

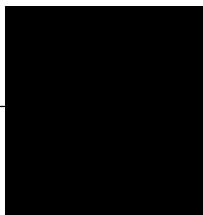
MKA
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Biodiversity Enhancement Strategy

Ickleford Mill, Herts

Site	<i>Ickleford Mill, Herts</i>
Project number	<i>184025</i>
Client name / Address	<i>The Hill Group; The Power House, Gunpowder Mill, Powdermill Lane, Waltham Abbey, Essex, EN9 1BN</i>

Version number	Date of issue	Revisions
<i>3.0</i>	<i>26 March 2026</i>	<i>Amendments to species enhancements following comments from the client and receipt of updated landscaping plans.</i>
<i>2.0</i>	<i>16 March 2026</i>	<i>Amendments to species enhancements following comments from the client and receipt of lighting strategy.</i>
<i>1.0</i>	<i>3 March 2026</i>	<i>Original</i>

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Declaration of compliance

This Biodiversity Enhancement Strategy has been undertaken in accordance with British Standard 42020:2013 “Biodiversity, Code of practice for planning and development”.

The information which we have provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management’s (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.



MKA Ecology Ltd is a CIEEM Registered Practice. This means that MKA Ecology Ltd are formally recognised for high professional standards, working at the forefront of our profession.

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1. INTRODUCTION

1.1. Aims and Objectives

This Biodiversity Enhancement Strategy will provide specifications to enable the maintenance and enhancement of key ecological features at Ickleford Mill, Hertfordshire. The aims are:

- To ensure that no harm comes to potential protected species or habitats onsite and that all precautionary and prescribed measures take place; and
- To create, maintain or enhance habitats, detailing how a measurable net gain in biodiversity will be accomplished, when it will be delivered and how it will be managed.
- To create, maintain and enhance features of benefit to protected species known to be present within the local area, as well as providing general enhancements for the wider benefit of local flora and fauna.
- To provide guidance on how the proposed features must be managed and maintained.

This Biodiversity Enhancement Strategy is required in order to discharge conditional requirements, issued by North Hertfordshire District Council. Condition 38 and 39 of the planning application state:

“A landscape and ecological management plan (LEMP) shall be submitted to, and be approved in writing by, the local planning authority prior to the commencement of the development. The content of the LEMP shall deliver a net gain in habitat units from a combination of on and offsite measures to achieve a measurable net gain to biodiversity and include the following.

- a) Description and evaluation of features to be managed.*
- b) Ecological trends and constraints on site that might influence management.*
- c) Aims and objectives of management.*
- d) Appropriate creation and management options for achieving the required number of ecological units as detailed in approved metric (including species mixes).*
- e) Prescriptions for management actions which must correspond with and directly reference the habitat and condition scores in the approved metric.*
- f) Preparation of a 5 year work schedule (including an annual work plan) capable of being rolled forward in perpetuity i.e. 30 years, with habitats clearly marked on plans.*
- g) Ongoing monitoring and reporting schedule, with assessment and triggers for remedial measures.*
- h) Required actions should habitat areas fail to reach stated condition in the approved metric.*
- i) Details of the body or organisation responsible for implementation of the plan.*
- j) Details of integrated bird and bat boxes, make, model and location.*

The LEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body(ies) responsible for its delivery. The plan shall also set out (where the results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme. The approved plan will be implemented in accordance with the approved details.

No development shall commence (other than demolition works) until full details of the following have been submitted to and approved in writing by the local planning authority:

- (i) a site-wide wildlife-sensitive lighting scheme;*
- (ii) hedgehog friendly boundary treatments;*
- (iii) the provision of 20 bat boxes.*

Thereafter, the development shall be implemented in accordance with the approved details and retained in perpetuity.”

This Biodiversity Enhancement Strategy is submitted pursuant to these conditions.

1.2. Management responsibility

Management of all habitats and other ecological features at Ickleford Mill, will be the responsibility of the Landscape Management Contractor, appointed by The Adopting Organisation a nominated management company) following completion of the project.

1.3. Timescales for implementation

The exact date of construction completion is not known at this stage; however it is anticipated that this will be completed by January 2029.

1.4. Existing site ecology

Pre-application discussions were held with the Local Planning Authority (LPA) to agree the approach to Biodiversity Net Gain (BNG) (MKA Ecology Ltd, 2026a). As the outline permission predates mandatory BNG requirements and establishes the site's baseline framework, it was agreed that the use of the 2022 survey data, assessed using Biodiversity Metric 3.0, provides a proportionate and appropriate basis for the Statement of Compliance. This approach enables measurable net gain to be robustly demonstrated while remaining consistent with the established planning context.

An updated Preliminary Ecological Appraisal and Preliminary Roost Assessment was undertaken on 1 October 2025 by MKA Ecology Ltd (2026b). The 2025 survey confirmed that the majority of habitats remain consistent with the 2022 baseline; however, where changes have occurred these have been referenced where relevant within this report. After the granting of outline planning approval, the grassland to the south was retained and a reduced intensity of management has since been carried out, allowing the quality of the grassland to improve. This is recognised as a post-development enhancement, although no advance habitat creation multiplier is included, following a precautionary approach.

The baseline habitats at the site are presented in Figure 1, Appendix 1 (Maydencroft, 2022). The site comprises a decommissioned flour mill with 46 buildings and structures, extensive hardstanding, and the River Oughton flowing west to east through its centre. To the south of the river are areas of grassland, woodland, and lines of trees, while to the north small vegetated parcels surround the buildings and hardstanding, including woodland, grassland, garden vegetation, hedgerows, and trees. The Site covers a total of 3.59 hectares.

The area of grassland to the south of the River Oughton is designated as Green Belt and will not be developed on, instead being used to provide biodiversity enhancements and public open space. The onsite woodlands, grassland and linear features such as hedgerows, lines of trees and the River Oughton are suitable to support foraging and commuting bats. The survey found that there was high potential for common breeding bird species as the trees and buildings all provide suitable habitat for breeding birds. The grassland, woodland, introduced shrub and hedgerows all provide suitable foraging, commuting, and sheltering habitat for hedgehogs.

1.5. Proposed site ecology

The proposed development will involve the demolition of all onsite buildings and the construction of 55 new residential dwellings with associated hardstanding and garden habitats. This will involve the removal of the current structures and habitats to the north of the site.

Several biodiversity enhancements will be included. Proposed habitats include areas of modified grassland (amenity grassland) creation and enhancement of other neutral grassland (wildflower grassland) creation, scrub (native buffer/shrub) creation, ground-level planter creation, tree planting, native hedgerow creation and ornamental hedgerow creation.

Additional features such as bird and bat boxes will be attached to mature trees/integrated into the new buildings. Hedgehog-friendly fencing will also be included to retain habitat connectivity.

