Habitat Management and Monitoring Plan

Land at Greenacres, Saucelands Lane,

Shipley, West Sussex, RH13 8PU.

December 2025

Arun Ecology Ltd

Registration in England and Wales. Company number: 12524764

Registered Address: Russetts, Hayes Lane, Slinfold, West Sussex

Email: enquiries@arunecology.com – www.arunecology.com

Contents

Document Information

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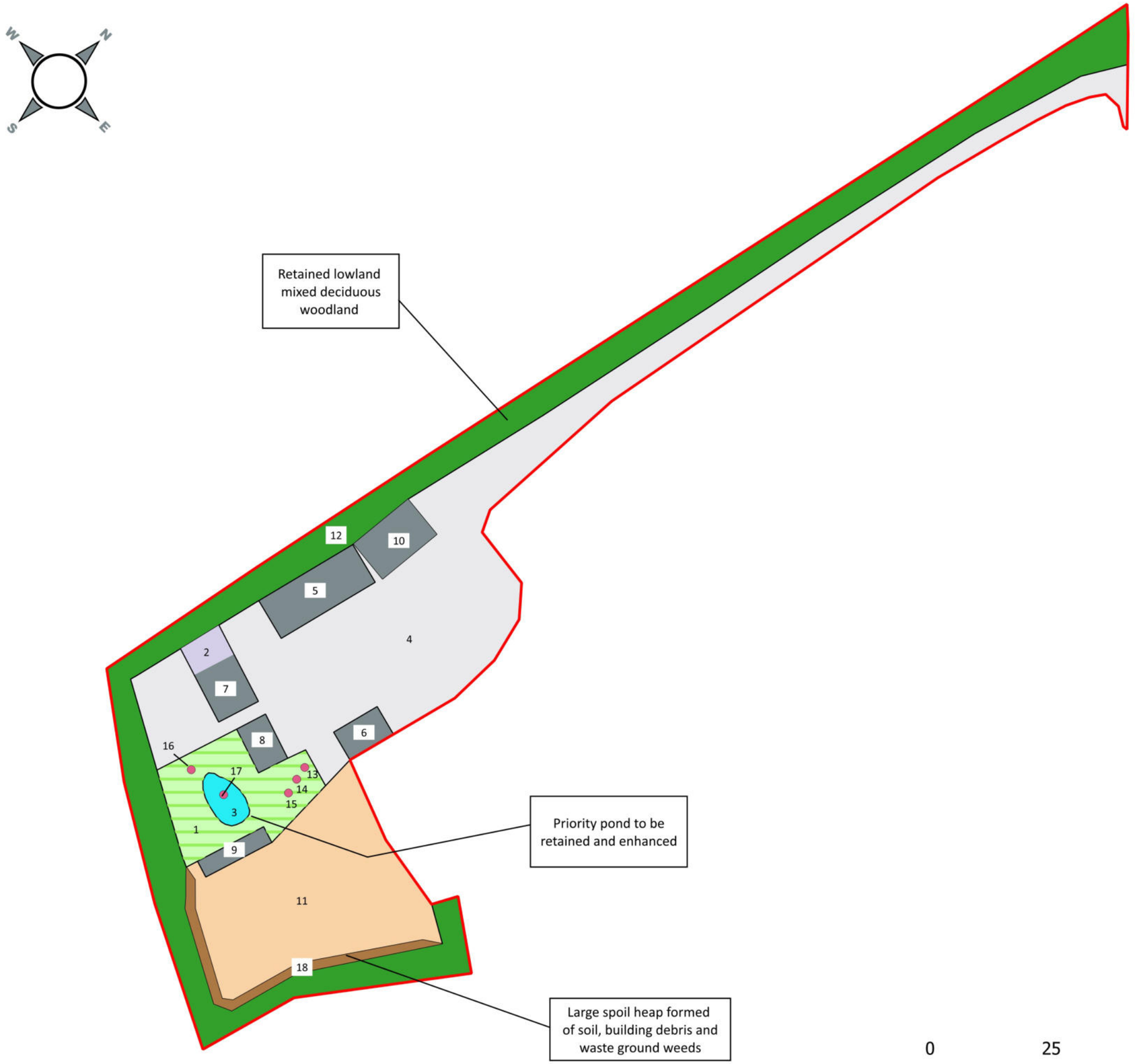
001	01/05/2025	Joseph Baker BSc (Hons) – Director and Principal Ecologist	Hannah Baker BSc (Hons) MSc, ACIEEM - Director and Principal Ecologist
002	17/12/2025	Hannah Baker BSc (Hons) MSc, ACIEEM - Director and Principal Ecologist	



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Leged

- Development boundary

Baseline Habitats

- Other neutral grassland
- Lowland mixed deciduous woodland
- Ruderal/ ephemeral
- Developed land sealed surface
- Developed land sealed surface (Building)
- Vacant/ derelict land
- Artificial unvegetated unsealed surface
- Priority pond
- Individual rural tree

1 - 18: Baseline habitat reference number

Figure Title:

BNG Baseline Habitat Plan

Client/ Document reference:

Chidhurst Ltd
C-CHI-001_BNG_Baseline Habitat Plan

Figure number:	Revision:	Scale at A3:
1	2	1:850
Cartographer:	**Date drawn:**	**Approver:**
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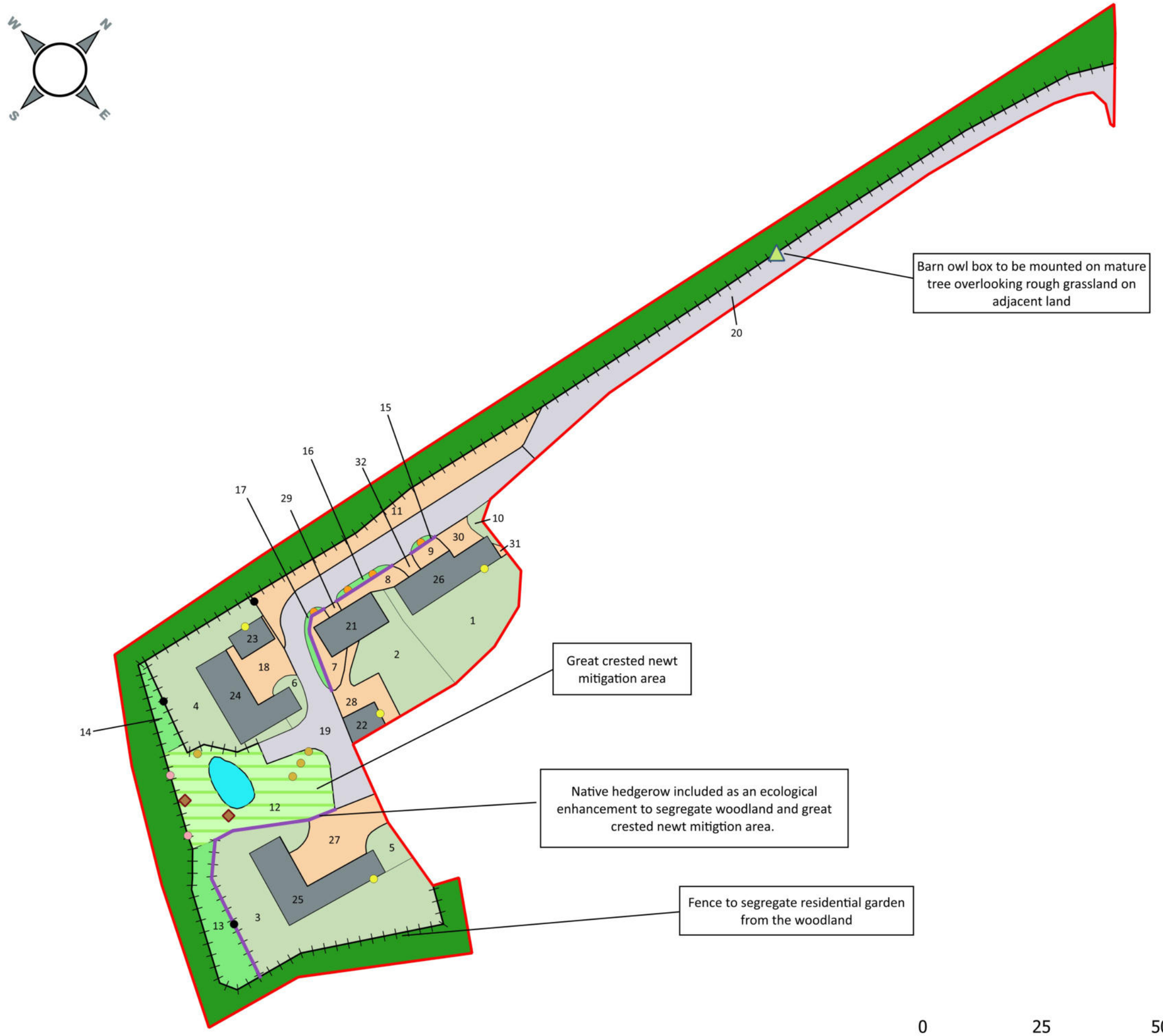

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Leged

- Development boundary
- Fence
- Retained individual rural tree

Proposed Habitats

- Vegetated garden
- Other neutral grassland
- Modified grassland
- Lowland mixed deciduous woodland (Retained)
- Developed land sealed surface
- Developed land sealed surface (Buildings)
- Artificial unvegetated unsealed surface
- Enhanced priority pond
- Proposed native hedgerow
- Proposed individual rural tree
- Proposed barn owl box
- Proposed bat box
- Hibernacula/ refugia
- Integrated house sparrow box

1 - 38: Proposed habitat reference number

Figure Title:

BNG Proposed Habitat Plan

Client/ Document reference:

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C-CHI-001_BNG_Proposed Habitat Layout

Figure number:	Revision:	Scale at A3:
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1. Development Information

1.1 Development Background

1.1.1 The development information and an overview of the development background is outlined below in Table 1.

Table 1 – Development Information.

Landowner	Chidhurst Ltd
Development Location	Land at Greenacres, Saucelands Lane, Shipley, RH13 8PU (Grid reference: reference: TQ 12163 21250).
Development Type	Residential Development
Local Planning Authority	Horsham District Council
Planning Reference	TBC
Planning Status	Pre-submission
Development Plan	STARC Architects DWG NO 001_01
Development Phasing	The development will be delivered in a single phase.
Proposed Land Manager	Appointed Contractor
Location of Habitat Management	Onsite
Legal Agreement	There is no legal agreement finalised at this time. Any section 106 or legal agreement or condition of planning will cover a minimum period of 30 years for on-site and off-site habitat creation.
Funding Agreement	The habitat management will be funded by the landowner.
BNG Register Reference	N/A
Biodiversity Net Gain Metric Revision/Title	C-CHI-001_BNG_Metric

1.2 Scope of the Habitat Management and Monitoring Plan

Extent

1.2.1 The Habitat Management and Monitoring Plan (HMMP) is limited to areas within the development boundary where on-going management can be secured via a legal agreement or condition of planning (See Figure 1 and Figure 2).

1.2.2 This HMMP does not include on-going management and monitoring of offsite habitat creation that is provided by any third-party habitat banks.

Aims and Objectives

1.2.3 The HMMP sets the following aims and objectives:

- To identify the opportunities offered by the development to deliver measurable net gains for biodiversity as defined under the requirements of The Environment Act, 2021, set at a minimum threshold of 10% gain;
- To identify the opportunities of the development to achieve 'additionality' by incorporating ecological enhancements that are not universally measurable;
- Outline the design of any ecological enhancements and how this will be delivered as part of the development;
- Provide a strategy, management and monitoring plan to outline how ecological enhancements will be successfully implemented and retained as part of the development; and
- Provide details on the location of the ecological enhancements supported by digitized mapping.

