High Street, Shafton

Biodiversity Enhancement Management Plan

Vistry Partnerships

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1. Introduction

Purpose and Scope

1.1.1 This document has been prepared on behalf of Vistry Partnerships to support a full planning application for the proposed development of 40 residential dwellings with surrounding gardens, driveways, access roads, soft landscaping, and public open space within land off High Street, Shafton (central BNGR: SE 39372 10881).

1.1.2 This biodiversity enhancement management plan (BEMP) has been produced to discharge draft planning condition 11 (below) and contains details of the long term management of ecological mitigation and sets out the following information:

- Purpose and conservation objectives for the proposed works.
- Existing baseline and constraints.
- Design(s) and/or working method(s) to achieve stated objectives.
- Details on the establishment of hedgerow planting on the site.
- Type and source of materials to be used where appropriate, e.g. native species of local provenance.
- Timetable for implementation demonstrating that works are aligned with the proposed phasing of development.
- Persons responsible for implementing the works.
- Initial aftercare and long-term maintenance.
- Monitoring requirements

1.1.3 Draft planning condition 11, which states that:

"Prior to commencement of development a Biodiversity Enhancement Management Plan (BEMP) detailing the long-term management of the ecological mitigation in the approved Biodiversity Net Gain Assessment V2b, Envance May 2022 and Bat Transect Survey V2.0 Ecus January 2021 and the accompanying Biodiversity Metric 3.0 and Outline Landscape Proposals MR22-007/101 Rev D shall be submitted to and approved in writing by the Local Planning Authority. The development shall be implemented in accordance with the approved details."

Site Description and Project Summary

1.1.4 The Site is approximately 1.25 ha in area and is located in the village of Shafton, in the metropolitan borough of Barnsley, South Yorkshire (central BNGR: SE 39372 10881). It is largely surrounded by residential housing and playing fields. Statutory designated site Carlton Marsh LNR is located approximately 1.4km south-west of the Site. Non-statutory sites Rabbit Ings LWS, South Hiendley Common LWS, Bush Wood LWS are located 1.1km, 1.2km and 1.8km from the site respectively. Access to the Site will be via High Street to the south-west.

1.1.5 The proposed development is for the construction of 40 residential units of varying styles and sizes, together with associated ground works and access.

1.1.1 The site comprises a mosaic of poor semi-improved grassland, semi-improved grassland, semi-natural broadleaved woodland, dense scrub, ephemeral/short perennial vegetation, hedgerow habitats, a single dry pond and hard-standing (sealed concrete pathways and building foundations).

1.1.2 A single access road is planned to run through the central area of the site, providing access to the development off the main High Street.

1.1.3 Post-development, the site will comprise of residential buildings, hard-standing (buildings, roads and pathways) and vegetated gardens and landscaping around the residential dwellings (a mix of ornamental and native shrub planting, ornamental single species hedge planting, mixed native hedgerows, and low maintenance turf and rotavated rear gardens). Part of the grassland will be retained and enhanced with seeding, forming a public open space, and small patches across the site around residential dwellings will also be seeded. Six trees along the north-western perimeter of the site, and one tree at the eastern side of the site will be retained.

1.1.4 Newly created habitats not present during the baseline habitat survey include:

- **Native, Standard Tree Planting** - across the entirety of the site around residential dwellings.
- **Native Standard and Feathered Trees** - across the entirety of the site around residential dwellings.
- **Ornamental Single Species Hedges** - around residential dwellings around residential dwellings.
- **Mixed Native Hedgerow/WHIP Planting** - along the north-eastern boundary adjacent to the public open space, and along the south-western boundary next to the proposed pond area.
- **Native and Ornamental Shrub Planting** - across the entirety of the site around residential dwellings.
- **Heritage Grass and Wildflower Planting** - along the north-eastern side of the site within the grassland, with small patches of seeding across the entirety of the site around residential dwellings.
- **Low Maintenance Turf and Rotavated Rear Gardens** - across the entirety of the site, adjacent to residential dwellings.
- **Pond** - located at the south-western boundary, replacing the existing dry pond.

Planning Reports

1.1.6 Reports and plans either previously submitted, or to be submitted in support of the planning application for the development relevant to this BEMP are listed below:

- Ecus Ltd. (2021). High Street, Shafton - Bat Transect Survey v2.0.
- Envance (2022). High Street, Shafton – Biodiversity Net Gain Assessment v2b
- TEL Landscape Architects (2022) Outline Landscape Proposals MR22-007/101 Rev D
- TEL Landscape Architects (2022) Soft Landscape Specification MR22-007/102 Rev A

2. Mitigation and Enhancement Overview

2.1.1 Based on the recommendations within the ecological reports, Biodiversity Net Gain Assessment and Outline Landscaping Proposals this document focuses on the following receptors:

- Post-development habitats
- Birds
- Bats
- Hedgehogs
- Amphibians
- Reptiles
- Invertebrates

2.1.2 As the proposed development will result in the unavoidable net loss of 1.87 Habitat Units, the Biodiversity Net Gain report recommends that a range of on-site species-specific measures are implemented to ensure that the site's value and carrying capacity for locally important species is conserved, thereby meeting the requirements of the Barnsley Local Plan.

2.1.3 All enhancement and mitigation requirements will be achieved through the outline landscaping proposals and targeted actions for particular species.

