and provide foraging and refuge opportunities for birds, small mammals, and other wildlife. The aims of any planting scheme should be to provide the broadest range of shelter, habitat, and feeding opportunities for wildlife; to offer attractive, seasonal enrichment, as well as being aesthetically appealing. To this end, there should be planting of predominantly native species to provide seasonal interest as well as optimal feeding/breeding habitat for the widest range of animal and insect species.

### Planting methodology

All new planting of whips should be staked, guarded, and mulched. All hedgerow plants are to be staked and guarded with Tubex 'Easy Wrap' (60 cms x 50 mm nominal diam) or 'Spiral' guards (60 cms x 50 mm) and staked with 0.9 m bamboo canes. The hedgerow line is to be cleared of weeds, cultivated to a depth of 150 mm and treated with appropriate herbicide such as glyphosate ('Roundup'). The planting line must then be mulched with wood chip or mushroom compost.

NB: 'Slot' planting must not be used when planting the new hedgerows. Planting holes must be big enough for roots, with sufficient depth and room. After the ground has been cultivated a dibber may be used, working it round to make a conical hole.

Alternatively ridge planting or pit planting could be used; pit planting is slower, but essential for the standard trees as it ensures plenty of room for the roots. Excessive firming-in is to be avoided as this could lead to compaction.

### Weed Control

Weed control measures by means of appropriate herbicide must be undertaken twice a year for a period of 5 years; this is best applied in March or early April once weeds are actively growing to be effective during the critical April to June period. Another application can be made from July to September as required.

Spraying should only be done in calm weather and should be carefully directed to avoid contact with the whips. Tall weeds within guards cannot be safely sprayed and these must be removed by hand; Glyphosate is best used in moist, humid conditions, but when heavy rain is not expected within 24 hours, as this will reduce absorption. A combination of mechanical weeding between rows with hand weeding of less accessible spots is an alternative at the same times of year. Planting should take place, at the latest, in the first planting season following construction unless soil conditions are unfavourable.