1.2.4 The aims and objectives of the HMMP are based on the BNG calculation for development which sets out a provisional +11.22% net gain in habitat units. The baseline value for hedgerows and watercourses is zero.

Reason

1.2.5 To ensure the development is compliant with:

- The Environment Act, 2021 (and relevant secondary legislation);
- National Planning Policy Framework (NPPF), 2024; and
- Horsham District Planning Framework (2015).

2. Method

2.1 General Approach

2.1.1 This section outlines the approach to inform the HMMP and ensure the proposed aims and objectives can be achieved in practice.

2.2 Sources of Information

Desk Study

2.2.1 To ensure the proposals of this HMMP do not result in adverse impacts on any sites or habitats of biodiversity value, the following sources of information have been sought as part of the Preliminary Ecological Appraisal Report for the development (see report reference in Table 2):

- RAMSAR, Special Conservation Areas (SACs) and Special Protection Areas (SPAs), (including potentially designated sites), Sites of Specific Scientific Interest (SSSI) and locally designated sites – within 2 km of the development boundary;
- All other non-statutory designated sites – within 1 km of the development boundary;
- Habitats of Principle Importance (HPI), Ancient woodland and Rivers – within 2 km of the development boundary; and
- Ponds – within 0.5 km of the development boundary.

2.2.2 To ensure the proposed ecological enhancement and habitat creation is appropriate to the surrounding landscape, details on the National Character Region and the Horsham District Landscape Character Assessment were sought.

2.2.3 To gain an understanding of the suitability of the site to support certain habitat types, an understanding of the site geology was sought. The sites soil type has not been sought at this time but will be considered prior to commencement of the development.

2.2.4 Sources of information within the study area for the desk study were as follows;

- The Multi-Agency Geographical Information for the Countryside (MAGIC);
- Government open-source GIS datasets;
- OS Mapping District Data;
- Horsham District Planning Framework, 2015;
- Satellite images (powered by google via QGIS 3.38); and
- British Geological Society – Geology Viewer.

Field Surveys

2.2.5 The PEA for the development boundary (see Table 2) included a UK Habitat Classification Survey (hereafter UK Hab Survey) to define the habitat types, assess the conservation value of any habitats present and assess the habitats suitability to act as an ecological receptor for species of conservation concern.

2.2.6 A baseline condition assessment of habitats within the development boundary was undertaken to inform the baseline Biodiversity Net Gain calculation and set appropriate condition assessment targets for proposed habitat types.

Relevant Documents and Reports

2.2.7 The documents outlined below in Table 2 are considered relevant and have been used to identify any ecological considerations within the development boundary and to inform the HMMP:

Table 2 Relevant documents used in this HMMP.

Document Reference/ Title		Author	Date
C-CHI-001-001-001_PEA_ Report	Preliminary Ecological Appraisal Report	Arun Ecology Ltd	March 2025
C-CHI-001-005-001_GCN Survey Report	Great Crested Newt Surveys	Arun Ecology Ltd	May 2025
C-CHI-001-002-001_Bat Survey Report	Bat Survey Report	Arun Ecology Ltd	February 2025
C-CHI-001_BNG_Metric	BNG Statutory Metric	Arun Ecology Ltd	December 2025
C-CHI-001_BNG_Condition Assessment	BNG Condition Assessment	Arun Ecology Ltd	May 2025
C-CHI-001_BNG_Gain Plan	BNG Gain Plan	Arun Ecology Ltd	December 2025
STARC Architects DWG NO 001_01	Proposed Ground Floor Site Plan	Starc Architects	April 2024
Soft Landscape Layout (Drawing ref: RCo555-01 Rev03)	Landscape Plan	Ramsay & Co Landscape Architecture	December 2024

3. Habitat Management and Monitoring Plan Considerations

3.1 Background

3.1.1 This section outlines the baseline information that has informed both the design and delivery of habitat retention, enhancement and creation on-site to ensure the aims of the HMMP are appropriately designed and reasonably likely to be successful.

3.2 Landscape Design Considerations

Character Regions

3.2.1 The development boundary is located within the Low Weald National Character Area (121 – Low Weald). The development boundary is also located in the Horsham District Council Landscape Assessment under J2 Broadford Bridge to Ashington Farmlands.

3.3 Ecology Information

3.3.1 The following ecological information is a consideration to the development:

- The development falls within the North Sussex Water Resource Zone associated with the Arun Valley RAMSAR/SAC/SPA.
- There are HPIs within the development boundary including lowland mixed deciduous woodland and a priority pond.
- No irreplaceable habitats are present on-site.
- The presence of a European Protected Species, great crested newt, has been confirmed within the priority pond on-site.
- [redacted] mammal burrows, nesting birds, hedgehog and reptiles were considered to be a material consideration to the development in the PEA Report due to the site's location and habitat on-site.

3.3.2 To ensure there are no adverse impacts on the above ecological considerations, the HMMP will be completed in accordance with any water neutrality requirements, the great crested newt Mitigation Strategy and the mitigation outlined for other species of conservation concern in the PEA Report. This will be communicated to operatives through a tool-box-talk and relevant licencing documentation.

3.4 Historic Environment and Earth Heritage

3.4.1 There are no known historic environment or earth heritage constraints within the development boundary at this time.

3.5 Environmental Information

Underlying Geology and Site Soil and Substrate Baseline

3.5.1 The underlying geology is a Weald Clay Formation - Sandstone. Sedimentary bedrock formed between 133.9 and 126.3 million years ago during the Cretaceous period.

3.5.2 No soil information on the soil type and formation has been collected at this time. The habitats proposed within the HMMP are widespread habitats that cover a range of soil conditions. It is, however, recommended that the soil is subject to testing to ensure the successful implementation of any proposed habitat.

3.6 Land Use Information

Proposed Land Use

3.6.1 The primary proposed land use within the development boundary will be residential.

Public Access

3.6.2 There will be public access within the development boundary by the nature of a residential development, however, the land will remain private.