Landscaping plan

2.1.4 The outline landscaping plan previously submitted is now superseded by the current iteration of the landscaping plan: 'Soft Landscape Specification' MR22-007/102 Rev A (Figure 1). The current version of the landscaping plan does include any major changes to any previously proposed habitat creations/enhancements.

2.1.5 The landscaping plan will retain six existing trees along the northern boundary of the site, and one tree located at the north-eastern boundary. Sections of existing boundary vegetation will be retained along the eastern boundary. Additional proposals to enhance biodiversity include:

- **Native, Standard Tree Planting** - Native standard trees will be planted around the development site to improve biodiversity, structure and interest through fruit, blossom and autumn colour. The planting of these trees will help to strengthen the boundaries, soften views in and out of the site and provide instant structure to street scene. The introduction of native trees will also increase the ecological value and biodiversity of the site.
- **Native Standard and Feathered Trees** – Native standard and feathered trees will be planted throughout the site to improve the site's aesthetic quality, soften boundaries, and provide screening between plots. The introduction of native standard and feathered trees will also increase the ecological value and biodiversity of the site.
- **Ornamental Single Species Hedge** – Throughout the development ornamental single species hedges will be planted to add structure to the street scene, improve biodiversity, and delineate private and public spaced within the site.
- **Proposed Mixed Native Hedgerow/WHIP Planting** - Native WHIPS (including evergreens) will be planted, acting as a future woodland buffer, along the north-eastern boundary. Native WHIPS will also be planted towards the south-west of the site. This will soften boundaries and create new habitats for wildlife, improve biodiversity, reduce views in and out of the site, and soften the site into the fabric of wider landscape. The planting of mixed native hedgerows at the eastern boundary will increase connectivity between existing boundary vegetation and the native and ornamental shrub planting at north-eastern boundary.
- **Proposed Heritage Grass and Wildflower Seed Mix** – Part of the existing grassland will be retained and enhanced through sowing with a low maintenance grass and

wildflower mix (Emorgate Seeds EM3 Seed mix). This will support existing grasslands and woodland at the boundaries and soften edges and assist in integrating the proposals into the wider landscape.

- **Proposed Native and Ornamental Shrub Planting** – Across the site, low growing, low maintenance shrub will be planted to add colour and structure, and to improve biodiversity and the aesthetic quality of the site. Evergreens, perennials ad ornamental grasses will be included in the mix and large species will help to soften border and boundaries.
- **Low Maintenance Turf and Rotavated Rear Gardens** – Low maintenance, hard-wearing, slow growing, drought-tolerant turf will be planted within front gardens and public open spaces. Within rear gardens, all soil will be rotavated to create free draining clear open space.
- **Habitat Pond** – A singular habitat pond to be constructed at the south-western boundary as mitigation for the loss of the dry pond in the north. It is expected that submergent, emergent and floating aquatic vegetation will establish, creating a semi-natural pond buffer.

2.1.6 The proposed landscaping scheme will increase the 'Urban Tree' cover within the site and retain existing hedgerow habitats along the south-eastern borders of the site and retain and improve part of the existing grassland habitat. Planting of trees and shrubs will use native tree and shrub understory planting.

2.1.7 A full planting schedule is provided in within the 'Soft Landscape Specification' (Ref.MR22-007/102 Rev A; Figure 1).

Species-Specific Biodiversity Enhancements

Amphibians

2.1.8 Within the public open space towards the north-east, and the public open space in the south-west, refugia and hibernacula will be constructed to provide suitable shelter for amphibians. Above and below ground versions of hibernacula are recommended, constructed of logs and debris concealed by a layer of topsoil.

2.1.9 An increase in invertebrate foraging resources is expected due to the pond construction and wildflower grass seeding. The addition of the pond will also provide suitable breeding habitats for amphibians such as great crested newt *Triturus cristatus*.

Bats

2.1.10 The site will be enhanced for bats through the provision of wildflower planting within the open public space that will support invertebrate prey, and by improving connectivity through additional planting of native hedges to the south-eastern boundary. Increase in the availability of invertebrate food sources will occur due to the wildflower grass seeding and the addition of the pond.

2.1.11 Fifteen bat boxes will be installed within the site, with 10 located upon residential dwellings, and five bat boxes will be installed upon the southern side of trees. It is recommended that the Schwegler 2F type boxes are used upon trees (3 towards the north-eastern side of the Site, and 2 towards the south and south-eastern areas), installed at least 3 m above the ground, on the tree's southern side.

2.1.12 Ten bat boxes will also be installed onto the side of residential dwellings. Five integral bat boxes (such as the Schwegler Bat Tube 1FR, or similar) will be integrated upon the southern

side of five separate residential dwellings and a further five external bat boxes (such as Greenwood's ecostyrocrete bat boxes, or similar) will be installed on an additional five residential dwellings.

2.1.13 The approximate locations of all bat boxes are shown in Figure 1. Both the integral/external building mounted bat box, and the tree-mounted bat box styles suggested are considered to be suitable for smaller species of bat, such as common pipistrelle *Pipistrellus pipistrellus;* which are most likely to be present and utilise the site for roosting.