Figure 1 Proposed Tree Planting

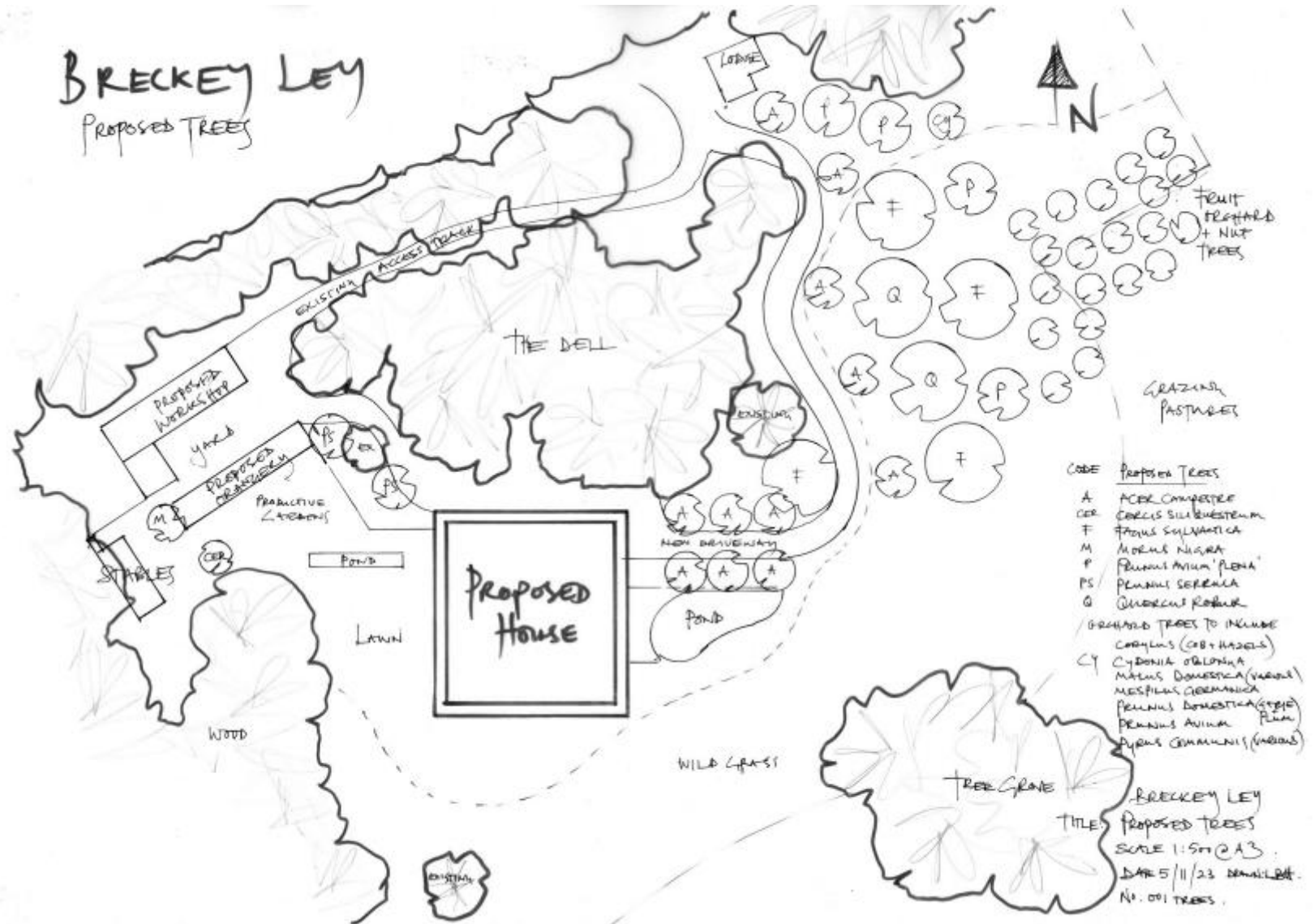
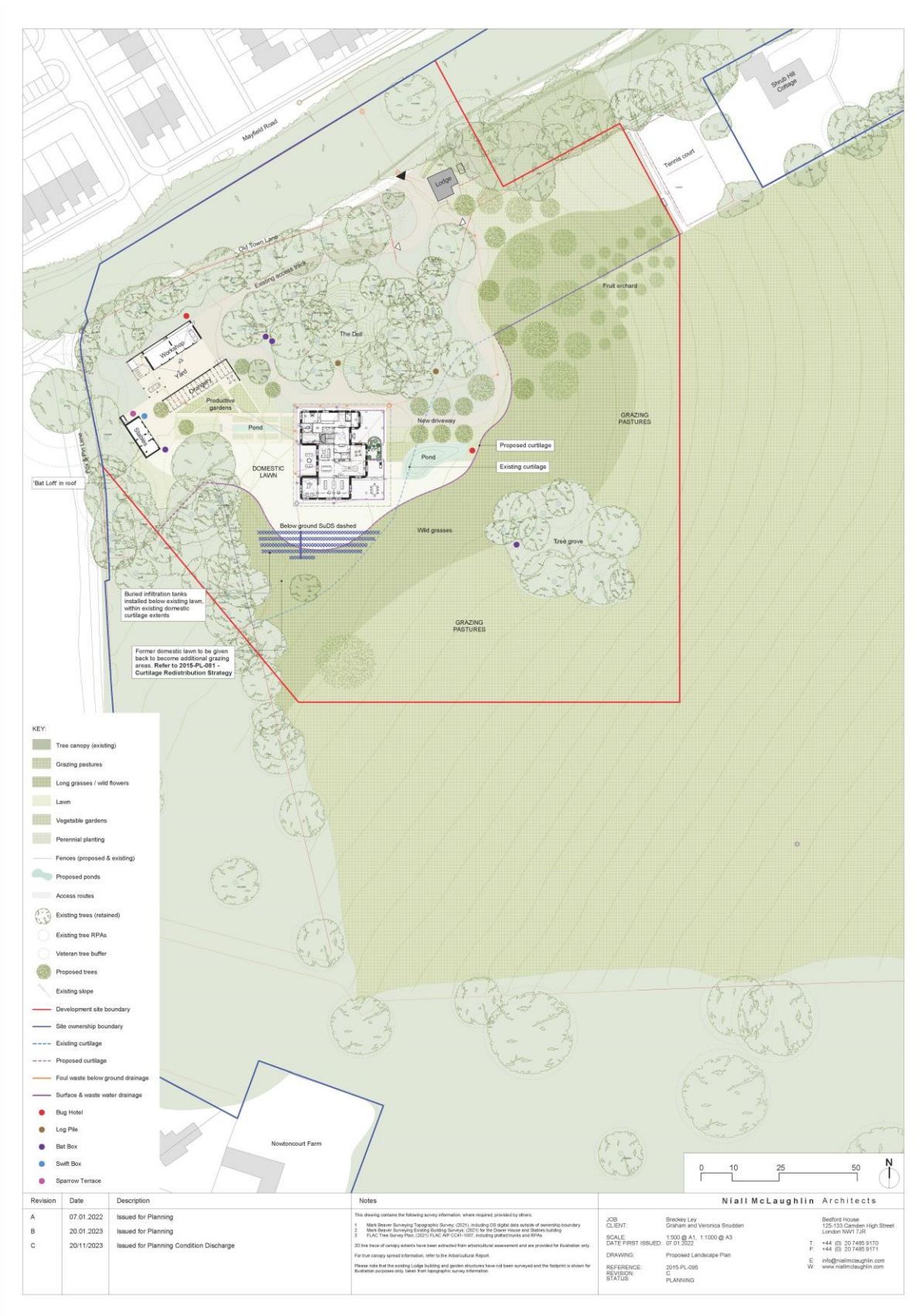


Figure 2 Landscaping Plan (Copyright Niall McLaughlin Architects).