3.7 Health and Safety Considerations

3.7.1 There are several structures and piles of corrugated sheeting on-site with potential Asbestos Containing Materials. There is also construction debris across the site, including spoil heaps. We retain the right to revise the scope of this HMMP should there be soil contamination that renders the proposals of this HMMP unsafe. The scope of the HMMP should only be carried out once it is determined it is safe to do so by appropriately trained professionals.

4. Baseline Habitat Information

4.1 Baseline Habitat within the Development Boundary

4.1.1 The information provided in Table 3 formed the baseline habitat criteria for habitats as part of the BNG assessment for the development (see Figure 1).

Table 3 - BNG Baseline Habitat Information.

Habitat Type	Parcel Reference	Irreplaceable Habitat	Priority Habitat	Area (ha)	Distinctiveness	Strategic significance	Retained Area (ha)	Enhanced Area	Baseline Conditions	BNG Condition Assessment Criteria Met	Limitations and Notes (on any Degradation Prior to Assessment).	Existing Management and Monitoring
Habitats												
Other neutral grassland	1	No	No	0.0476 ha	Medium	Low	0	0	Poor	• Criteria met: B, C, D. • Criteria not met: A, E, F	• None recorded	• Management has ceased alongside the use of the site.
Ruderal/ Ephemeral	2	No	No	0.0059 ha	Low	Low	0	0	Poor	• Criteria met: C. • Criteria not met: A and B.	• None recorded	• None
Pond	3	No	Yes	0.0068 ha	High	Low	0	0.0068	Moderate	• Criteria met: A, C, D, E, F, G. • Criteria not met: B, H, I.	• None recorded	• None
Developed land sealed surface	4, 5, 6, 7, 8, 9, 10.	No	No	0.3522 ha	Low	Low	0	0	N/A - Other	• N/A	• None recorded	• N/A
Artificial unvegetated unsealed surface	11	No	No	0.1283 ha	Low	Low	0	0	N/A - Other	• N/A	• None recorded	• Commercial activity.
Lowland mixed deciduous woodland	12	No	Yes	0.2282 ha	High	Medium	0.2282	0	Moderate	• Overall score per indicator: 26 out of 39.	• None recorded	• No evidence of management present.
Individual (rural) tree	13, 14, 16	No	No	All 0.0163 (0.0489) ha	Medium	Low	0.0489	0	Good	• Criteria met: A, B, C, D, F • Criteria not met: E	• None recorded	• Evidence of pruning/ pollarding on habitat parcel 13, 14.
Individual (rural) tree	15	No	No	0.0366 ha	Medium	Low	0.0366	0	Good	• Criteria met: A, B, C, D, E, F.	• None recorded	• Evidence of pruning/ pollarding.
Individual (rural) tree	17	No	No	0.0041	Medium	Low	0	0	Good	• Criteria met: A, B, C, D, E, F.	• Located on island of pond so average DBH estimated.	• None
Vacant and derelict land	18 and 19	No	No	0.0135 ha and 0.0041 ha	Low	Low	0	0	Poor	• Criteria met: C • Criteria met: A and B.	• None recorded.	• None.

Proposed Onsite Habitat Creation and Ecological Enhancement

4.2 Habitat Creation

4.2.1 The habitat creations proposed as part of the development that falls within the scope of the HMMP are outlined below in Table 4 and displayed in Figure 2.

Table 4 – Habitat creation and enhancement proposed within the development boundary.

Proposed Habitat Type	Habitat Reference Number(s)	Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								

Other neutral grassland	12	0.0472	Medium	Low	Moderate	5	• Criteria met: A, B, C, D, E.
							• Criteria not met: F
								• A single parcel of other neutral grassland in moderate condition will be created as part of the development for the benefit of great crested newts, other amphibians and invertebrates (see Figure 2).
								Great Crested Newt Mitigation
								• Habitat creation works within this habitat parcel will start at the discretion of the appointed ecologist (likely to be the registered consultant or an accredited agent under an EPS mitigation licence due to the presence of breeding great crested newt in the pond this other neutral grassland surrounds).
								• Any baseline habitat that is proposed for removal should be completed in accordance with the conditions of any great crested newt mitigation licence or method statement. As such, this HMMP will require updating prior to the start of works.
								• The main aim will be to phase the grassland creation after the proposed pond works (Table 5), working from North – South, so that access is retained for great crested newt from the Lowland mixed deciduous woodland to the pond.
								Soil preparation
								• The areas where the creation of other neutral grassland is proposed will first be prepared by the removal of the existing vegetation layer.
								• The bare ground will first be prepared with the use of a harrow or rake to produce a medium tilth. Thereafter, the soil will be made firm by treading or rolling. Due to the presence of GCN, mechanical intervention should be kept to a minimum.
								Seeding
								• Seeding will be undertaken with the following specifications:
								  • **General area**: Once the soil has been prepared, the parcel will be sown with the commercial seed mix Emorsgate EM10 – Tussock Grass Mixture with Wildflower. This mixture can be sown up to 10-15 g/m^2. The seed mixture is comprised of 80% grasses and 20% wildflowers and contains a total of 26 species.
								  • **Pond edge:** The pond edge will be sown with the Emorsgate EPI Pond Edge Mixture. This mixture can be sown up to 4 g/m^2. The seed mixture is comprised of 80% grasses and 20% wildflowers and contains a