The soft landscaping plans are shown in Appendix 1: Figure 2: Proposed habitats and soft landscaping at Ickleford Mill and the biodiversity enhancement features are shown in Appendix 1: Figure 3: Location of enhancement features at Ickleford Mill

These biodiversity enhancements are in line with the National Planning Policy Framework which details that ecological enhancements should aim to deliver biodiversity gains for the proposed development site. Additionally, the Biodiversity Net Gain assessment (MKA Ecology Ltd, 2026) confirms that the proposed development is expected to lead to a measurable net gain in habitat units of 2.68% and a 198.23% increase in hedgerow units. This will be largely due to the enhancement of the retained modified grassland, to the south of the site, to other neutral grassland in moderate condition. The inclusion of other areas of wildflower meadow, shrub planting and individual trees provides further enhancements throughout the proposed site. It is anticipated that these measures will serve to deliver a sustainable development.

2. ESTABLISHING NEW ECOLOGICAL FEATURES

Following the issue of the updated National Planning Policy Framework (NPPF) on 12 December 2024, all planning decisions should aim to maintain and enhance, restore or add to biodiversity and geological conservation interests, and provide net gains in biodiversity where possible.

The Biodiversity Enhancement Strategy includes several new ecological features and is presented in Figure 2, Appendix 1. Other biodiversity enhancements, such as bird and bat boxes, are also to be included and specific recommended boxes are described in 7.2.

Ground-level planters (Ornamental planting beds) and ornamental hedgerows have a fixed condition within the Defra Biodiversity Metric 3.0 and are not considered further within this report.

The following ecological features will be enhanced or created at the site:

- Bird boxes
- Bat boxes
- Hedgehog boxes
- Enhanced habitats
- Created habitats

Each of these are discussed separately below, with sections describing the target structure for the site, and management up to one year after creation. Management of these habitats after a year's establishment is discussed in Section 4: Post-Development Management.

2.1. Bird nest boxes

Target structure

A minimum of 20 bird boxes will be installed at Ickleford Mill post-development. Suitable species which should be targeted with nest box provisions are detailed below, and recommended boxes can be found in Appendix 2.

- Fifteen generalist boxes (Vivara Pro Woodstone Seville Nest Box); five with a 32mm entrance hole, five with a 28mm entrance hole and five with an oval entrance hole.
- Five buildings identified as being suitable for swift boxes should have between 4 and 6 nest provisions, as swifts are colonial nesters and so several nest sites are required in one area.

Installation

The generalist bird boxes will be mounted onto the new buildings and suitable retained trees around the Site. These should be placed two to five metres up out of the reach of predators such as domestic cats, and out of direct sunlight facing between north and east. The proposed location of these boxes is shown in Figure 3: Location of enhancement features at Ickleford Mill

Swift nest boxes should be installed at least 5m high, around the eaves of buildings or under deeply overhanging eaves to allow swifts to drop into the air to forage. The boxes should be positioned away from climbing plants to avoid access for predators such as rodents.

2.2. Bat boxes

Target structure

A total of 20 bat boxes will be incorporated into the design. These will comprise five Schwegler 2FR Bat Tubes, Schwegler 1FR bat tubes or Vivara Pro Build-in Woodstone Bat Tubes, integrated into the walls of the new buildings. The choice of integrated bat box will depend on the design of the building and whether it will be finished with cladding or not, all of these boxes will be integrated behind the external cladding or bricks of the buildings and so are unobtrusive. Eight Schwegler 1FF, and seven Schwegler 2FN tree-mounted bat boxes or similar within trees along the southern and western boundaries.

Installation

The bat boxes will be integrated into the south-west and south-east aspects of the new buildings. These should be mounted and integrated between 3 to 6 m high. The tree-mounted boxes should allow for at least 3 m of free flying space below the box entrance for bats to fly up and into the box. Bat box entrances and surrounding areas should not be lit. The proposed location of these boxes is shown in Figure 3: Location of enhancement features at Ickleford Mill. The recommended bat box types are discussed in Appendix 2.

2.3. Hedgehog enhancements

Target structure and installation

Hedgehog highways, a 13cm x 13cm hole in the base of the fence, should be installed in the close board fences throughout the Site to increase connectivity for hedgehogs to the wider landscape. Fencing companies such as Jacksons Fencing and Knight Fencing provide gravel boards with these holes built in. Alternatively, they can be cut into existing fences after installation. The proposed locations of the hedgehog highways are shown in Figure 3: Location of enhancement features at Ickleford Mill

2.4. Lighting

Lighting is known to adversely affect bat foraging behaviour, along with negatively affecting other wildlife, including birds.

As stated within the bats and artificial lighting at night guidelines (ILP, 2023), it is recommended that lux levels for the dark corridor, woodland and bat box locations should not exceed **0.2 lux on the horizontal plane** or **0.4 lux on the vertical plane**. The project should aim to achieve these lux levels within and around these habitat features.

The lighting design at Ickleford Mill will be developed in line with the following principles:

- Minimise the lighting levels across the site;
- Column heights should be carefully considered to minimise light spill and glare visibility.
- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Minimise upward spill of light with the use of directional luminaires, shields, baffles and louvers to direct light where it is needed and prevent light being directed over and around the feature concerned;
- Maintain a 'dark corridor' along the River Oughton and avoid light spill onto surrounding habitats important to bats;
- Waymarking in-ground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.
- Consider the timings of lighting required, where possible, avoiding lighting in the hours immediately after dusk and before dawn when bats are most active.

Further information is available from The Institute of Lighting Professionals (2023) and The Bat Conservation Trust. For full details of the lighting proposals, please refer to the relevant lighting strategy plan.

2.5. Enhanced habitats – Other neutral grassland (existing rough grassland)

Target structure

The grassland to the south of the site was previously classified as modified grassland in poor condition (Maydencroft, 2022) and is to be enhanced to achieve other neutral grassland in moderate condition. The updated 2025 survey identified that this area is already consistent with other neutral grassland; however, the proposed enhancement measures will further improve species diversity and sward composition to align with the Biodiversity Net Gain (BNG) target condition.

It is recommended that EM3 Special General Purpose Meadow Mixture (Emorsgate Seeds) is used to over-seed the retained grassland, where required, to increase floristic diversity and support delivery of the target habitat condition.

A table of management actions associated with target conditions for after the first year of establishment is provided in Section 3.4.

Enhancement approach

Scarify the existing grassland to create opportunities for the new seed to come into contact with the soil. The suggested sowing rate for EM3 is 40kg/ha. Sowing rates can be reduced to 20kg/ha for large-scale projects. Seed is best sown in the autumn or spring. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution, divide the seed into parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

Management (First Year)

Most of the sown meadow species are perennial and are slow to establish. Soon after sowing, there may be a flush of annual weeds, arising from the soil seed bank. Resist cutting the annual weeds until mid to late summer, as they will offer shelter to the sown seedlings, are good for invertebrates, and they will die off. Cut and remove all arisings in early August. This will reveal the young meadow, which can then be kept short by mowing through to the end of March of the following year, if required. Dig out any residual perennial weeds, such as docks.