In addition to the above, new wildflower planting and new native grasses will be planted (Please see areas on plan above).

1. The meadow mix for the wild grass area as marked on the landscape plan is as follows, <https://www.cotswoldseeds.com/products/416/cotswold-wild-flora>

This consists of:

Common bent grass (*Agrostis capillaris*), Yellow Oatgrass (*Trisetum flavescens*), crested dog's-tail (*Cynosurus cristatus*), smaller cat's-tail (*Phleum bertolonii*), sheep's fescue (*Festuca ovina*), smooth stalked meadow grass (*Poa pratensis*), CHARACTER red/chewings fescue (*Festuca rubra subsp. Commutata*), Salad Burnet (*Sanguisorba minor*), native Sainfoin (*Onobrychis viicifolia*), Lesser Knapweed (*Centaurea nigra*), Self-heal (*Prunella vulgaris*), Ox-eye Daisy (*Leucanthemum vulgare*), Ribwort Plantain (*Plantago lanceolata*)  
Red Champion (*Silene dioica*), Lady's Bedstraw (*Galium verum*), Wild Carrot (*Daucus carota*), Field Scabious (*Knautia arvensis*), Musk Mallow (*Malva moschata*), Meadow Buttercup (*Ranunculus acris*), Yarrow (*Achillea millefolium*), Betony (*Stachys officinalis*), White Champion (*Silene latifolia*), Cowslip (*Primula veris*), Corn Cockle (*Agrostemma githago*), Corn Marigold (*Glebionis segetum*), Cornflower (*Centaurea cyanus*), Field Poppy (*Papaver rhoeas*). Yellow Rattle (*Rhinanthus minor*, - double up the rate of the yellow rattle on this site).

2. The grass mix for the domestic lawn is as follows,

[www.cotswoldseeds.com/products/883/hard-wearing-lawn-with-ryegrass](https://www.cotswoldseeds.com/products/883/hard-wearing-lawn-with-ryegrass)

This consists of:

Dwarf perennial rye -grass (*Lolium perenne*), slender creeping red fescue (*Festuca rubra litoralis*), and common bent-grass.

3. The following mix may also be used in the orchard and for areas under the tree canopies and over the GSHP towards the tennis court.

<https://www.cotswoldseeds.com/products/889/orchard-mixture>

This consists of:

Red/chewings fescue, smooth stalked meadow grass, slender creeping red fescue, common bent grass, and sheep's fescue.

The land for planting must be cultivated and planted with the above mixes of native wildflower species and grasses. It's important to establish some form of grassland cover quite quickly afterwards as bare soil will be prone to colonisation by undesirable plants such as injurious weeds.

A good seed mix is one which contains both annuals and perennials. On bare soil the annuals will rapidly grow and flower, providing a colourful display in year one that protects the slower perennial wildflowers as they develop. Seed suppliers will provide the client with a sowing rate (weight per area) for each of their seed mixes as a guide.

NB. There is always a small risk in the UK that a seeding or planting will partially fail. This is usually due to poor weather conditions following the sowing or planting. For this reason, it is recommended that the client budget for 20% more seed or plants than they plan to use. This can be used to re-sow or plant any areas that do not properly establish.

#### Preparation and seed sowing

To prepare a seed bed, all existing vegetation must be removed. The approach to clearing vegetation will depend upon the scale of the proposed new habitat. If the area is small (<100m<sup>2</sup>) it may be best to use manual methods of land preparation and sowing. If the area is larger (>100m<sup>2</sup>) and has no constraints, then mechanical equipment may be quicker and more efficient.

#### Clear land of existing vegetation –

- Break up soil and clods and create a fine tilth for a seedbed
- Sow seed when the soil is dry to moist but not waterlogged, and when rainfall is due in the near future.
- Sow seeds at the prescribed sowing rate. To ensure an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections using a hand sowing device.

Remember that all wildflowers require surface sowing and should NOT be drilled or buried.

- Roll or tread in the seeds once sown, to ensure they have good contact with the soil.

Please see appendix for map of suggested locations of the above.

### 5.3 New Wildlife Pond.

This pond will be situated to the east of the new dwelling (please see plan above) and be constructed to the specifications in Figure 3 below which also gives details of planting.

Ponds support an extraordinary two thirds of all freshwater species, and creating clean new ponds is one of the simplest and most effective ways to protect freshwater wildlife.

Two-thirds of all freshwater species can be found in ponds including amphibians such as the common frog (*Rana temporaria*), common toad (*Bufo bufo*), both smooth and great crested newt, (*Lissotriton vulgaris*, *Triturus cristatus*), birds such as grey heron (*Ardea cinerea*), ducks such as teal (*Anas crecca*), invertebrates such as common great diving beetle (*Dytiscus marginalis*), Pond Olive mayfly (*Cloeon dipterum*), along with many dragonfly species such as Blue-tailed Damselfly (*Ischnura elegans*), as well as being a resource for both small and large mammals, including bat species.