								total of 25 species. Alternatively, the Emorsgate EP1F Wildflowers for Pond Edges seed mixture can be used alongside the EM10 Mixture. The EP1F mixture is sown at a rate of 1.5g/m^2. • **Woodland edge:** Along the woodland edge (see Figure 2) the Emorsgate EW1 Woodland Mixture will be used to seed more shade-tolerant plants. The EW1 Woodland Mixture is comprised of 20% native wildflowers and 80% slow growing grasses and includes 24 species. This mixture can be sown at a rate of 4g/m^2. • The seeds will be surface sown and can be applied by machine or broadcast by hand and firmed in by treading or rolling, to give good soil/seed contact. • Seeding will ideally take place in autumn in suitable weather conditions when great crested newt are less likely to be located at the pond. • Supplementary watering of seeds should be undertaken in prolonged dry periods or drought. • Some additional ecological enhancements such as small sand mounds (for invertebrates such as ants and solitary insects) and depressions in the ground could also be incorporated into the design of the other neutral grassland to create differing soil moisture levels and encourage the establishment of ecosystem function. • It is possible that the criteria above could meet good condition criteria is appropriately managed, however, we have set the target condition lower, as it may be more realistic in practice to achieve this criteria.
Modified grassland	13 and 14	0.0246 (total)	Low	Low	Poor	2	• Criteria met: C, D, E, F, G • Criteria not met: A, B.	• Two small areas of other neutral grassland are proposed in the southern section of the development boundary. • A poor condition target has been for this parcel due to its proximity to vegetated gardens and potential for shading. • The soil will be prepared as per the specification outlined above for the other neutral grassland. • The proposed modified grassland parcels will be sown with EL1 Flowering Lawn Mixture sown at a rate of 4g/m2. This seed mixture has the potential to exceed the modified grassland poor condition criteria. • Supplementary watering of seeds should be undertaken in prolonged dry periods or drought.
Modified grassland	15, 16, 17	0.0046 (total)	Low	Low	Poor	1	• Criteria met: C, D, E, F, G • Criteria not met: A, B.	• Three small parcels of modified grassland are proposed on the edge of the access road (see Figure 2). • A poor condition target has been set as it is expected that the modified grassland will be subject to regular mowing, and it may be difficult to achieve or maintain higher condition criteria. However, the specification outlined may exceed this specification if the management criteria is followed. • The soil will be prepared as per the specification outlined above for the other neutral grassland. • The proposed modified grassland parcels will be sown with EL1 Flowering Lawn Mixture sown at a rate of 4g/m2. This seed mixture has the potential to exceed the modified grassland poor condition criteria. • Supplementary watering of seeds should be undertaken in prolonged dry periods or drought.

Individual (rural) trees	33, 34, 35,	All 0.0041 ha	Medium	Low	Moderate	27	• Criteria met: A, B, D, E.
							• Criteria not met: C, F.
								• Three individual native trees are proposed within the development boundary (see Figure 2). This will include field maple (*Acer campetre*) planted within the proposed other neutral grassland and modified grassland parcels.
								• All native trees will be planted in line with the following general principles:
								  ○ Trees will be nursery grown, root balled specimen trees and will be between 1 and 3 years old at the time of planting;
								  ○ Trees will be planted between November and March and spaced at least 5 m apart from other newly planted or existing trees and planted in small areas of clear ground with the surrounding grassland cut short to reduce competition for water; and
								  ○ Trees will be planted within a planting pit. The pit will be dug to the same depth as the container the root ball is placed in to prevent settlement and sinking post planting. The width of the pit will be a minimum of one and a half times as large as the root ball/container and up to a maximum of two times as wide (likely to be 30-45 cm deep and 45-60 cm wide). The soil used to back fill the pit will consist of 1/3 organic matter and 2/3 existing soil to 90% of the root ball height. A mulch could be used on the surface to retain an area of ground free of vegetation and keep competition for resources low.
								• Trees will be planted with stakes, supporting straps and a biodegradable guard where appropriate to protect the trees from animal damage, ensure they are appropriately secured to the ground, and encourage vertical growth.

4.3 Enhancement of Retained Habitats

4.3.1 The enhancement of retained habitat proposed as part of the development that falls within the scope of the HMMP are outlined below in Table 5 and displayed in Figure 2

Table 5 - Habitat creation and enhancement proposed within the development boundary.

Proposed Habitat Type	Baseline Habitat Reference Number(s)	Enhanced Area (ha)	Distinctiveness	Strategic Significance	Target Condition	Years to reach target	BNG Condition Assessment criteria Targeted (Y/N)	Specification and Method of Creation.
Habitats								
Pond	3	0.0068	High	Low	Good	4	• Baseline criteria met: A, C, D, E, F, G. • Additional criteria: met: H, I.	• The target of the habitat enhancement will be to achieve: ○ At least 50% combined cover of emergent, submerged or floating plants (excluding duckweed) of the pond area with a depth of less than 3 m depth. ○ Ensure that the ponds surface has no more than 50% shade cover by adjacent trees and scrub. • At present the pond appears to dry annually (as recorded in 2024 and estimated by spring water drawdown in 2025), as evidenced by the lack of aquatic vegetation in the pond. As such it may be appropriate to take the following actions to ensure sufficient water is retained in the pond: ○ Remove willow thickets from the edge of the pond and on the island of the pond, which could be breaking the seal of the pond and are also contributing to over shading of the pond; ○ Reseal the pond with a synthetic clay liner or imported clay material; ○ Increase the water holding capacity of the pond by: ▪ Removing the central island; ▪ Reprofiling to create two marginal shelves (one < 1m in depth, one 1 – 1.5 m in depth and a deeper central bowl (>1.5 m in depth) that will help to retain water longer into the summer; and ▪ The removal of silt. • To enhance the pond habitat a mix of emergent, floating and submerged plants as well as oxygenating plants should be introduced that could include: ○ **Floating plants**: Common water-crowfoot (*Ranunculus aquatalis*); broad leaved pond weed (*Potamogeton Natans;* (for the deep central bowl)) and white-water lily (*Nymphaea alba*). ○ **Submerged aquatic plants**: water violet (*Myriophyllum spicatum*), rigid hornwort (*Ceratophyllum demersumand)* spiked water milfoil (*Hottonia palustris*); water starwort (*Callitriche*). ○ **Marginal plants**: Yellow flag iris (*Iris Pseudacorus*), purple loosestrife (*Lythrum salicaria*) common rush (*Juncus effusus*), marsh marigold (*Caltha palustris*), lesser water plantain (*Baldellia Ranunculoides*), lesser pond sedge *(Carex acutiformis)* and greater pond sedge (*Carex riparia*).

								○ **Plants to benefit great crested newts**: Water forget-me-not (*Myosotis scorpioides*), water mint (*mentha aqautica*), floating sweet grass (*Glyceria fluitans*).