2.1.1 It is also recommended that a bat sensitive street lighting plan for the site is developed to minimise the impact of artificial street lighting within the site on both foraging/commuting and roosting bats. As part of this plan all street lighting should endeavour to:

- Lack UV elements when manufactured – Metal halide and fluorescent sources should be strictly avoided.
- Use LED luminaires to reduce light intensity and improve efficiency of light cut-off, dimming capabilities and color retention.
- Use a warm white spectrum of light (<2700 Kelvin) in ordered to reduce blue light component. Red LED lighting is recommended as it is considered to be least disturbing to bat species.
- Have peak light wavelengths higher than 550nm (avoiding lighting types most disturbing to bats).
- Have an upward light ratio of 0% with good optical control.
- Be directed downwards using a narrow beam, illuminating the minimum required areas and avoiding unnecessary light spill.

2.1.2 Further guidance for bat sensitive lighting plans is provided within the guidance note developed by the Bat Conservation Trust (BCT 2018[1]). Guidance note 01/21 'The Reduction of Obtrusive Light' produced by the Institution of Lighting Professionals (ILP[2]) provides further advice of the installation of lighting in order to reduce potential light spill.

Birds

2.1.3 The retention of existing trees and the provision of additional trees and shrubs throughout the site will provide additional foraging and nesting resources for a range of local birds.

2.1.4 Wildflower grass seeding and the addition of the pond will provide an increase in valuable prey source for birds.

2.1.5 Integral and external bird boxes will be installed upon 25% of the dwellings (15 boxes in total; 10 integral boxes and 5 external boxes as detailed within . It is recommended that weatherproof integral bird boxes are installed in accordance with BS 42021:2022 and are suitable for swift *Apus apus;* and small passerines, such as those suitable for starling *Sturnus vulgaris*; great tit *Parus major;* blue tit *Cyanistes caeruleus*; and house sparrow *Passer domesticus;* (entrance holes a minimum of 30 x 65 mm, within 50 mm from the floor of the box, and constructed from materials which prevent high levels of humidity), placed at a height above 4 m. Swift specific boxes to be placed above 5 m. For external bird boxes, it is recommended that boxes suitable for small passerines are used, such as those suitable for

[1] BCT (2018) Bats and Artificial Lighting in the UK, Bats and the Built Environment Series, Guidance Note 08/18, Bat Conservation Trust & Institution of Lighting Professionals.
[2] ILP (2021) Guidance Note 01/21: The Reduction of Obtrusive Light, Technical Document, The Institute of Lighting Professionals

sparrow, blue tit, and robin.

2.1.6 There will be 5 external bird nest boxes installed onto trees within the Site; 3 towards the north-eastern side of the Site, and 2 towards the south and south-eastern areas. The approximate locations of all bird boxes are shown in Figure 1.

Hedgehogs

2.1.7 Hedgehog hotels will be installed in both public open spaces (north-east and south-west of the Site). It is recommended that hedgehog hotels are made out of a wooden box with a tunnelled entrance, filled with hay or straw.

2.1.8 Hedgehog access points to be created within boundary fencing at the north-eastern and south-western end of the Site. Access points should be approximately 13 x 13 cm, preferable with a shelter exit/entrance. This will allow movement of hedgehogs through the site.

2.1.9 The approximate locations of hedgehog hotels and access points are shown in Figure 1.

Invertebrates

2.1.10 Improvement of the grassland within the public open space through wildflower grass seeding will create an abundant food source for native invertebrates, providing a valuable prey resource for other species, such as bird and bats. The addition of the pond is expected to attract aquatic invertebrates into the area.

2.1.11 Insect hotels will also be incorporated into both public open spaces. It is recommended that insect hotels are constructed from bricks, wooden pallets filled with loose bark, sticks, straw and carboard in the gaps, small wooden tubes, and roof tiles which are placed on top.

2.1.12 The approximate locations of insect hotels and wildflower seeding is shown in Figure 1.

Reptiles

2.1.13 Refugia and hibernacula will provide suitable shelter for reptiles within both public open space towards the north-east and south-west side of the Site. Above and below ground versions of hibernacula are recommended, constructed of logs and debris concealed by a layer of topsoil.

2.1.14 An increase in invertebrate foraging resources is expected due to the addition of the pond, wildflower grass seeding and insect hotels.

2.1.15 The approximate locations of reptile refugia and hibernacula are shown in Figure 1.

3. General Management Requirements

3.1.1 General management practices to safeguard and enhance key habitats (e.g. hedgerows and mature trees) for the benefit of wildlife will be implemented during construction. The design and long-term management of the land seeks to maintain and improve functionality through protecting and enhancing potentially important wildlife corridors through additional planting of native species hedgerows, reinforcing existing hedgerows and planting of new woodland.

3.1.2 As natural habitats subject to low levels of management tend to be of greater value to a variety of species, this ecological design strategy aims to limit the level of management required once established.

3.1.3 The implementation of all measures will be the responsibility of the developer of the Site and/or the appointed contractor. Responsibility will be transferred to any subsequent site owner/operator including future residents, should ownership or operational responsibilities change hands during the lifetime of the project.

3.1.4 Retention and enhancement of existing native habitats along the north-eastern and south-eastern borders of the site will ensure that habitat resources suited to a range of local fauna are retained and developed throughout the construction and operational phases.

3.1.5 There will be clear delineation of working areas and access routes for vehicles entering the Site and instructions of these will be given to all site construction staff, delivery drivers and subcontractors. Wheel washing facilities will be provided on site.

3.1.6 A secure perimeter fence will be installed at the outset of construction. This will protect retained boundary features including hedgerows and trees from any encroachment from construction activities.