#### 5.3.1 Management of the pond

The condition or health of a pond can be affected by a number of factors. Water can become murky or smell foul, become shaded by surrounding trees or shrubs, or get taken over by invasive emergent vegetation, which effectively dries out the open water. These changes will inevitably lead to a reduction in the wildlife – both in terms of population size and diversity of species.

The primary indicator of pond health is an abundance of underwater vegetation composed of several different plant species. The most important single factor contributing to a pond's health is an abundance of varied plant cover, both underwater and growing out of it, but particularly under water. It is the plants that attract animal life and create favourable conditions for it.

The optimal amount of plant cover in a pond during the summer is considered somewhere between 60 and 85% of the water volume. Plants naturally colonise ponds with clean, well-lit shallow water.



Important notes for future management of the wildlife pond.

#### Avoid Nutrient build-up

Excess nutrients can cause imbalances in a pond. Good indicators of high nutrient status or a pond in poor health might be dominance by algae, duckweed or simply, rotting, oozing black mud with no plant growth.

#### Algae

Whilst unattractive and potentially harmful, algae are important members of a healthy, well-balanced pond ecosystem, providing food for species at the lower end of the food-chain, including dragonflies.

Less than 5% algal cover should not have an adverse effect.

#### Duckweed

Duckweeds are tiny free-floating plants consisting of one or two tiny leaves with little roots dangling off them.

Like algae, they have their place in healthy well-balanced ponds. However, do not allow duckweed to dominate a pond surface.

#### Trees

Shading reduces available light for plant growth and makes the pond surroundings a colder habitat, making it a less attractive site for creatures such as frogs. As a guide, problems tend to occur if more than 20% of the southern side of the pond is overshadowed by trees, or if more than 50% of the total pond edge is overshadowed.

Trees add to the nutrients in the pond, especially tannins released from rotting dead leaves which acidify pond water – some species, such as oak and sycamore (*Acer pseudoplatanus*), have a more adverse effect on the quality of the water than finer-leaved species such as willow.

#### Duck and geese

Whilst these birds have their place, they can create significantly impact on ponds and pond wildlife when present for long periods in any large numbers. They enrich the water with their droppings and stir up enriched sediment as they up-end and search for food, destroying plant communities and leading to algal blooms. Ponds are often left bare, murky and largely lifeless. Encouraging duck by feeding them should be avoided.

#### Fish

Even small numbers of tiny species of fish like stickleback (*Gasterosteus aculeatus*) can significantly reduce the wildlife value of a pond and effectively remove breeding great crested newt.

Do not introduce invasive species.

Occasional removal of invasive, dominant species, such as reedmace (*Typha sp*) on an opportunistic or little-and-often basis in the winter will reduce the chances of these species colonising to a detrimental degree.

Reduce aquatic vegetation.

Regular, gentle thinning-out of excess aquatic vegetation in nutrient-rich farm ponds every autumn might be valuable to reducing the progressive build-up of nutrients such as nitrates and phosphates. By raking out submerged plants and leaving them on the pond edge overnight for small creatures to crawl back into the water, nutrients can effectively be removed from the water.

This avoids leaving the aquatic vegetation to rot down over winter, releasing nutrients back into the water to encourage blanketweed or other forms of algae. Aim to leave 25% of the pond dense with plants. Vegetation should eventually be removed away from the pond to avoid the nutrients seeping back into the pond when it rots. Avoid dumping it on species-rich vegetation nearby.

Dredge the pond bottom.

It may be necessary in the future to remove the silt at the bottom of the pond as it is sometimes a lingering store of accumulated pollution or naturally occurring substances, which may prevent aquatic vegetation from establishing and lower the water quality. Consider timing to minimise damage to any wildlife in the pond: To minimise damage to surrounding habitat and overwintering wildlife such as newts, aim to work with heavy machinery from as few places as possible. Silt should be removed carefully to avoid smothering species rich vegetation nearby – ideally off-site or spread thinly over recently coppiced scrub areas where the regrowth will quickly grow through the spoil. Aim to conduct works between November and February in case of great crested newt presence.

Please see details of the proposed new wildlife pond enhancement below.



5.4 Birds

5.4.1 Avoidance and Mitigation

Any clearance of vegetation during the nesting bird season (March to September inclusive), should be preceded by a nesting bird check by the ECoW to avoid infringing legislation which protects all nesting birds (WCA 1981). This nesting bird check should be carried out within three days of the proposed works impacting the area under survey. Any active nests identified must be retained in situ with a suitable buffer until the chicks have fledged and the nest is no longer active.

The ECoW will establish a suitable buffer and any additional requirements to avoid disturbance of any nesting birds. Feral pigeons could be nesting outside the typical nesting bird season.