4.4 Additional Ecological Enhancements

4.4.1 The additional ecological enhancements that are proposed as part of the development, that do not form part of mandatory net gain requirements, are outlined below in Table 6 and displayed in Figure 2.

Table 6 – Additional ecological enhancements to be installed within the development boundary.

Proposed Habitat Type	Quantity	Location	Height	Aspect	Brand	Model	Notes and specifications
Native hedgerow	1	• On the boundary of proposed habitat parcel 12 (see Figure 2); and • The northern development boundary (see Figure 2).	N/A	N/A	N/A	N/A	• A native hedgerow will be created in the southern section of the development boundary (see Figure 2). The hedgerow will be a minimum of 1.5 m tall and 1.5 m wide once established, be species rich and contain at least six native species in the following ratios: ○ 70% from a choice of hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), buckthorn (*Rhamnus cathartica*), privet (*Ligustrum vulgare*), beech (*Fagus sylvatica*), hazel (*Corylus avellana*), alder (*Alnus glutinosa* (in wetter areas)) and dog rose (*Rosa canina*); ○ 25% from a choice of guelder rose (*Viburnum opulus),* field maple (*Acer campestre*), European spindle *(Euonymus europaeus)*, crab apple (*Malus sylvestris*), holly (*Ilex aquifolium*) and yew (*Taxus baccata*); and ○ 5% from a choice of climbers, such as honeysuckle (*Lonicera periclymenum*), bramble (*Rubus fruticosus*), ivy (*hedera helix*) and native clematis (*i.e. Clematis vitalba*). • The hedgerow will be created by digging or exacting a trench approximately 1.5 m in width and 45 cm in depth (the depth of the trench should be judged on-site at the time of planting based on the site soil conditions) with any vegetation removed to reduce competition with planted shrubs. • The hedgerow will be planted with transplanted shrubs with plants spaced in two rows separated by 45 cm and with approximately six plants planted per meter. • All shrubs will be planted with biodegradable guards to protect them from damage from grazing/browsing animals and will also be planted with a supporting cane/ stake to encourage vertical growth.
Refugia/ hibernacula	2	• Within other neutral grassland (see proposed habitat parcel 12, Figure 2).	Ground level	N/A	N/A	N/A	• To act as resting and potential hibernating place for amphibians including great crested newts and provide habitat for invertebrates. • The hibernacula/ refugia will be formed by scraping the topsoil away and creating a trench of up to 25 cm, this depth has been selected to avoid potential water logging.

							• A mixture of rubble, recycled logs, tree roots and loose soil could be placed in the trench and covered in soil, allowing rubble and wood to poke through in places in order to create environmental heterogeneity and crevices and voids. In some areas soil will be compacted and elsewhere it will be left loose. The hibernacula will then be finished with a covering of turf and supplementary seeding.
Bat boxes	2	• Mature trees in baseline habitat parcel 12 (see Figure 2).	3 – 4 m	North and East	Swegler	1FF	• To be installed in a dark location not subject to artificial lighting. • Location of instalment to have a clear drop zone free of vegetation for emerging bats.
Barn owl box	1	• Mature tree on the edge of woodland (See baseline habitat parcel 12, Figure 2).	At least 3 m	Any	Eco	Barn Owl Nest Box	• The proposed location for instalment of the barn owl box overlooks an area of rough grassland that is adjacent to the site and that provides suitable habitat for hunting barn owl. • The access hole should be visible to a passing barn owl (even when the tree is in full leaf). The access hole should be pointed towards open ground but avoiding prevailing weather (if possible).
Hedgehog fence gaps	3	• Fences that form as part of vegetated gardens (see Figure 2).	Ground level	Any	N/A	N/A	• The development will include provisions for hedgehog in order to maintain connectivity to potential foraging habitat for hedgehog within the development boundary. • To achieve this, a small hole (approximately 13 cm x 13 cm) will be created in any permanent fencing within garden plots. The creation of the small holes for hedgehogs is proposed using either modified fence panels or alternatively by using prefabricated gravel boards specifically designed for hedgehogs. • This enhancement will not be required is lower lying post and rail fencing is used.
House sparrow boxes	4	• New residential units under eaves	Approximately 4-5 m	See notes	Bird Brick House	Sparrow Terrace Brick House	• To include an integrated artificial (brick) sparrow box on each unit. Location to be confirmed but should be placed in a quiet location on the side or rear of the house or garage oversailing vegetated garden habitats.

5. Works Schedule - Habitat Creation

5.1.1 The schedule of proposed habitat creation within the site is outlined below in Table 7.

Table 7 – Proposed habitat creation schedule.

Task			Proposed Timings			
Proposed Action	**Habitat Parcel Number**	**Undertaker**	**Development Phase**	**Optimal Timing**	**Likely Implementation**	**Considerations**
Proposed BNG Habitat Creation						
Other neutral grassland	12	Appointed contractor	Post construction landscaping	Autumn – Taking into consideration GCN Mitigation	Anticipated 2025/ 2026	• Great Crested Newt Mitigation Strategy. • Appropriate weather conditions for successful establishment.
Modified grassland	13- 17	Appointed contractor	Post construction landscaping	Spring or Autumn	Anticipated 2025/ 2026	• Appropriate weather conditions for successful establishment.
Individual Trees	33, 34, 35	Appointed contractor	Post construction landscaping	November - March	Anticipated 2025/ 2026	• Appropriate weather conditions for successful establishment.
Proposed BNG Habitat Enhancement						
Pond	Baseline habitat parcel 3	Appointed contractor	Post construction landscaping	November - February	Anticipated 2025/ 2026	• Great Crested Newt Mitigation Strategy.
Additional Ecological Enhancements						
Native hedgerow	N/A	Appointed contractor	Post construction landscaping	November - March	Anticipated 2025/ 2026	• Appropriate weather conditions for successful establishment.
Refugia/ hibernacula	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2025/ 2026	• Appropriate weather conditions for successful establishment.
Barn Owl Box	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2025/ 2026	• No additional considerations.