3.1.7 Any mature trees to be retained will be protected during the construction phase of the development to prevent works encroaching within the root protection zone in-line with BS 5837:2012 Trees in relation to design, demolition and construction. In the absence of security fencing: Heras, orange mesh or red tape fencing will be erected to create a physical barrier and prevent construction works encroaching on these habitats. Demarcation of root protection zones and retained vegetation will be in place prior to the commencement of construction works.

4. Native Hedgerow Planting

4.1.1 New mixed and single species native-species hedgerow planting will be undertaken along the south-eastern boundary, and single species hedgerows will be planted around residential dwellings, as indicated on the Outline Landscape Proposals and supplementary planting with native whips will also be undertaken along sections of existing native hedgerows along north-eastern and south-eastern boundary to close canopy gaps as shown on the Plan.

4.1.2 Planting will take place according 'Soft Landscape Specification' (Ref.MR22-007/102 Rev A; Figure 1). The proposed species mix for mixed native-species hedgerows is detailed in the **Table 1** below.

Table 1: Proposed species mix for mixed native-species hedgerows.

% Mix	Species
10%	*Corylus avellana*
50%	*Crataegus monogyna*
10%	*Prunus spinosa*
10%	*Rosa canina*
10%	*Ilex Aquafolium*
10%	*Viburnum opulus*

4.1.3 Hedgerow planting will be undertaken at 6 plants per linear m in a double staggered row. Once established this planting will provide a well-structured hedgerow of value for wildlife. Mixed hedgerows will generally be maintained at around 2.5 m (minimum 1.5 m) in height, single species ornamental hedgerows to be maintained at <1.5m.

4.1.4 All plants supplied shall comply with BS 3936: Parts 1 to 10 as relevant, and BS 4043, the National Plant Specification, published by the Horticultural Trades Association, as appropriate. Supplying nurseries will be registered under the HTA Nursery Certification Scheme. All plants will be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE. The ground will be cleared of weeds and grass via herbicide application, as specified within the herbicide handbook (English Nature, 20031) or hand-weeding. No use of chemicals within 10 m of the top of ditches or watercourses is to be undertaken.

4.1.5 Mycorrhizal inoculant (contractor's choice) to be applied to bare root plants before planting and a slow-release fertilizer will be added to the planting hole. All plants will be fitted with a 1m x 1m bio- degradable mulch mats fixed by bio-degradable plastic pegs. All plants will be watered in after planting.

4.1.6 Planting slots shall be made using a planting spade. Plant notches should be T-, H- or L- shaped, or straight notches, using spades of a design suitable for this purpose. The planting notches must be vertical and deep enough for the roots to hang freely, with the transplant being planted so that the root collar is exactly level with the ground surface. The notch must then be closed and the soil will be well firmed round the roots in line with the guidelines as set out in BS 4428 (1989).

4.1.7 New planting will be protected, where required, by an appropriate sized spiral rabbit guard fixed by a suitable cane.

4.1.8 The exact timing of the proposed hedgerow planting will be dependent on the ground conditions, but planting will take place between the months of November and March inclusive. Planting should avoid freezing and waterlogged conditions.

5. Tree Planting — Urban, Woodland and Hedgerow Trees

5.1.1 Planting of native and non-native tree species (regular and heavy-set standards and whips) is proposed throughout the site. Planting will take place according 'Soft Landscape Specification' (Ref.MR22-007/102 Rev A; Figure 1). The proposed tree species to be planted are listed below in **Table 2**:

Table 2: Proposed native tree species to be planted .

% Mix/Number	Species
Extra Heavy Native Trees	
2	*Prunus avium*
Standard (selected) Trees	
4	*Crataegus monogyna*
4	*Malus sylvestris*
3	*Sorbus aria*
3	*Alnus glutinosa*
Mixed Native WHIP	
15%	*Corylus avellana*
20%	*Crataegus monogyna*
15%	*Prunus spinosa*
20%	*Fagus sylvatica*
10%	*Ilex aquafolium*
10%	*Alnus glutinosa*
10%	*Betula pendula*

5.1.2 All plants supplied shall comply with BS 3936: Parts 1 to 10 as relevant, and BS 4043, the National Plant Specification, published by the Horticultural Trades Association, as appropriate.

5.1.3 The ground will be cleared of weeds and grass via hand weeding or herbicide application, to be applied with care two weeks prior to planting and as specified within the herbicide handbook[3]. Mycorrhizal inoculant (contractor's choice) to be applied to bare root plants before planting and a slow-release fertilizer will be added to the planting hole. All plants will be fitted with a 1m x 1m bio-degradable mulch mats fixed by bio-degradable plastic pegs.

5.1.4 Trees are to be placed into the pits and backfilled with local topsoil previously stripped from the Site. A general-purpose slow-release fertilizer (at the rate of 75gm/m2) and Tree Planting and Mulching Compost (at the rate of 20litres/m2) are to be incorporated into the top 150mm of topsoil during backfilling. Where tree pits are more than 300mm deep, backfilled material shall be consolidated / firmed in 150mm layers. Additional topsoil will be imported onto the Site if required.

5.1.5 All newly planted trees over 1.5m high will be held so that movement at the root collar is minimised until new roots have developed to anchor the tree. Therefore, low staking (e.g., 75mm diameter x 1.5m length) will be used and attached to the tree at approximately 600mm above ground level. Stakes will be driven 300mm into undisturbed ground of the bottom of the tree pit before planting the tree, taking care to avoid underground services and cables. The trees will be staked using proprietary rubber ties and must be firmly fixed with a spacing device used to prevent chafing against the tree.