5.4.2 Enhancements

At least 3 new bird boxes will be erected on the Stables Block building situated to the west boundary of the site. These will be:

1. A house sparrow (*Passer domesticus*), terrace, to be situated on the north east or north west elevation of the Stable Block, sheltered from prevailing wind, rain and strong sunlight. Height from the ground should be about 3 metres - avoid sites where foliage obscures the entrance hole - a clear flight path is important.
2. One Tier swift (*Apus apus*) Apex box is to be situated to the north elevation of the Stables Block, out of direct sunlight. Place as high as possible, (preferably 5 m) above the ground, with clear adjacent airspace so swifts can access it in a high-speed direct flight.

Please see examples of the required designs below, and the ‘Plan of Enhancement Measures’ in the Appendix.

Figure 4 Sparrow Terrace (left) and Tiered Swift Apex Box (right).



Recommended type: Filcris Fulbourn Sparrow Terrace (or similar), Peak Boxes 2 Tier Swift Apex Box (or similar).

## 5. 5 Invertebrates

### 5.5.1 Avoidance and Mitigation

At present, the site area has a poor invertebrate habitat it being predominantly close mown grass sward. However, work during the construction phase involving heavy machinery would result in the death of a range of ground dwelling invertebrates, particularly slower moving, flightless arthropods, which cannot avoid being crushed by construction machinery. The principal cause of direct mortality resulting from operation of the scheme is likely to be through invertebrates, particularly Gastropoda and Diptera having an increased risk of being crushed by vehicles. This is unlikely to permanently affect the population dynamics of any community.

The main methods for mitigation for terrestrial invertebrates are ensuring best practice during construction, minimising habitat loss and fragmentation and management of the operational phase of the scheme. During any remaining clearance works and ECoW should ensure that all areas not essential to works are taped off from construction workers and traffic, and that best practice with regard to chemical storage, waste disposal, and brash clearance are observed.

### 5.5.2 Enhancements

The enhancement for invertebrates on this site consists of the flora enhancements as detailed above, together with creating log-piles, and 'bug hotels' within the site area. examples of these are given below.

At least two 'bug hotels' should be incorporated within the site. Please see below for examples and the 'Plan of Enhancement Measures' in the Appendix for the suggested location of these log piles and bug hotels.

Bird Bee & Bug Hotel (or similar)



Product available from: <https://gardenature.co.uk/product/bird-bee-bug-hotel>

Dimensions: Height: 740 mm, Width: 300 mm, Depth: 200 mm, Weight: 5.1 kg

This bug hotel provides a range of valuable habitats of a variety of beneficial insects like solitary bees, ladybirds etc. The insect habitat is manufactured from FSC natural timber and has features that offers a mix of refuges for Insects and Bees.

This Bird Bee and Insect Hotels should be sited about 1 - 2 meters high in a warm sheltered position, ideally where it can catch the morning sun (facing east).

There are many designs of such features, and some could be incorporated onto structures (see below) or affixed to fencing or be free standing. There should be at least two such features added across the site, in differing locations following the guidelines above. The ECoW should directly supervise the siting of these hotels.

Further design examples are below. They are available from a plethora of online sources.



## Log piles

At least two log piles should be created on site. The ECoW should agree areas where these could be located in conjunction with the contractors; suitable areas would be to the northwest and southeast boundaries.

Please see appendix for location map of these enhancement features.

Log piles should be left untouched as regular disturbance will limit the diversity of invertebrates. As well as supporting many kinds of invertebrate, deadwood piles also provide good foraging areas for reptiles and birds such as robins (*Erithacus rubecula*) and wrens (*Troglodytes troglodytes*). The piles could also provide hibernation sites for reptiles, amphibians, and hedgehogs (*Erinaceus europaeus*).

Log piles should consist of a mixture of hard wood and soft wood and left undisturbed to rot down. Log piles should be placed in both sunny and shady habitats to benefit the widest variety of invertebrates. Butterflies and solitary bees prefer sunny areas while stag beetles (*Lucanus cervus*), prefer shade. Log piles can also provide suitable conditions for reptiles, amphibians, lichens and fungi. Please see the 'Plan of Enhancement Measures' in the Appendix for the suggested locations of these log piles.

5.6 Bat species.

5.6.1 Avoidance and Mitigation.

Please see the accompanying Bat Method Statement<sup>6</sup> for full details of all Bat Enhancement Measures, a precis of which is reproduced below.

ECoW

The ECoW appointed should ensure that four bat boxes are correctly installed on the mature trees to the west boundary of the wider site area.

5.6.2 Enhancements

Four Bat boxes

Four bat boxes must be installed on this site, two to an oak monolith situated to the east of the existing Dower House, one to a Corsican pine situated on the edge of a copse to the south east of the proposed new dwelling, and one to the south east elevation of The Stables Block.