Bat Box	N/A	Appointed contractor	Post construction landscaping	Any time of year	Anticipated 2025/ 2026	• No additional considerations.
Hedgehog fence gap	N/A	Appointed contractor	Construction phase	Any time of year	Anticipated 2025	• No additional considerations.
House sparrow nest box	N/A	Appointed contractor	Construction phase	Any time of year	Anticipated 2025	• No additional considerations.

6. Habitat Management and Monitoring Plan

6.1.1 The on-going habitat management and monitoring requirements for the proposed habitat retention and creation are outlined below in Table 8.

Table 8 – Habitat management and monitoring plan for proposed habitat creation and ecological enhancements.

Habitat Parcel(s)	Management Tasks	Management Timing			Responsibility
		Minimum Frequency	Timing	Duration	
Proposed Habitat Creation, Enhancement and Retention					
Other neutral grassland: • Proposed habitat ref: 12	**Tussocky Grassland Mixture** • Once sown, any weed growth from the soil seed bank will be initially left which may aid soil conditions beneath and provide shelter to the sown seedlings. Weeds will then be removed in late summer through mowing to ensure slower growing grasses are not smothered by weeds. • The grassland will then be kept short by mowing through the first winter until the end of March of the following year (grass will be cut to 50 mm once it reaches 100-150 mm) and the grass cuttings removed. Any annual weeds will be removed until the grassland is established. • If mowing is required in year one this should be completed in a two-stage cut under the supervision of an ecologist taking into consideration that great crested newts may be present within the grassland. • In prolonged dry spells or drought it may be appropriate to undertake additional watering while the grassland is established. • Once established tussocky grassland needs little to no management intervention and should be left to establish into a suitable habitat for great crested newts. • Bramble and scrub management should be undertaken every 2-3 years to prevent encroachment of the grassland and retain the maximum area of grassland available. To achieve this, some tussocky grassland areas may require cutting. This should be completed on a rotational basis to ensure areas of habitat refuge are retained for great crested newts. **Pond Mixture** • In the first year, annual weed growth may be cut back to encourage the development of good perennial ground cover. • On-going management of the pond edge should aim to create variation in the vegetation structure, albeit on a small scale for this pond. Variation in structure can be achieved by cutting back and removing short sections of vegetation every 2-3 years in rotation. This can be achieved through selective thinning or removing wedges of habitat creating open stands. This should be completed between September and November. **Woodland Mixture** • In the first year, annual weed growth may be cut back to encourage the establishment of ground cover. • As the woodland edge that forms part of the wider other neutral grassland will receive more light, it is likely grasses will be more prevalent initially, as such, it may be appropriate to undertake a summer cut to keep	• Twice annually until established • Annually once established • Scrub management every 2-3 years	• August onwards (GCN mitigation).	• 30 Years	• Appointed contractor

	nettle and bramble management under control to prevent shading and encroachment and ensure the establishment of wildflowers.				
Modified grassland • Proposed habitat ref: 13- 17	• The modified grassland parcels should follow the general management and monitoring outlined above for proposed other neutral grassland parcel 12. • It is anticipated that these grasslands will be subject to more regular mowing regimes given their location. However, it would be preferable to avoid cutting in the summer so that meadow flowers that form part of the seed mix are visible through the summer months. • In periods of prolonged drought it may be appropriate to undertake additional watering while the grassland is established. • Additional scarification and seeding by hand may be appropriate where undesirable bare patches form or species poor areas form in subsequent years of management.	• Monthly; or • Every two weeks for more frequent usage.	• All year	• 30 years	• Appointed contractor
Individual (rural) trees • Proposed Habitat ref: 33, 34, 35	**Newly Planted Trees** • The health of the new trees should be checked at least annually to inform management and should include checks for foliage appearance, leaf size, leaf canopy density extension growth and girth development. • To ensure successful establishment of trees, twice weekly watering will be undertaken between April – October in the first two growing seasons. Watering must be sufficient to wet the entire root ball of the tree. Application and frequency of watering should be determined by recent weather events. In year three and thereafter watering may be required in periods of drought and should be accompanied by a check of the soil to ensure waterlogging is not causing signs of ill health to the tree. • Tree stakes and ties should be checked at least annually to assess stability and firmness to ensure that ties are performing effectively and not causing damage to the tree through chaffing or rubbing. Stakes should be placed at sufficient depth into the ground. Ties should be fitted and adjusted so they are not too tight to allow natural growth of the tree. Rubber bungs should be in place to ensure there is no contact between the stake and tree. • Any side shoots or epidermic growth on the proposed field maple trees will be pruned to maintain a clear stem between June – October until established. • Within the first three years, any trees found to be leaning will be replanted. In years two and three, tree stakes will be removed from established trees. • Any new tree, which within a 30-year period following planting, that dies, fails to thrive, becomes severely diseased or damaged will be replaced with a new tree of similar species and size.	• Twice annually	• Visit 1: February - March • Visit 2: May – early September	• 30 years	• Appointed contractor

Pond (Enhanced)
• Proposed Habitat ref: 3
	• This section covers aquatic plants only with pond edge species covered under proposed habitat parcel 12.
	• Aquatic vegetation management and monitoring should include the following general principles:
	  ○ Plants should be allowed to settle and establish for the first 2 years post development.
	  ○ Thereafter, the cover of aquatic plants should be monitored with occasional intervention to manage the coverage of any species that are being dominant to the detriment of ecosystem function and diversity of the pond. Intervention will also serve the function of creating habitat diversity to maintain both covered and open areas in the pond.
	  ○ Any aquatic plant coverage removal should be done so by hand (with chemicals prohibited) or with use of a small rake.
		• Twice annually	• September - January	• 30 years	• Appointed contractor