2.6. Created habitats – Other neutral grassland (Wildflower grassland)

Target structure

Two types of wildflower grassland are proposed to be created to the west of the Site. These include a wetland seed mix using EM8 Meadow Mixture for Wetlands and a general seed mix using EM2 Standard General Purpose Meadow Mixture, from Emorsgate Seeds. The target habitat and conditions for these areas of wildflower grassland are other neutral grassland in moderate condition.

A table of management actions associated with target conditions for after the first year of establishment is provided in Section 3.5

Creation approach

To prepare a seed bed, first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

Sowing on ground prone to winter flooding is safest either in the early autumn or in spring, once the land has drained. Most plants need time to grow mature enough to withstand flooding.

The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.

Management (first year)

Most of the sown meadow species are perennial and are slow to establish. Soon after sowing, there may be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for invertebrates. Resist cutting the annual weeds until mid to late summer. Then cut, remove and compost the cuttings. This will reveal the young meadow, which can then be kept short by mowing through to the end of March of the following year. Dig out any residual perennial weeds, such as docks.

2.7. Created habitats – Modified grassland (biodiverse amenity grass)

Target structure

Two types of amenity grassland are proposed to be created to the west of the Site and along the north of the river. These include a biodiverse amenity grassland, using EG22 Strong Lawn Grass Mixture and EL1F Flowering Lawn Mixture, from Emorsgate Seeds, and a species-poor amenity grassland, using E3 Universal Turf from Barenbrug and EG22 Strong Lawn Grass Mixture from Emorsgate seeds. The target habitat and conditions for these areas of amenity grassland are modified grassland in poor condition for general amenity areas and moderate condition for biodiverse amenity areas.

A table of management actions associated with target conditions for after the first year of establishment is provided in Section 0.

Creation approach

The strong lawn grass mixture is best sown in spring or autumn. To prepare a seedbed, first remove weeds, then cultivate the soil with a rotovator, harrow or rake to bury the surface vegetation and to produce a medium tilth. Finish by rolling, or treading, to produce a firm surface. To produce an even surface, leave the ground to settle for several days or weeks, to allow the soil to settle. It also gives another opportunity to control any residual weeds which emerge during this time.

The flowering lawn mixture is best sown in the autumn, into existing grassland, which should be surface sown and can be applied by machine or broadcast by hand. Prepare the ground for sowing in late summer by cutting and creating gaps either with harrows or by raking (aiming to create around 50% bare soil). To get an even distribution, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.

Management (first year)

Once seedling grasses are established, (typically three to four weeks after sowing, in good growing conditions), lightly roll or tread to firm and level the soil around the grass roots, ready for the first cut. If the ground is saturated with water, do not roll. After a week, or when the ground is no longer saturated, the grassland will be ready for its first cut. Cut with the mower set on a high setting (50mm +), aiming to trim the sown grass back by about one-third of its height and cut back any weeds. Thereafter, mow the grassland regularly as needed, progressively reducing the mowing height over its first spring/summer to the desired height (Guarda Landscape, 2026b).

A new sown lawn will take a full year or more to reach full ground cover. Heavy use that might cause wear and tear should be avoided. Temporary fencing and signage should be used where necessary.

2.8. Created habitats – Mixed scrub (native buffer/shrubs)

Target Structure

The native buffer and native shrub mixes will comprise the following species, common dogwood *Cornus sanguinea*, common hazel *Corylus avellana*, common hawthorn *Crataegus monogyna*, common spindle *Euonymus europaeus*, common crab apple *Malus sylvestris*, dog rose *Rosa canina*, wayfaring tree *Viburnum lantana*, and guelder rose *Viburnum opulus*. The target habitat and condition for the native buffer and shrubs is mixed scrub in moderate condition.

Creation approach

To achieve a friable, weed-free tilth, remove all perennial weeds by mechanical cultivation. Cultivate planting areas to a minimum 300 mm depth, where soil is compacted. Where the soil is demonstrably poor, incorporate organic matter.

Planting should occur during the dormant season (November to March). Plants shall be delivered to the site only when planting areas are ready. On delivery, check plants for damage, disease, and dry roots. Bare-root plants must be kept moist at all times. If planting is not immediate, plants should be heeled into a temporary trench or stored in sealed bags in a cool, shaded location. Roots must never be allowed to dry out or be exposed to wind or sun.

Plants should be arranged in a random, naturalistic pattern, avoiding straight lines. Species shall be grouped in small clusters (typically 3–5 of the same species) to mimic natural scrub.

For whips, use a notch planting method, using a sharp spade to cut a vertical slit in the soil. For larger transplants or container plants excavate a pit at least twice the root spread, no deeper than the root depth. Ensure that the roots are not bent upwards (J-rooting) upon placement of the plant. The point where the stem meets the roots (root collar) must sit level with the surrounding ground. Return soil around the roots, gently firming into place.

To ensure survival and establishment, 60 cm spiral rabbit guard should be fitted over each whip. Follow the approved Landscape Management and Maintenance Plan (Guarda Landscape, 2026b) for mulching, watering and general maintenance.

Management (first year)

Within the first growing season, planting should be inspected monthly during the first spring/summer. Any loosened plants should be re-firmed, any dead or severely damaged stock should be replaced promptly, and mulch zones should be kept weed-free. Refer to the approved Landscape Management and Maintenance Plan (Guarda Landscape, 2026b) for pruning.

2.9. Created habitats – Urban trees (tree planting) and native hedgerows

Target Structure

Of the 46 trees to be planted, 24 will be native, 11 will be ornamental cultivars, and 11 will be non-native. Of these, 14 are expected to achieve poor condition, and 32 are expected to achieve moderate condition based on their planting location and species.

Eleven native hedgerows of varying lengths will be created as part of the development. To be classified as a native hedgerow under the Defra Biodiversity Metric 3.0, the species must comprise at least three of the following species: blackthorn *Prunus spinosa*, common beech *Fagus sylvatica*, common hazel

Corylus avellana, common hawthorn *Crataegus monogyna*, or common hornbeam *Carpinus betulus*. The target condition for the native hedgerows is poor. This conservative approach was taken to allow for varied management strategies on different hedgerows, depending on their location.

Creation approach

Planting positions shall follow the approved drawings (Guarda Landscape, 2026a). Planting should occur during the dormant season (November to March). Plants shall be delivered to the Site only when planting areas are ready. On delivery, check plants for damage, disease, and dry roots. Bare-root plants must be kept moist at all times. If planting is not immediate, plants shall be heeled into a temporary trench or stored in sealed bags in a cool, shaded location. Roots must never be allowed to dry out or be exposed to wind or sun.