NB. Bat boxes should be placed as high as possible away from any external light source and ideally facing south/southwest. There should be an unobstructed flight path into the box. Please see the ‘Plan of Enhancement Measures’ in the Appendix for the suggested locations of these boxes.

New Bat Loft

A new purpose-built bat roost will be created in the southern section of the existing Stable Block building which is in itself eminently suitable for occupation by bat species and is to remain unaffected by the proposals. Please see the ‘Plan of Enhancement Measures’ in the Appendix for the locations of this new bat roost, the accompanying Bat Method Statement<sup>7</sup> for details of the new bat roost, and photographs below of the interior of the Stable Block at present.



<sup>6</sup> Breckey Ley, Bat Method Statement, Anglian Ecology, November 2023.

<sup>7</sup> Ibid.



## 6 Lighting

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The impact on bats can be minimised by maintaining the brightness as low as possible; limiting the times during which the lighting can be used to provide some dark periods; directing the lighting to where it is needed to avoid light spillage; and minimising upward lighting to avoid light pollution.

If light is required for health and safety reasons this can usually be provided with careful design and the use of wall mounted down lighters. Powerful PIR controlled spotlights should not be used as these can increase visibility problems due to the intense contrast they create in the darkness around them.

The modern design of optics and lamps has helped reduce the amount of light spill onto the surrounding area, however as little as 0.06 lux can cause a disturbance to bats. The results of the comparison calculations between the most common methods used to reduce light pollution has shown that in most cases even 1 lux will spread at least 10 m from a lighting column in a typical lighting situation without some type of intervention.

The results of the calculations show that accessories available are beneficial and do have a positive effect in reducing light spill. The degree of that effect is dependent on the complexity of the accessory. The basic shielding and masking techniques do have an effect and the calculations show that they can reduce the light spill by as much as 40%.

Both the internal and external louvres are much more effective with the external louvre reducing the light spill by as much as 97%. External louvres are more effective than the internal louvres as the internal versions can only be applied to protectors with a shallow or deep profile resulting in light spilling at higher angles.

No lighting must spill out onto the surrounding trees or Stable Block building.

Any lighting required to facilitate the construction/demolition process must follow the timing specifications detailed in the accompanying Bat Method Statement<sup>8</sup>.

Please see the accompanying Bat Method Statement<sup>9</sup> and the accompanying EcoW approved lighting plans listed below, for full details of all proposed lighting.

- Breckey Ley, Proposed Garden Lights, Luke Heydon Gardens, Drawing No: 001 Lights, 06/11/23.
- 1517 – Breckey Ley, External Lighting Report, Skelly & Couch Ltd, Rev 2.0 / 14/01/2022.

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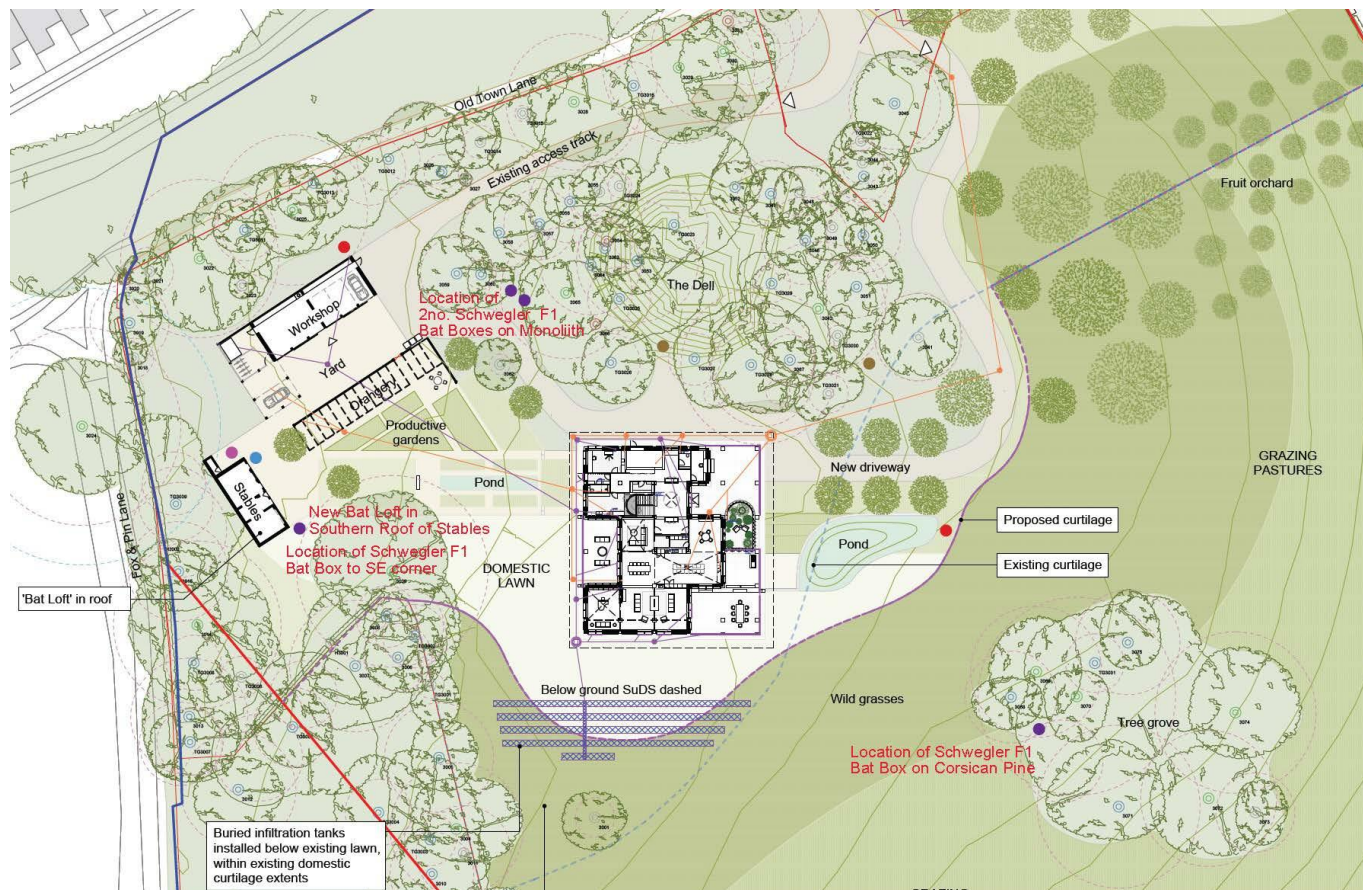
<sup>8</sup> Ibid.

