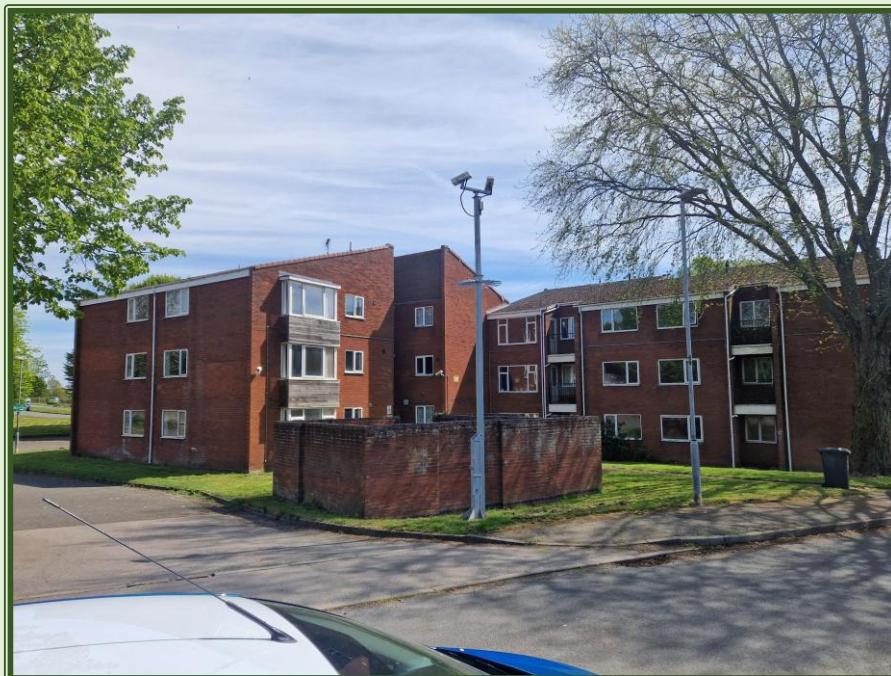




Elite Ecology

Passionate about Ecology

Peggs Close, Earl Shilton



Biodiversity Net Gain Report

December 2025



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03/12/2025	V2	Final Report	Proofread

0. Executive Summary

This report has been prepared at the request of Hinckley and Bosworth Borough Council. It relates to the proposed re-development works at Peggs Close, Earl Shilton, Leicester, Leicestershire, LE9 7BP (Central OS Grid Reference: SP 46873 97569). For this report, a biodiversity impact assessment calculation has been made. This document should be read in conjunction with the completed Excel spreadsheet.

Under the current proposals, the plan is to demolish the building and construct new flats on the site. Overall, this will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site. Please refer to **Appendix A** for the site plans.

The site walkover revealed multiple habitats on site. The Baseline Habitat Plan, habitat codes and target notes for the site are located within **Appendix C**. The following habitats were recorded on site and in the surrounding area (in primary habitat code alphabetical order):

- **g4 – Modified Grassland**
 - 32 Scattered trees
 - 201 Young trees
- **u1 846 – Flower Bed**
 - 847 Introduced Shrub
- **u1b – Developed Land; Sealed Surface**
- **u1b5 – Buildings**
- **u1e 612 853- Built Linear Feature**
- **u1f – Sparsely Vegetated Urban**

Habitat Mitigation Score

Biodiversity Unit Type	Baseline Units		Post-Development Units Without Recommendations			Post-Development Units With Recommendations			
	On-Site	Off-Site	On-Site	Off-Site	% Net Gain	On-site	Off-site	Statutory Biodiversity Credits	% Net Gain
Area Habitats	3.88	N/A	4.50	N/A	+16.05	N/A	N/A	N/A	N/A
Linear Habitats	0.00	N/A	0.41	N/A	N/A	N/A	N/A	N/A	N/A
Linear Habitat – Rivers and Streams	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Habitat Creation and Management

Habitat creation and management details can be found within **Section 6**. Following the management plan will ensure that habitats meet their target conditions. Habitats that will be implemented are as follows:

- Mixed Scrub.
- Scattered Trees.

Timetables for post-monitoring can be found in **Section 7**.

Species Specific Enhancements

A number of species-specific enhancements can be found in **Section 6**.

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1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Hinckley and Bosworth Borough Council. It relates to the proposed re-development works at Peggs Close, Earl Shilton, Leicester, Leicestershire, LE9 7BP (Central OS Grid Reference: SP 46873 97569). For this report, a biodiversity impact assessment calculation has been made. This document should be read in conjunction with the completed Excel spreadsheet.

1.2 Site Description

The site is situated in a semi-rural setting in the market town of Earl Shilton located approximately 5.0km from Hinckley, Leicestershire.