The semi-mature common lime shall be planted in accordance with best arboricultural practice, in suitably prepared planting pits sized to accommodate the rootball without distortion, set with the root collar at finished ground level, backfilled with retained topsoil, firmly consolidated, securely staked and tied, mulched, and thoroughly watered in on completion.

Management (first year)

Refer to the approved Landscape Management and Maintenance Plan (Guarda Landscape, 2026b) for general tree maintenance during establishment.

2.10. Establishing new ecological features timings

An indication of the timings for the ecological management actions to be undertaken at the site post-development is shown in Table 1. These should be used to inform management practices at the site.

Table 1: Establishing new ecological features timings

Activity	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Establishment of bird boxes	One												
Establishment of bat boxes	Once												
Establishment of hedgehog enhancements	Once												
Enhancement and management of existing rough grassland	First year												
Establishment of wildflower grassland													
Establishment of amenity grassland													
Establishment of hedgerows, native scrub and trees													

3. POST-DEVELOPMENT MANAGEMENT

The new and enhanced ecological features require specific management once established. Management up to one year was discussed in the previous section. This section discusses management up to and after 5 years for the following habitats:

- Bird boxes
- Bat boxes
- Hedgehog enhancements
- Enhanced habitats
- Created habitats

3.1. Bird boxes

Nest boxes should be cleaned at the end of each bird breeding season. All nesting material and other debris should be removed from the box. It should then be scrubbed clean with boiling water to kill any parasites (avoid using any chemicals). Once the box is clean, it should be left to dry out thoroughly. Under the Wildlife and Countryside Act 1981 it is an offence to disturb breeding birds, and therefore annual cleaning is best undertaken from October to January when there is no risk of disturbing breeding birds. Ideally, bird nest boxes should be cleaned in October to prevent the build-up of nest parasites in the boxes whilst avoiding the risk of disturbing birds that may use the boxes as a roost site during the cold winter months.

3.2. Bat boxes

The proposed bat boxes are self-cleaning, and maintenance is not likely to be needed. A special licence is required in the UK to disturb and handle bats and therefore, the cleaning of bat boxes should be managed carefully. An annual check should be made each winter to ensure that all the mounted boxes are still in position and secure.

MKA Ecology Ltd can monitor the use of bat boxes, should you wish to maintain a record, or your local bat group may be able to assist with the work.

3.3. Hedgehog enhancements

The hedgehog highways should be checked regularly to ensure that they are not blocked with vegetation or other obstructions.

3.4. Enhanced habitats – Other neutral grassland

The tables below set out condition targets for the proposed habitats at Ickleford Mill, and the management methods to be undertaken to reach each target. Targets are set using the Defra Biodiversity Metric 3.0 condition assessment criteria. For each habitat, target condition scores are presented, followed by detailed methods for management.

Table 2: Target Habitat: Other neutral grassland (existing rough grassland)

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.	Pass	Cut a summer hay-crop (mid-July to early August) to a height of 50-75mm. Rake up all arisings after 7 days (allowing time for seeds to disperse) and remove off site. Over-seeding methods to be used in smaller species-poor areas by process of scarification and application of an appropriate seed mix.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail	Conservative target score.
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	To be maintained by digging out any perennial weeds, such as nettles, thistles, and docks. Remove by hand and leave small areas of ground to re-colonise naturally. Larger areas may need to be re-seeded.
4	Cover of bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%.	Pass	Bracken and scrub encroachment, if present, is to be reduced to below threshold levels by cutting to reduce the cover of bracken and open up the stand for natural regeneration.
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging	Pass	Maintained by targeted management where required.

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
	management activities) accounts for less than 5% of total area.		
Condition		Moderate	Time to target condition: 10 Years

3.5. Created habitats – Other neutral grassland (Wildflower grassland)

Table 3: Target Habitat: Other neutral grassland (wildflower grassland)

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.	Pass	Cut a summer hay-crop (mid-July to early August) to a height of 50-75mm. Rake up all arisings after 7 days (allowing time for seeds to disperse) and remove off site. Over-seeding methods to be used in smaller species-poor areas by process of scarification and application of an appropriate seed mix.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail	Conservative target score. Each wildflower area is to be cut in blocks on a two-week cycle to allow for wildlife refuge and the development of a greater diversity of wildflowers (as each sets seed at different times).
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	To be maintained by digging out any perennial weeds, such as nettles, thistles, and docks. Remove by hand and leave small areas of ground to re-colonise naturally. Larger areas may need to be re-seeded.
4	Cover of bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%.	Pass	Bracken and scrub encroachment, if present, is to be reduced to below threshold levels by cutting to reduce the cover of bracken and open up the stand for natural regeneration.
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species ¹ and physical damage (such as excessive poaching,	Pass	Maintained by targeted management where required.

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
	damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.		
Condition		Moderate	Target time to condition:

3.6. Created habitats – Modified grassland (biodiverse amenity grass)

Table 4: Target Habitat: Modified grassland (biodiverse amenity grass)

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
1	There must be 6-8 species per m ² . Note - if a grassland has 9 or more species per m ² it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	Pass	Relax mowing for 4-8 weeks from mid-May onwards, to allow species to flower. Continue mowing from late July/August until the end of the growing season. Collect arisings at each cut.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail	Conservative target score. Regular mowing regime in place.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Pass	Scrub encroachment, if present, is to be reduced to below threshold levels by cutting to reduce the cover and open up the stand for natural regeneration.
4	Physical damage is evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Fail	Conservative score. To be reduced to below threshold levels, if present, via re-seeding, by process of scarification and application of an appropriate seed mix.
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	To be maintained by digging out any perennial weeds, such as nettles, thistles, and docks. Remove by hand and leave small areas of ground to re-colonise naturally. Larger areas may need to be re-seeded.

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
6	Cover of bracken less than 20%.	Pass	Bracken encroachment, if present, is to be reduced to below threshold levels by cutting to reduce the and open up the stand for natural regeneration.
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass	Maintained by targeted management where required.
Condition		Moderate	Target time to condition:

3.7. Created habitats – Modified grassland (amenity grass and bulbs)

Table 5: Target Habitat: Modified grassland (amenity grass and bulbs)

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
1	There must be 6-8 species per m ² . Note - if a grassland has 9 or more species per m ² it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	Fail	Amenity grass will be regularly mown through spring, summer and autumn, collecting the arisings each time.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail	Amenity grass will be regularly mown through spring, summer and autumn, collecting the arisings each time.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Pass	Scrub encroachment, if present, is to be reduced to below threshold levels by cutting to reduce the cover and open up the stand for natural regeneration.
4	Physical damage is evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Pass	To be reduced to below threshold levels, if present, via re-seeding, by process of scarification and application of an appropriate seed mix.