<sup>9</sup> Ibid

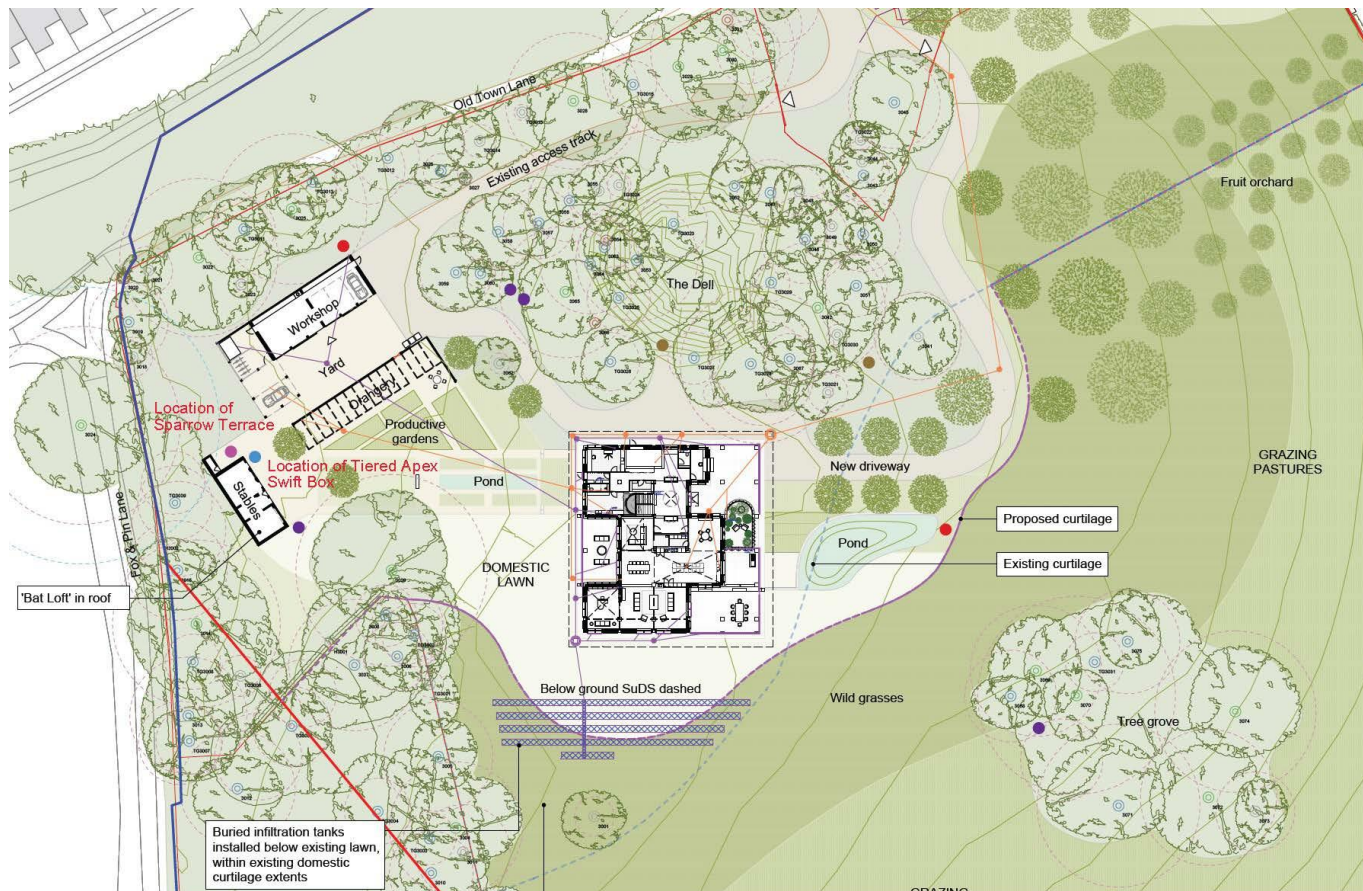
## 7 Appendix

### 7.1 Plan of Enhancement Measures

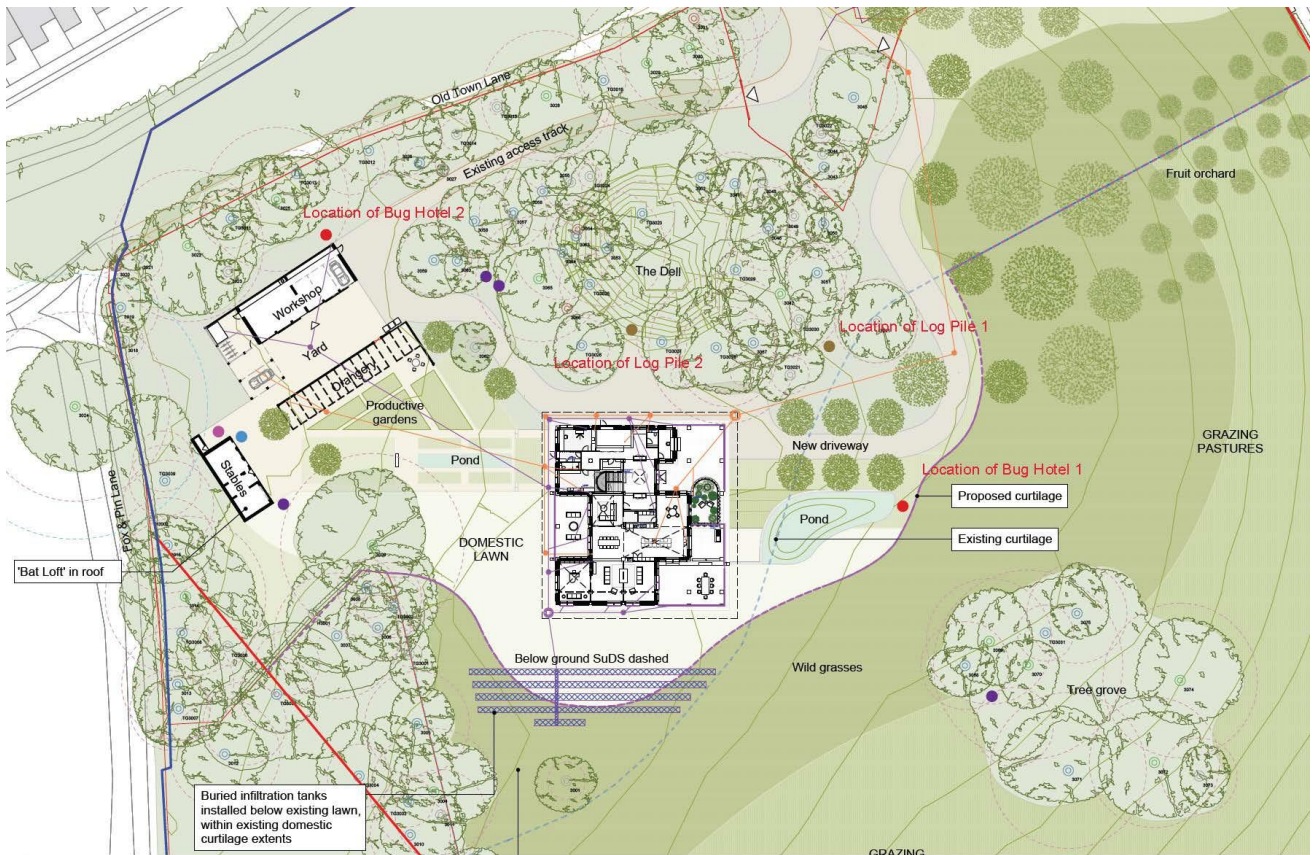
#### 7.1.1. Location of Bat Enhancement Measures (Copyright Niall McLaughlin Architects).



.2 Location of Bird Enhancement Measures (Copyright Niall McLaughlin Architects).



7.3 Location of Invertebrate Enhancement Measures (Bug hotels, and log piles) (Copyright Niall McLaughlin Architects)



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