[3] English Nature (2003) The Herbicide Handbook: Guidance on the use of herbicides on nature conservation sites. Based on a report by ADAS under a contract from English Nature Contract No. EIT 31-04-003.

5.1.6 Trees will be protected from grazing damage by the fitting of 0.6m proprietary shrub shelter or tree shelters secured using appropriate stakes. Composted bark mulch will be spread to a depth of 75mm in a 1m diameter circle around all individual trees, ensuring that desirable groundcover plants (where present) are not buried.

5.1.7 All trees shall be watered in at the end of each day of planting.

5.1.8 The exact timing of the proposed planting will be dependent on the ground conditions, but planting will take place between the months of November and March inclusive. Planting should avoid freezing and waterlogged conditions.

6. Wildflower Seeding/Enhancement

6.1.1 Grassland present in the north east of the site is to be retained and enhance to a wildflower grassland area as public open space. Further wildflower seeding will occur around residential front gardens and within the wildlife area proposed within the south west of the development.

6.1.2 Seeding and wildflower enhancement will take place according 'Soft Landscape Specification' (Ref.MR22-007/102 Rev A; Figure 1).

Ground preparation and sowing

6.1.3 All seeding shall be carried out in accordance with BS 4428:1989 Code of Practice for general landscape operations (excluding hard surfaces), or the most up to date and current British Standard.

6.1.4 For retained grassland areas, existing grassland will be mown, arisings removed and soil scarified to open sward. Existing coarse weeds, such as dock, thistle and ragwort, are to be removed. Seed then to be sown at an appropriate rate (40kg/ha) in Spring or Autumn during warm damp weather and should be firmed in by roller or by treading following sowing. Emorsgate Seeds EM3 Seed mix to be used, with EM8 for wetlands to be sown around attenuation area.

Subsequent management

6.1.5 As most sown meadow wildflower and grass species are perennial; they will be slow to germinate and grow and will not usually flower in their first growing season. Existing rank species may be prevalent within the first few growing seasons.

6.1.6 The newly sown areas should be sown regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wildflowers.

6.1.7 Avoid cutting in the spring and early summer of the first year to allow existing annuals to flower, then in mid-summer cut back and remove cut vegetation.

6.1.8 The grassland meadow areas will be monitored during the first year following completion of the development. Where grassland is not recovering / regenerating satisfactorily, these areas will be prepared and re-sown.

6.1.9 In subsequent years, management will include a main summer hay cut in combination with autumn and possibly spring mowing.

6.1.10 Grassland areas should not be cut to c.50mm after late July/August. Cut 'hay' should be left in situ to dry and shed seed for 1-7 days prior to removal from site (or in-situ composting in an appropriate and designated location).

6.1.11 Mow re-growth through to late autumn/winter to c 50mm and again in early spring if needed.

7. Pond Construction

7.1.1 A pond will be constructed within the south-west public open space area to replace the dry pond currently situated at the north-east of the site. The pond location is shown within the 'Soft Landscape Specification' (Ref.MR22-007/102 Rev A; Figure 1).

Preparation and construction

7.1.2 The pond will be at least 2 m wide and 60 cm deep to benefit amphibians and provide cover from extreme weather conditions and will have a sloping aspect on one side to allow wildlife to easily enter and exit the pond. To increase the number of micro-habitats, the pond should not have any straight sides, and shallow, shelved areas should be incorporated as these areas are beneficial for basking invertebrates and tadpoles.

7.1.3 After the pond has been dug out, sharp stones should be removed, and a 5 cm-thick layer of builder's sand should be spread to form a protective barrier for the liner. A trench should be dug out around the pond's perimeter to tuck overhanging liner into. Once complete, the pond liner can be placed into the dugout hole, with the liner edges tucked into the trench. It is recommended that a butyl pond liner is used due to its durability and flexibility.

7.1.4 A layer of builder's sand should be spread on top of the liner before filling the pond with rainwater. Exposed liner should be covered using soil or stones to prevent degradation.

7.1.5 Once the pond has been constructed it is expected that submergent, emergent and floating aquatic vegetation will establish.

7.1.6 The pond margins will be lined with coir matting pre-planted with a range of native species such as those available from British Pond Plants. Planting of large areas of woody vegetation/ large trees shall not be undertaken within 5m of the pond edge to reduce the likelihood of accumulations of leaf litter.

Subsequent management

7.1.7 Duckweed will be carefully removed during the spring months on an ad-hoc basis using netting. This will reduce the risk of eutrophication within the pond. After the duckweed is removed, it should be left beside the pond for 1-2 days to allow captured wildlife to return to the pond. After 1-2 days, the duckweed will be removed from the pond's side to prevent the leaching of nutrients back into the pond.

7.1.8 During the summer months, care must be taken when mowing the surrounding grassland next to the pond in order to reduce the risk of disturbing frogs.

7.1.9 During the winter, prolonged freezing poses a threat to the pond's ecosystem due to the accumulation of toxic gases released through the decomposition of organic matter. It is advised that snow is cleared from any ice which has formed at the pond's surface to allow the production of oxygen through photosynthesis.

8. Monitoring

8.1.1 The implementation of ongoing monitoring will be the responsibility of the owner or any subsequent owner of the development such as a residential management company.