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Fail	Likely to fail due to pedestrian usage.
6	Cover of bracken less than 20%.	Pass	Bracken encroachment, if present, is to be reduced to below threshold levels by cutting to reduce the and open up the stand for natural regeneration.
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass	Maintained by targeted management where required.
Condition		Poor	Target time to condition:

3.8. Created habitats – Mixed scrub (native buffer/shrubs)

Table 6: Target Habitat: Mixed scrub (native buffer/shrubs)

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Pass	Planting schedule to use a mix of species in relatively even percentages, with species specific management (Guarda Landscape, 2026b).
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Fail	Habitat is likely to be planted at the same time with plants of the same age.
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass	Maintained by targeted management where required.
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Pass	Wildflower grassland areas, adjacent to scrub, are to have relaxed mowing in the summer. Grassland immediately adjacent to scrub habitat will be allowed to grow to a taller sward.
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Fail	Areas of scrub are likely to be too small for clearings, glades or rides.

Condition Assessment Criteria	Target score	Management approach (2-5 years plus)
Condition	Moderate	Target time to condition:

3.9. Created habitats – Urban trees (tree planting)

Table 7: Target Habitat: Urban trees (tree planting - 24 native trees)

Condition Assessment Criteria	Target score	Management approach (2-5 years plus)
1 More than 70% of trees are native species.	Pass	n/a
2 Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Pass	Young trees to be pruned to encourage a strong leader and an even, open crown.
3 More than 50% of trees are mature ² or veteran ³ .	Fail	Trees are not expected to mature within given timeframe.
4 There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Pass	Pruning only to occur if trees become diseased or rotten.
5 Management regime has encouraged micro habitat sites for birds, mammals and insects e.g. presence of deadwood, cavities or loose bark etc.	Fail	Veteranisation not part of the proposed management regime.
6 Trees are immediately adjacent to other vegetation, and tree canopies are oversailing vegetation beneath.	Pass	Expected to pass based on current landscaping plans.
Condition	Moderate	Target time to condition:

Table 8: Target Habitat: Urban trees (tree planting - 8 ornamental/non-native trees)

Condition Assessment Criteria	Target score	Management approach (2-5 years plus)
1 More than 70% of trees are native species.	Fail	n/a
2 Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Pass	Young trees to be pruned to encourage a strong leader and an even, open crown.
3 More than 50% of trees are mature ² or veteran ³ .	Fail	Trees are not expected to mature within given timeframe.

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
4	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Pass	Pruning only to occur if trees become diseased or rotten.
5	Management regime has encouraged micro habitat sites for birds, mammals and insects e.g. presence of deadwood, cavities or loose bark etc.	Fail	Veteranisation is not part of the proposed management regime.
6	Trees are immediately adjacent to other vegetation, and tree canopies are oversailing vegetation beneath.	Pass	Expected to pass based on current landscaping plans.
Condition		Moderate	Target time to condition:

Table 9: Target Habitat: Urban trees (tree planting - 14 ornamental/non-native trees)

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
1	More than 70% of trees are native species.	Fail	n/a
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Pass	Young trees to be pruned to encourage a strong leader and an even, open crown.
3	More than 50% of trees are mature ² or veteran ³ .	Fail	Trees are not expected to mature within given timeframe.
4	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Fail	Pruning only to occur if trees become diseased or rotten. However, a conservative approach is taken as some tree locations may require more pruning e.g. close to roads or footpaths.
5	Management regime has encouraged micro habitat sites for birds, mammals and insects e.g. presence of deadwood, cavities or loose bark etc.	Fail	Veteranisation is not part of the proposed management regime.
6	Trees are immediately adjacent to other vegetation, and tree canopies are oversailing vegetation beneath.	Pass	Expected to pass based on current landscaping plans.
Condition		Poor	Target time to condition:

3.10.Created habitats – Native hedgerows

Table 10: Target Habitat: Native hedgerows

Condition Assessment Criteria		Target score	Management approach (2-5 years plus)
A1	Height is >1.5 m along length	Fail	Hedgrows to be maintained at a height of 1.8 – 3m, depending on location. Conservative approach taken.
A2	Width is >1.5 m along length	Fail	Conservative score – hedge width is not outlined within the plans.
B1	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	Pass	Failing plants will be removed and replaced with a similar species.
B2	Gaps make up <10% of total length and no canopy gaps >5 m	Pass	Gaps may also be rejuvenated by laying or coppicing.
C1	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length, measured from outer edge of hedgerow, and is present on one side of the hedge (at least)	Fail	Conservative approach - Where space and character allows, a 2m wide uncultivated zone will be left.
C2	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail	Conservative score
D1	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	Maintained by targeted management where required.
D2	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	Maintained by targeted management where required.
Condition		Poor	Target time to condition:

3.11. Post development management timings

An indication of the timings for the ecological management actions to be undertaken at the site post-development is shown in Table 11. These should be used to inform management practices at the site.

Table 11: Post development management timings

Activity	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maintenance of bird boxes	Annual												
Maintenance of bat boxes	Annual												
Maintenance of hedgehog highways													
Other neutral grassland (enhanced and wildflower grassland)													
Modified grassland (Biodiverse amenity grassland)													
Modified grassland (amenity grassland)													
Mixed scrub													
Urban trees													
Native hedgerows													

Key

Appropriate timing of works	
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4. RISK REGISTER

This section is to be updated as part of the adaptive management strategy. Some examples of likely risks to be encountered and remedial measures are provided below.

Risk Identification Date	Habitat Type	Risk Factor	Trigger for Action	Remedial Measure
	Other neutral grassland (existing rough grassland)	Recreational pressure leading to an increased cover of bare ground.	>5% grassland is bare ground	Reduce mowing frequency and re-seed significant areas of bare ground. Consider protection measures if needed.
	Other neutral grassland (Wildflower grassland)	Grazing and mowing pressure leading to an increased cover of bare ground.	>5% grassland is bare ground	Reduce mowing frequency and re-seed significant areas of bare ground.
	Modified grassland (biodiverse amenity grass)	Species-poor composition	<6 species per m2	Re-seed with the appropriate seed mix and consider protection measures if needed.
	Mixed scrub (native buffer/shrubs)	Browsing pressure (deer, rabbits) is limiting growth	>25% of the planted area fails to establish	If protection tubes fail, trial different protection methods.
	Urban trees (tree planting)	Newly planted trees failing to establish	10% of targeted number of newly planted trees found to be dead during years 1-10.	Plant a larger number of trees initially as a contingency against some losses in the early years. Undertake a second round of planting, replacing failed specimens on a like-for-like basis

5. HABITAT MONITORING PLAN

A proposed monitoring plan is provided in the table below. Note that monitoring of all habitat types could feasibly be completed in a single visit completed in May or June, to minimise costs and increase efficiency.

Regular monitoring in the first five years of implementation, together with appropriate use of the Risk Register in Section 4, will identify any need to amend the management approaches outlined in this HMMP. Monitoring protocols will also be adjusted where necessary to ensure the right amount of evidence can be produced to both inform ongoing management, and demonstrate the target habitats and conditions are being achieved.