The site measures approximately 0.46ha, and contains a number of habitats. These include buildings, built linear features, flower bed, introduced shrub, modified grass, sealed surface, sparsely vegetated urban land, and scattered trees. The habitats on site could have the potential to support a number of protected species. The photographs of the site are found within **Appendix E**.

Within the wider landscape further habitats are present. These come in the form of amenity grass, arable land, hard standing ground, hedgerows, improved grassland, pastureland, residential dwellings (and their associated gardens/yards), scattered trees, standing water, and woodland. This shows that the habitats in the area surrounding the site have the potential to support protected species.

Figure 1: An aerial map showing the boundary of the site at Peggs Close, Earl Shilton (as shown by the red outline).



Figure 2: An aerial map showing the boundary of the site at Peggs Close, Earl Shilton (as shown by the yellow star) in relation to some of the local landscape.

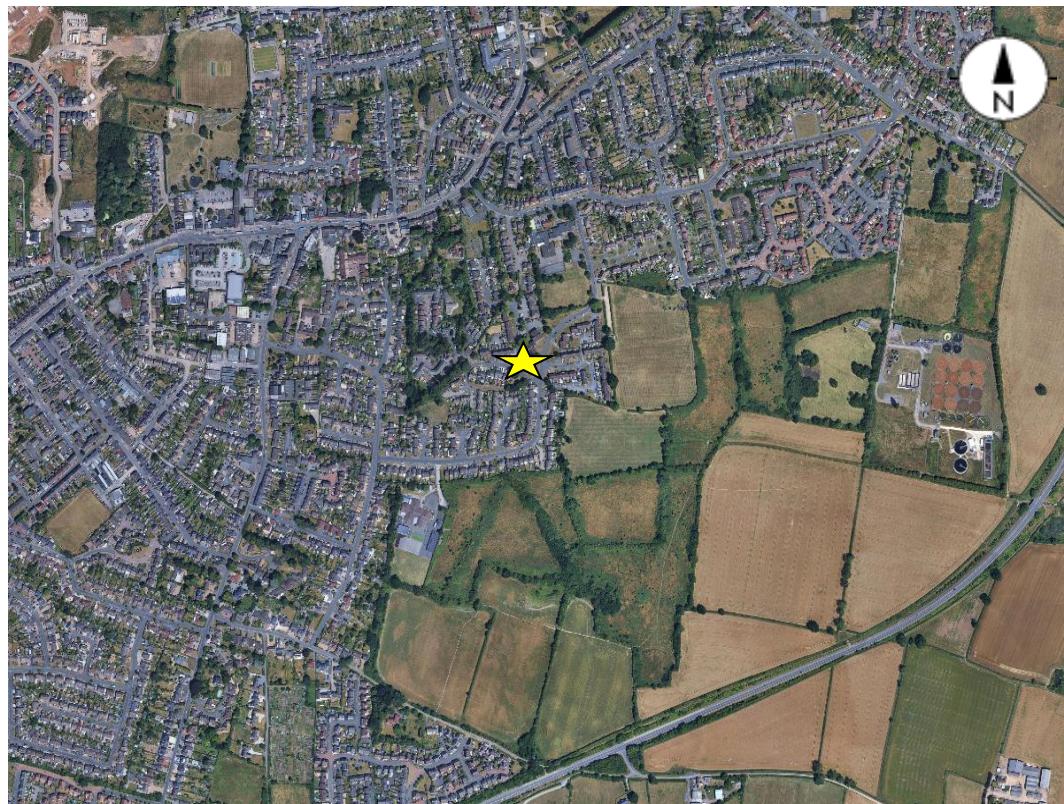
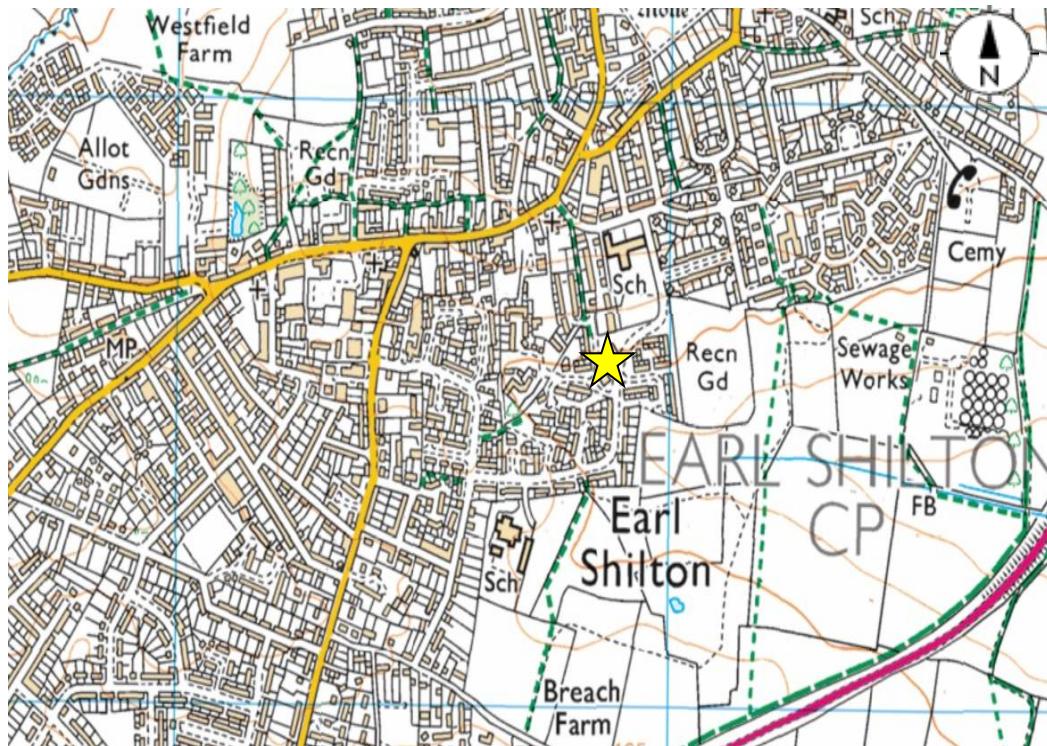