8.1.2 The development of the biodiversity interest of the Site will be monitored over time by a suitably experienced ecologist. A walkover survey will be undertaken on years 1, 3 and 5 and 10. This will involve an inspection of the planted hedgerows, trees, grassland and any other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest.

8.1.3 The results of these monitoring surveys will be used to amend this management plan if necessary. Monitoring survey results and any proposed management changes will be reported to the local planning authority as necessary.

8.1.4 Following the outcomes of each monitoring survey it will be the duty of "the Owner" of the site to amend the BEMP to inform future changes in management including amending the grazing and cutting regime, if needed.

8.1.5 Monitoring procedures are outlined in **Table 3** below:

Table 3: Proposed monitoring procedure

Habitat feature	Monitoring procedure	Key indicators
Hedgerows/trees	Walk full length of planted hedgerows and tree planted areas	Browse damage, dead whips, weeds, gaps, dead or damaged hedgerow plants. Identify replacement needs or pruning to address damage. Ensure tree and spiral rabbit guards removed by year 3
Developing Meadow Grassland	Walkover	Monitor grassland development, review mowing regime and ensure arising are removed. Identify areas of rank grassland for localized treatment.
Grassland Margins	Walkover	To control scrub and bramble development, tussocky areas may need cutting every 2-3 years between October and February.
Pond	Inspect pond	Monitor the amount of duckweed floating on the pond's surface during the spring, the amount of dead leaves in the autumn, and the coverage of snow upon surface ice in the winter.

9. Maintenance Schedule

9.1.1 The following management programme shows possible months in which activities will commence within the first full planting season following the commencement of construction.

9.1.2 Management will be required for 30 years.

Initial works

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Grassland meadow sowing												
Mowing of existing grassland												
Hedgerow planting												
Tree planting												
Pond Construction												

Ongoing maintenance

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mowing of rank grassland areas (removal of clippings)												
Early season grass cut												
Grassland cutting in meadow areas, hay to be left in situ for 7 days followed by removal or arisings												
Management of existing hedgerows (every 5 years)												
Management of newly planted hedgerows (light pruning for 5 years)												

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Checks of hedgerow and tree saplings by contractor through the initial maintenance period, to comprise weed clearance, watering, checking stakes and ties and pruning. (annually for 5 years)												
Replacement of any dead, dying or diseased tree or hedgerow specimens. Remove guards by Year 3												
Removal of duckweed on the pond's surface (Duckweed to be left beside the pond for 1-2 days before removal)												
Removal of dead leaves on the pond's surface												
Removal of snow on the pond's surface												

Figure 1. Soft Landscape Specification MR22-007/102

IMPORTANT:

Biodiversity enhancements are shown on this landscape plan for outline purposes, for further information regarding the works, specifications and orientations, see Ecologists biodiversity assessment.

- Bat (B) & bird boxes (BB) , 15 of each, see Biodiversity enhancement plan for exact details.
- Bat & bird boxes installed on dwellings and existing/proposed trees on site.
- Hedgehog hotels (HG) in POS area and gaps to garden fences for hedgehog highways.
- Insect hotels in POS area (1 to northern POS & 1 to south western POS).
- Hibernacula in the form an external and buried log piles within POS area (1 to northern POS & 1 to south western POS).



LANDSCAPE SPECIFICATION.