Habitat and activity	Frequency	J	F	M	A	M	J	J	A	S	O	N	D
Other neutral grassland (existing rough grassland, wildflower grassland as well as biodiverse and amenity grassland)													
Quadrat sampling to identify the habitat type that is establishing number of species per m ² . Estimate percentage of bare ground, scrub and bracken cover. Collect a botanical species list across grassland to check against target species list. Metric 3.0 condition assessments to be conducted from 5 th year onwards.	Annually, years 1, 3 and 5, then every 5 years.												
Mixed scrub (native buffer/shrubs) and native hedgerow													
Checks to assess the establishment and development of hedgerows, scrub and trees Metric 3.0 condition assessments to be conducted from 5 th year onwards.	Annually, years 1, 3, 5, then every 5 years.												

6. REFERENCES

Chartered Institute of Ecology and Environmental Management (2022) Code of Professional Conduct.

Guarda Landscape Ltd (2026a) *Outline Soft Landscape Proposals, GUA-XX-XX-DR-L-0003 P02*.
Guarda Landscape Ltd: Norwich

Guarda Landscape Ltd (2026b) *Maintenance and Management Plan DRAFT*. Guarda Landscape Ltd:
Norwich

Institute of Lighting Professionals (2023) *Guidance Note 8 – Bats and Artificial Lighting*. Available
online: <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>

MKA Ecology Ltd. (2026a) *Ickleford Mil, Herts – BNG Statement of compliance*. MKA Ecology:
Cambridge.

MKA Ecology Ltd. (2026b) *Ickleford Mill - Preliminary Ecological Appraisal and Preliminary Roost
Assessment*. MKA Ecology: Cambridge.

North Hertfordshire District Council (2019) *Local Plan 2011–2031*. Adopted November 2019.

7. APPENDICES

7.1. Appendix 1: Creation and enhancement of ecological features at Ickleford Mill, Hertfordshire

Figure 1: Baseline Habitat condition map of Ickleford Mill, Hertfordshire (Maydencroft, 2022).



Figure 2: Proposed habitats and soft landscaping at Ickleford Mill (Guarda Landscape, 2026a)

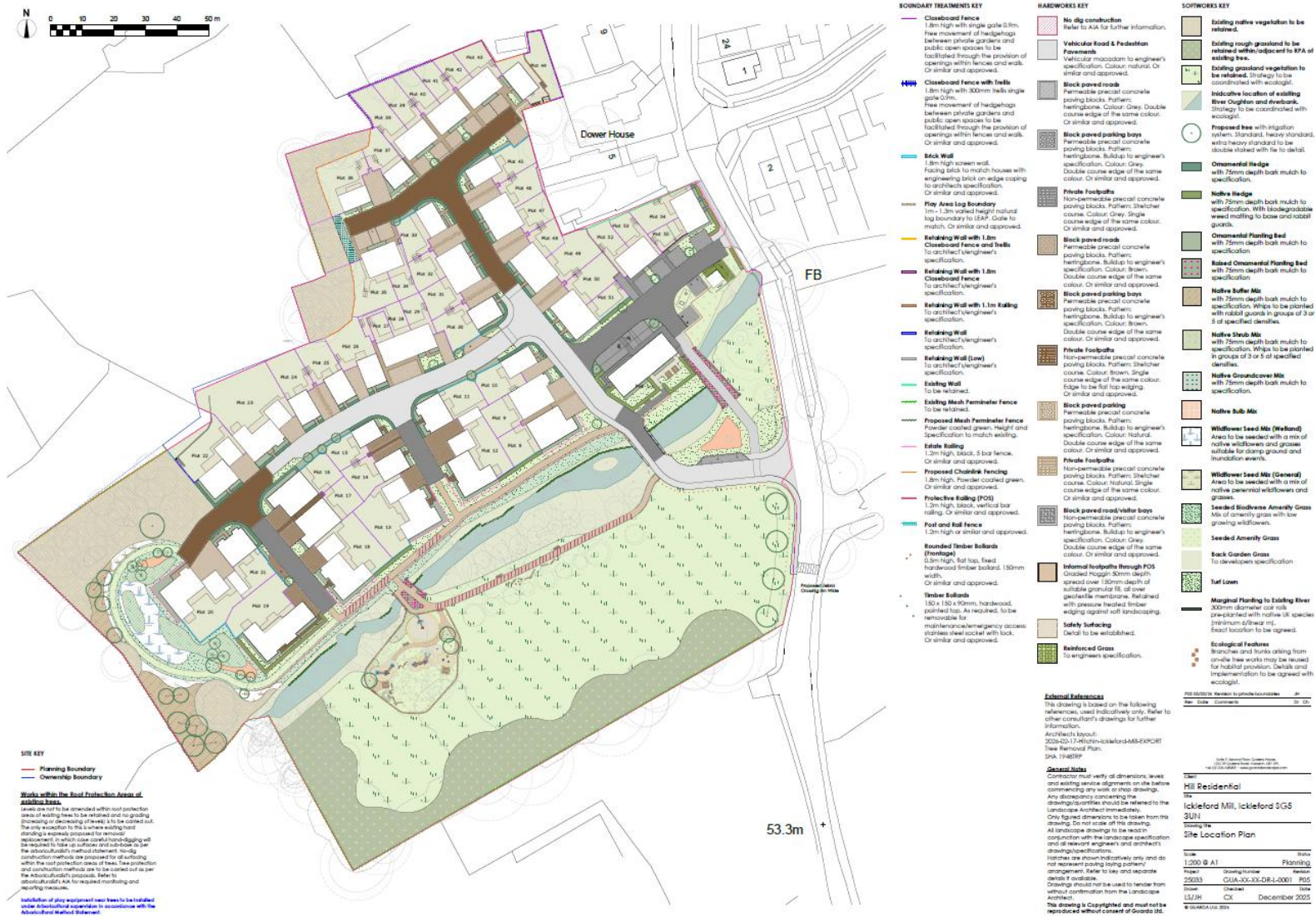
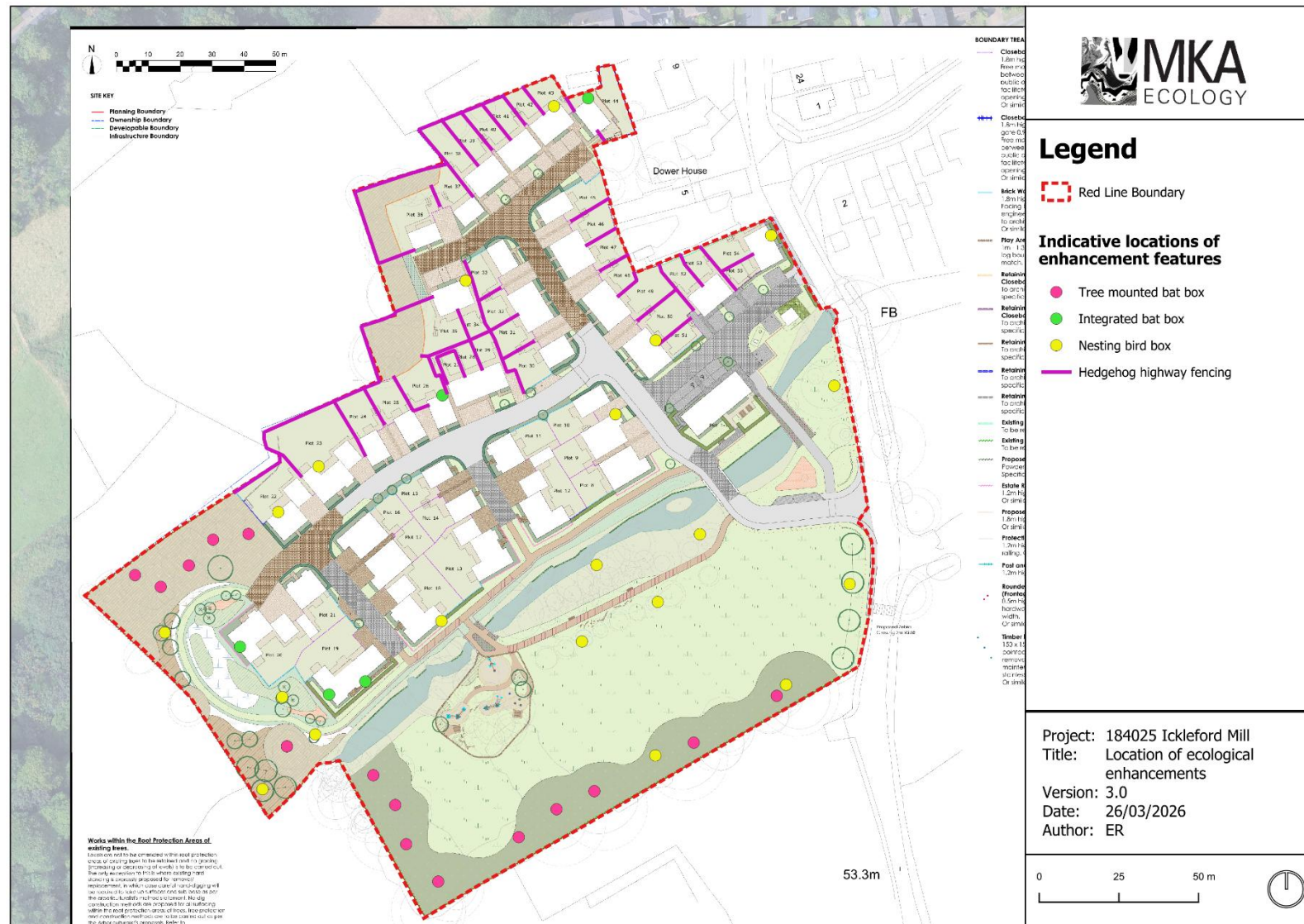