	○ Aquatic vegetation removal should be completed in late autumn and winter taking into consideration the presence of great crested newt larvae. ○ Any aquatic vegetation removal should be thoroughly checked for great crested newts and left at the water edge for a minimum of 48 hours to allow wildlife to re-enter the pond of its own accord prior to removal of the vegetation from site. • To ensure there are no leaks to the pond, trees growing in close proximity to the pond should be monitored and any new saplings removed. Furthermore, a review of established trees should be undertaken in case roots may be breaking the seal of the pond. • Water levels in the pond should be monitored annually, with particular focus on the draw down rate. While the interventions should ensure water levels are retained for longer periods of the year, it may be appropriate to introduce water to ensure aquatic plants are able to establish and that the newly formed deep central bowl retains water all year round. Water introduction should ideally not be chlorinated and should be sourced appropriately from a certified supplier to prevent the introduction of non-native species and fish. • A proportionate approach to maintaining water levels should be undertaken in the event the pond fails to hold water consistently. • The pond should also be monitored for the introduction of pet fish due to its proximity to a residential development. Any fish found within the pond should be removed due to their detrimental impacts on great crested newts.				
Additional Ecological Enhancements					
Proposed Native hedgerows	• The newly planted hedgerow shrubs should be watered, twice weekly between April – October in year 1 to ensure successful establishment. Watering will need to be sufficient to wet the entire root ball of each hedgerow. Local factors and recent weather should be taken into consideration when watering to prevent water logging and reduce site visits. • Ground adjacent to the hedgerow lengths should be managed to remove any 'weeds' in order to reduce competition and increase sunlight. This should be undertaken by hand or with a targeted application of herbicide in the immediate vicinity of the plants by a suitably qualified contractor. Weed control measures will continue until the establishment of the plants has been successful. • The health of the newly planted hedgerow should be checked with any dead, dying or diseased plants removed and replaced on a like-for-like basis. Furthermore, the soil at the location of planting should be checked for compaction with loosening where required. • Spiral guards and stakes should be checked and replaced where missing or damaged and removed once the hedgerows are established. • The newly planted hedgerow will be trimmed in the first two years to encourage bushy growth, allowing the hedgerow to become taller and wider at each cut. Incremental cutting of the hedgerow should take place once the hedgerow has established. • Hedgerow cutting will be conducted outside of the breeding bird season (i.e. not between 1st March and 31st August). Bramble and other perennial weeds will be controlled, as required.	• Twice annually until established • Annually once established	• Visit 1: March • Visit 2: October	• 30 years	• Appointed contractor
Hibernacula/ Refugia	• The condition and structure of the hibernacula/ refugia should be assessed to ensure it remains suitable for amphibians, reptiles and invertebrates. • Small hibernacula may require additional woody debris and turf to help establish and should be replaced like-for-like should any be inadvertently removed.	• At time of audit	• Any time of year	• A minimum of 5 years	• Appointed contractor

	• It may be appropriate to loosen some of the soil on and around the hibernacula should it become compacted over time.				
Barn Owl Box	• Boxes used only by breeding barn owls will require cleaning out every 2 or 3 years. If other birds such as jackdaws use the box, more frequent annual cleaning will be required. • Box cleaning must be undertaken outside of the barn owl nesting season, and therefore, it is recommended that this is undertaken by a suitably qualified ecologist.	• At the time of audit.	• November to January	• A minimum of 5 years	• Appointed contractor
Bat Box	• The integrated bat boxes are designed to be self-maintained, and as such, cleaning will not be required. • The integrated bat boxes proposed are very durable but should be checked at least annually (or at the time of audit) and on an ad hoc basis to ensure they are sufficiently mounted and are not damaged. Any damaged boxes should be replaced like-for-like.	• At the time of audit	• Any time of year	• A minimum of 5 years	• Appointed contractor
House sparrow nest box	• The integrated sparrow boxes are designed to be self-maintained, and as such, cleaning will not be required. • The integrated sparrow boxes proposed are very durable but should be checked at least annually (or at the time of audit) and on an ad hoc basis to ensure they are sufficiently mounted and are not damaged. Any damaged boxes should be replaced like-for-like.	• At time of audit	• March - October	• A minimum of 5 years	• Appointed contractor
Hedgehog fence gaps	• Once established, hedgehog gaps should be checked on an ad hoc basis or at least annually to ensure they have not become blocked and as such unsuitable for use by hedgehog.	• At time of audit	• Any time of year	• A minimum of 5 years	• Appointed contractor

7. Auditing and Reporting

Responsibilities

7.1.1 Arun Ecology Ltd has assumed responsibility for the draft production of this HMMP.

7.1.2 The applicant will appoint an appropriately qualified ecologist to undertake any future audits.

Monitoring Method

7.1.3 A UK Hab Survey and BNG Condition Assessment will be undertaken to assess all retained and newly created habitats within the development boundary against the target condition outlined within this HMMP. This assessment will be undertaken by a suitably qualified ecologist.

7.1.4 A checklist will be used to monitor all other ecological enhancements within the development boundary. The checklist will be completed by a suitably qualified ecologist with comment made on compliance and any remedial actions that might be required.

Annual Monitoring Reporting

7.1.5 The annual audit and monitoring should be provided in a short report format. As a minimum this should include:

- Audit information, including the audit reference, date of completion and name of the organisation and author undertaking the audit;
- A checklist of all habitats and ecological enhancements that fall within the scope of this HMMP;
- The results of the UK Hab Survey and BNG Condition Assessment to determine if retained and newly created habitats meet the target condition; and
- An overall conclusion on compliance with the HMMP and recommendations for any remediation, and furthermore, any subsequent updates to the HMMP.

7.1.6 It is recommended that an audit is undertaken in years 2, 5, 10, 15, 20, 25 and 30. Please note that annual management of all habitats until established as per Table 8 will still be required.

7.1.7 All audits should be kept as a digital record and made available to the local planning authority to ensure compliance with the conditions of planning.

Updating of the Habitat Management and Monitoring Plan

7.1.8 Professional judgment should be used to decide when it is appropriate to update the HMMP. It may be appropriate to update the HMMP annually, where there are changes proposed to the annual management regime, or at the time of audit. There will be no requirement to update the HMMP where there are no remedial actions required.