No.	% Mix	Species Name	Pot Size	Height	Density	Specification
EHS Native Trees						
2	Pa	Prunus avium	RB	4.25 - 6m	As shown	Extra Heavy Standard, 14-16cm girth, min 5 brks
Standard (selected) Trees						
4	Cm	Crataegus monogyna	BR	3 - 3.5m	As shown	10-12cm girth, min 3 brks, 1.5m clear stem
4	Ms	Malus sylvestris	BR	3 - 3.5m	As shown	10-12cm girth, min 3 brks, 1.5m clear stem
3	Sa	Sorbus aria	BR	3 - 3.5m	As shown	10-12cm girth, min 3 brks, 1.5m clear stem
3	Ag	Alnus glutinosa	BR	3 - 3.5m	As shown	10-12cm girth, min 3 brks, 1.5m clear stem
Mixed Native Whip						
24	15%	Corylus avellana	B	45 - 60cm	3/m2	Branched, min 3 brks. Planted in groups of 3-5
30	20%	Crataegus monogyna	B	45 - 60cm	3/m2	Transplant 1+1. Planted in groups of 5-10
24	15%	Prunus spinosa	B	45 - 60cm	3/m2	Branched, min 2 brks, 1+1. Planted in groups of 3-5
30	20%	Fagus sylvatica	B	45 - 60cm	3/m2	Branched, min 2 brks, 1+1. Planted in groups of 3-5
17	10%	Ilex Aquafolium	B	45 - 60cm	3/m2	Branched, min 2 brks, 1+1. Planted in groups of 3-5
17	10%	Alnus glutinosa	B	45 - 60cm	3/m2	Branched, min 2 brks, 1+1. Planted in groups of 3-5
17	10%	Betula pendula	B	45 - 60cm	3/m2	Branched, min 2 brks, 1+1. Planted in groups of 3-5
Mixed Native Hedge						
20	10%	Coylus avellana	B	60 - 80cm	6linear m	Branched, min 3 brks. Planted in groups of 3-5
75	50%	Crataegus monogyna	B	80 - 100cm	6linear m	Transplant 1+1. Planted in groups of 5-10
20	10%	Prunus spinosa	B	60 - 80cm	6linear m	Branched, min 2 brks, 1+1. Planted in groups of 3-5
20	10%	Rosa canina	B	45 - 60cm	6linear m	Branched, min 2 brks, 1+1. Planted in groups of 3-5
20	10%	Ilex Aquafolium	B	45 - 60cm	6linear m	Branched, min 2 brks, 1+1. Planted in groups of 3-5
20	10%	Viburnum opulus	B	45 - 60cm	6linear m	Branched, min 2 brks, 1+1. Planted in groups of 3-5
Single Species Hedge						
297	Cb	Carpinus betulus	B	1 - 1.2m	7linear m	Leader with laterals, double staggered row
Groundcover Shrubs						
100	Bb	Bergenia 'Bressingham White'	2L	20 - 30cm	5/m2	Bushy, planted in groups of 5-7
85	Cal	Cornus alba	2L	20 - 30cm	3/m2	Bushy, planted to create larger shrub back drop
135	Ea	Euphorbia amygdaloides	2L	20 - 30cm	4/m2	Bushy, planted to create larger shrub back drop
130	Hv	Hebe vernicosa	3L	20 - 30cm	3/m2	Bushy, planted to create larger shrub back drop
35	Hp	Hebe Purple Pixie	3L	20 - 30cm	3/m2	Bushy, planted to create larger shrub back drop
150	La	Lavandula angustifolia	3L	20 - 30cm	4/m2	Bushy, planted in groups of 5-7
115	Ln	Lonicera nitida	3L	20 - 30cm	4/m2	Bushy, planted in groups of 5-7
120	Dp	Digitalis purpurea	2L	20 - 30cm	4/m2	Bushy, planted to create ground cover
145	Ph	Photinia x fraseri 'Red Robin' Hedge	3L	30 - 40cm	3/m2	Bushy, planted to create larger shrub back drop
130	Rc	Rosa Canina	2L	20 - 30cm	3/m2	Bushy, use spiral and cane if required
95	Sa	Sedum autumn joy	3L	20 - 30cm	4/m2	Bushy, planted in groups of 5-7
100	Vd	Vibumum davidi	3L	20 - 30cm	3/m2	Bushy, planted to create larger shrub back drop
130	Vo	Vibumum opulus	3L	45 - 60cm	3/m2	Branched, min 2 brks, 1+1. Planted in groups of 3-5

KEY:

HARD LANDSCAPE SCHEDULE

PROPOSED SITE BOUNDARY:
Proposed buildings. See Edwards Architecture drawings for details.

PROPOSED BAT BOXES:
Proposed bat boxes. Locations and quantities shown as indicative and to be approved by Client, Architect, Ecological consultants and LPA. Install all products as per manufactures and Ecologist specification. See 'Envance' Ecologist's document for further details.

PROPOSED BIRD BOXES:
Proposed bird boxes. Locations and quantities shown as indicative and to be approved by Client, Architect, Ecological consultants and LPA. Install all products as per manufactures and Ecologist specification. See 'Envance' Ecologist's document for further details.

PROPOSED HEDGEHOG HOTELS:
Proposed hedgehog hotels. Locations and quantities shown as indicative and to be approved by Client, Architect, Ecological consultants and LPA. Install all products as per manufactures and Ecologist specification. See 'Envance' Ecologist's document for further details.

PROPOSED HIBERNACULA POINTS:
Proposed hibernacula points. Locations and quantities shown as indicative and to be approved by Client, Architect, Ecological consultants and LPA. Install all products as per manufactures and Ecologist specification. See 'Envance' Ecologist's document for further details.

PROPOSED INSECT HOTEL:
Proposed insect hotels. Locations and quantities shown as indicative and to be approved by Client, Architect, Ecological consultants and LPA. Install all products as per manufactures and Ecologist specification. See 'Envance' Ecologist's document for further details.

SOFT LANDSCAPE SCHEDULE

EXISTING TREES AND VEGETATION TO BE RETAINED:
Existing trees and vegetation to be retained. Existing trees to be retained. All construction work adjacent to trees to be in accordance with BS 5837:2012 Trees in relation to design, demolition and construction recommendations.

PROPOSED NATIVE, EXTRA HEAVY STANDARD TREE PLANTING:
Native Extra Heavy Standard (EHS) trees to improve bio-diversity, structure and interest through fruit, blossom and autumn colour. 14-16cm girth, total height min 4.25m, tree pit to be 900 x 900mm x depth of root. Double timber stake for support, pit drainage as required. *See specification for species details:*

PROPOSED NATIVE STANDARD (SELECTED) TREES:
Standard (Selected) Trees to improve bio-diversity, structure and interest. Bareroot, 3 - 3.5m height, 1.5m clear stem, tree pit to be 700 x 700mm x depth of root. Double timber stake for support, pit drainage as required. *See specification for species details:*

PROPOSED SINGLE SPECIES HEDGE:
Single species hedge to improve bio-diversity and add instant structure. Use bare root 1 - 1.2m high, planted in double staggered row. *See specification for species details:*

PROPOSED MIXED NATIVE HEDGEROW / WHIP PLANTING:
Mixed native hedge/boundary whip planting to improve bio-diversity, create a dense buffer while creating new habitats for wildlife and softening boundaries. Comprising of feathered whips 0.45-1m high, bare rooted. Planted in double staggered row, single species groups of 5 -10. All plants to have shelters and canes for rabbit protection. To include evergreen species. *See specification for species details and numbers:*