Figure 3: Location of enhancement features at Ickleford Mill



7.2. Appendix 2: Bird, bat and hedgehog box and bug hotel recommendations

Bird boxes

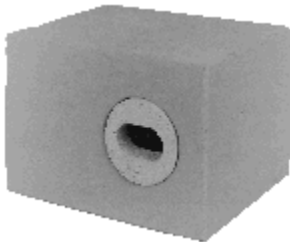
Swift boxes

Swifts are colonial nesters and it is important to have several nest sites in one area. It is recommended that the five buildings identified as being suitable for swift boxes should have between 4 and 6 nest provisions. Swifts also feed almost exclusively on the aerial plankton of flying insects and airborne spiders of small to moderate size, so therefore require habitats which support these invertebrates.

Swifts typically nest in flat spaces within buildings or within a crevice or cavity. The ideal nest box should have an oval or rectangular hole around 30mm (h) x 65mm (w). The internal dimensions of the box should be approximately 400mm (w) x 200mm (d) x 150mm (h).

Swifts can be attracted to areas that they have not previously colonised using 'swift response calls'. Audio CDs are available for this purpose and are available on the Schwegler website (www.schwegler-nature.com).

Swift		
Example	Description	Picture
Swift S Brick	Introduction — S Brick (actionforswifts.com) Swift S bricks provide excellent nesting opportunities for swifts whilst fitting into the brickwork seamlessly without compromising the appearance of the building. The swift boxes will likely require an attraction call system for swifts. This can be set on timer and replays the tape of birds calling to attract them to the nest site, There is no set system for this, but assembly of parts can be achieved quite easily as outlined at this website: http://actionforswifts.blogspot.com/p/attraction-call-systems-for-swifts.html. The system can be purchased for about £30.	 

Swift		
Example	Description	Picture
lbstock Swift Box	www.lbstock.com This swift brick can be built into a wall on new buildings.	
Woodstone Build-in Swift Box	https://gardenature.co.uk This nest box is made from a concrete and wood fibre mix. It can be mounted on a wall, or it can be built into the fascia of a wall. The front of the Woodstone swift box can be removed for cleaning. It should be fitted at least 5 metres above the ground ensuring there is an unobstructed flight path for birds entering and leaving the box.	
Schwegler Brick Box Type 25	www.schwegler-nature.com This brick design can be built into the wall of the new development and the external surface, excluding the hole, can be rendered to match the surrounding wall.	
Triple Genesis Swift Nest Box	https://www.wildcare.co.uk/ It can be mounted on an external wall to provide three swift nesting sites.	

Swift		
Example	Description	Picture
Swift box model 30	http://actionforswifts.blogspot.com/p/diy-swift-box-designs.html This box is suitable for any location as it has a double thickness, waterproof roof (made of uPVC). The 30° sloping roof should deter predators.	
Schwegler Swift Box Number 18	www.schwegler-nature.com This Swift Box No. 18 is ideally suited for creating Swift colonies under overhanging eaves.	

Generalist boxes

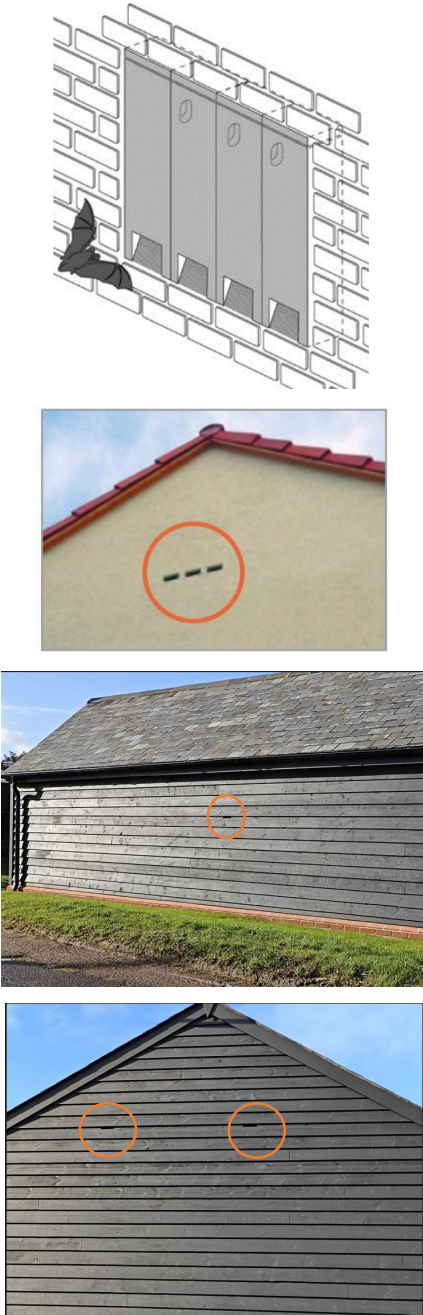
Boxes to attract garden birds and woodland breeding species such as tits, nuthatch, redstart and pied flycatcher can be placed in gardens, orchards, woodlands and a wide variety of other habitats. The species of birds attracted to the box will depend upon the size of the entrance hole (see table below).

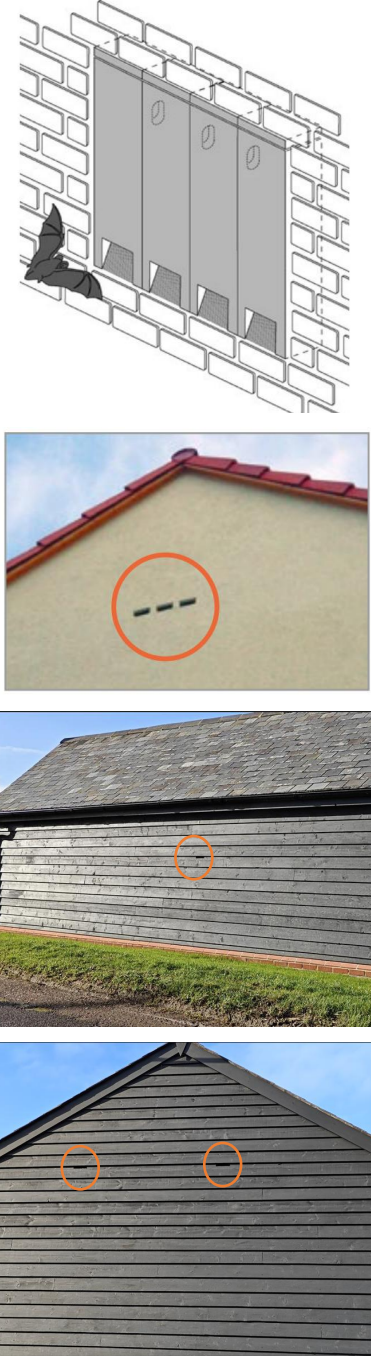
Example	Description	Picture
Vivara Pro Woodstone Seville Nest Box	Woodstone is constructed from a mix of concrete and wood fibres. This material provides insulation and predator protection. These boxes can be attached to trees, fences and houses by nail. http://www.vivarapro.co.uk/NK-SE-01-Nestkast-28mm	
	Entrance Hole size	Species
	28mm	Blue tits, coal tits, great tits and tree sparrows

Example	Description	Picture
	32mm	Great tits, tree sparrows, house sparrows and pied flycatchers
	Oval	Great tits, tree sparrows, house sparrows, and redstarts

Bat boxes

Example	Description	Picture
Schwegler 1FF	www.schwegler-nature.com Dimensions: 14(d) x 27(w) x 43(h) cm Weight: 9.9 kg Installation: Hanging This box is suitable for crevice dwellers, such as Nathusius' pipistrelle, Daubenton's bat and common pipistrelle. This box minimises temperature fluctuations in spring and autumn and is self-cleaning.	
2FN Schwegler Bat Box	www.schwegler-nature.com Dimensions: Outside diameter: Ø 16 cm. Height: 36 cm. Weight: approx. 4.9 kg. Installation: Hanging This box is suitable for Noctule and Myotis bat species. Best placed in woodland or parkland. It features two entrances, and has a domed roof. This box This box minimises temperature fluctuations in spring and autumn and is self-cleaning.	

Example	Description	Picture
2FR Schwegler Bat Tube	www.schwegler-nature.com Dimensions: 47(h) x 20(w) x 12.5(d) Weight: 9.8kg Installation: Can be installed on external walls – either flush or beneath a rendered surface in concrete and, during renovation work, under wooden panelling or in building cavities behind bricks and cladding. Several tubes should be installed together (recommended three). This box is ideal for all types of bats that inhabit buildings. By installing boxes side by side a colony roosts can be created with any size requirement. This box has three different environmental partitions inside, attracting different species. The box is self-cleaning.	

Example	Description	Picture
1FR Schwegler Bat Tube	www.schwegler-nature.com Dimensions: (h) 47 x (w) 20 x (d) 12.5 Weight: 9.8kg Installation: Can be installed on external walls – either flush or beneath a rendered surface, in concrete and, during renovation work, under wooden panelling or in building cavities behind bricks and cladding. Comes as a single tube. This box is ideal for all types of bats that inhabit buildings and is designed as a summer roost. It provides a variety of roosting features and is designed to maintain climatic conditions inside. It is self-cleaning and weather-resistant.	 The picture section for the Schwegler Bat Tube includes a technical diagram at the top showing three tubes installed in a brick wall, with a bat silhouette indicating the entrance. Below the diagram are three photographs: the first shows a close-up of a single tube on a light-colored rendered wall with an orange circle highlighting the entrance; the second shows a tube installed on a dark wooden shingle wall with an orange circle highlighting the entrance; the third shows two tubes installed on a dark wooden shingle wall with orange circles highlighting the entrances.
Vivara Pro Build-in Woodstone Bat Tube	https://www.nhbs.com/ib-vl-05-vivara-pro-build-in-woodstone-batbox Dimensions: 21cm (W) x 50cm (H) x 7.7cm (D) Designed to be built in to the masonry of external walls or beneath a rendered surface, bricks or cladding and provides the maximum	 The picture shows a single, dark brown, rectangular bat tube standing vertically. It has a small, horizontal entrance slot near the bottom.

Example	Description	Picture
	internal space across two cavities. It is manufactured from hard-wearing WoodStone and plywood with removable side panels so that several boxes can be placed side by side. WoodStone is a mixture of sawdust from FSC wood sources and concrete, and it is designed to last for years. It is breathable so there are no condensation problems and Woodstone maintains a consistent temperature inside, providing excellent insulation for roosting bats. This tube requires no maintenance as droppings fall out of the entrance ramp.	

Integrated bat boxes in a timber clad building







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