PROPOSED ORNAMENTAL SHRUB PLANTING: (WITH WILDFLOWER, SEE BELOW)
Low maintenance, low growing shrub planting to provide all year interest, colour and structure while improving bio-diversity. Species selected for their habitat creation, aesthetic quality and sensory attributes including smell, colour and texture. To include natives, evergreens, perennials and ornamental grasses. More ornamental species to the center of the site including private spaces and the street scene. Native larger species used to soften borders and boundaries. Plant at 3.5plants per/m2.*See Landscape specification details.*

PROPOSED WILDFLOWER SEED MIX, INCLUDES TO FRONT GARDENS WITH ORNAMENTAL SHRUBS:
Low maintenance grass and wildflower seed mix to support existing retained grasslands and woodland at the boundaries, create semi-natural public open spaces and improve habitat creation. Emorsgate Seeds EM3 Seed mix ideal for country parks, nature reserves and public open spaces to soften edges and assist in integrating the proposals into the wider landscape.

PROPOSED NATIVE WHIP PLANTING:
Native whip to create a dense woodland buffers while improving bio-diversity and habitat creation. Comprising of feathered whips 0.45-1m high, bare rooted, includes evergreens planted at 3/m2. All whips to have shelters and canes for rabbit protection.

REAR GARDENS TO BE ROTAVATED:
All plot rear gardens to be rotavated to make topsoil smooth surface that can be worked in preparation for owners own turf/grass seed.

LOW MAINTENANCE TURF:
Hard wearing, slow growing, drought tolerant, low maintenance turf. Use Rolawn, *Medallion*. Tel: 0845 604 6050. Or similar to be approved.

PLANTING & DRAWING NOTES:

As per the LPA planning condition, all out of curtilage planting, seeding or turfing comprised in this drawing and the approved landscape drawing (Outline Landscape Proposals MR22-007/101 Rev D) shall be carried out in full in the first available planting season and/or as each series of plots and/or each individual plot becomes available. Upon commencement of site development and thereafter the landscaping shall be carried out/installed in accordance with these approved details and timescales.

All associated tree works are to be carried out by competent professionals with experience in landscape and tree works. All tree works to be carried out in accordance with British Standard 3998.

All landscape works to be carried out in accordance with Landscape Specification shown.

All planting implementation to be carried out in the first planting season unless an alternative phasing scheme has been approved by the Local Authority.

All plant material to be supplied in accordance with HTA National Plant Specification and Nursery Certification Scheme.

Use only hand tools in existing tree root protection areas.

No works to trees or shrubs shall be undertaken during the main birds nesting season unless a pre-commencement survey by a suitably experienced ecologist demonstrates that no actively nesting birds would be impacted by such works.

All construction work adjacent to trees to be in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction recommendations. Fencing should be erected prior to the commencement of works on site and stay erected until the completion of agreed works. No machine works to be carried out within the Root Protection Areas, including no mechanical rotavation.

Areas to be used for structural planting to be protected during course of works to ensure a successful planting soil condition and structure, use tree protection fencing in accordance with BS5837.

Topsoil depth to new shrub planting areas minimum 300mm, topsoil depth to new lawns and wildflower areas minimum 100mm. Soil build up to BS8601:2013 and subsoil BS 3882:2015, topsoil not to exceed 300mm, subsoil to be approx 450mm depth for grass area, 600mm for shrubs and 900mm depth for trees. New planting areas to be de-compacted if required before planting, all to provide a suitable growing conditions.

All EHS tree pits to be minimum 900mm x 900mm x depth of root base. Allow for double timber stake and pit drainage as required. All trees must have there root packaging specified, rootball and/or container grown only. No bare-root to be used. Each tree to have an irrigation tube with cap unless it forms part of a naturalistic woodland type area.

Ensure 1.5m diameter bark mulch circle to all trees in grass. Also incorporate onto all planting and hedges.

All planting areas to be maintained weed free and watered at appropriate / necessary periods during establishment of plants.

Following planting, incorporate onto all planting and hedges, 75mm depth ornamental grade bark mulch and/or use matting system to hedges, for example sheep's wool, cardboard, fabric mulches like hemp.

All trees and hedges to use bio-degradable tree tubes, ties and straps, use 'Green Tech' products. Spirals and guards to protect against mower on each tree/whip.

If within a period of five years from the date of the planting of any tree/hedge/shrub that tree/hedge/shrub, or any replacement, is removed, uprooted or destroyed or dies, or becomes, in the opinion of the Local Planning Authority, seriously damaged or defective, another tree/hedge/shrub of the same species and size as that originally planted shall be planted in the same location as soon as reasonably possible and no later than the first available planting season, unless otherwise agreed in writing by the Local Planning Authority.

SCALE 0m 5m 10m 15m 20m 25m

N

☐☐☐REVISIONS

REV	A	09 / 09 / 22	TL	MB

BIO ENCHANTMENT NUMBERS UPDATED TO COORDINATE WITH ECOLOGY PLAN.

FOR COMMENT

☐PROJECT: HIGH STREET, SHAFTON
☐SCALE: 1 / 250 @ A0
☐DATE: 24 / 08 / 2022
☐TITLE: SOFT LANDSCAPE SPECIFICATION
☐DRAWN BY: DM
☐REVIEWED: TL
☐DRAWING NO: MR22-007/102
☐REVISION: A

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