Figure 3: An OS map obtained from Bing showing the location of Peggs Close, Earl Shilton (as shown by the yellow star).



1.3 Proposals

Under the current proposals, the existing buildings are to be demolished, and the site will be redeveloped through the construction of eighteen new residential dwellings with associated soft landscaping including new gardens and trees. Overall, this will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site. Please refer to **Appendix A** for the site plans.

1.4 Scope of Report

This report aims to:

- Establish the total number of baseline and lost habitat, hedgerow, and river units at the site of the proposed scheme.
- Establish the total number habitat, hedgerow, and river units that are to be created, retained and/or enhanced under landscape and ecological mitigation proposals at the proposed works site.
- Determine whether the proposed scheme will result in a net loss, no net loss, or a net gain for biodiversity.
- Make further recommendations to gain the required 10% minimum net gain for biodiversity.

1.5 **Biodiversity Net Gain Relevant Policies**

The appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England. These are:

- UK Biodiversity Action Plan (UKBAP).
- The Natural Environment and Rural Communities (NERC) Act 2006.
- The UK Post-2010 Biodiversity Framework (2011-2020).
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services.
- The National Planning Policy Framework (NPPF) 2024.
- Environmental Act 2021.
- Local policy.

A full explanation of these policies can be found within **Appendix F**.

2. Methodology

Personnel

Field surveys have been undertaken by licensed ecologist/s, members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and members of Elite Ecology staff. A walkover of the site was undertaken on the 28th of April 2025 by **Mr. Matthew Cotterill**: PG Dip, Senior Ecologist.

The Biodiversity Net Gain Assessment has been carried out by **Mr. Sina Sanati**: MSc, Assistant Ecologist, in line with CIEEM Guidelines on Good practice principles for development (2016), CIEEM A Practical Guide (2019) and BS 8683:2021 - Process for designing and implementing biodiversity net gain. This net gain report and assessment has been reviewed by **Mr. Richard Millington**: BSc (Hons), ACIEEM, CERPIT, MRSB, MArborA, Principal Ecologist.

Survey of Baseline Habitats and Condition

Habitat typing and condition assessments are undertaken during a Preliminary Ecological Appraisals (PEA) or similar studies. The baseline also considers historic records for the site and local area via a desktop study (satellite imagery, previous ecological reports), as well as additional surveys to assess the presence/absence of species in certain situations. Conditions of habitats and hedgerows are assessed using the scoring systems provided in the Statutory Biodiversity Metric Condition Assessment Sheet.

Calculations of Baseline Habitats

Using Geographic Information Software (GIS), baseline habitats are measured in hectares (ha) using vector layer polygons. These measurements are then input into the DEFRA Statutory Biodiversity Metric Calculation Tool. Habitat condition and connectivity are then input into the calculator. The area of habitat retained is then entered into the calculation to give a final sum of baseline units and lost unit.

Each habitat has a base score of 1, this is then multiplied by the size of the habitat (ha). The habitat is then multiplied by its distinctiveness:

- Very low – 0
- Low – 2
- Medium – 4
- High – 6

The next multiplier is based on the condition of the habitat:

- N/A-other/agricultural – 0
- Poor – 1
- Fairly poor – 1.5
- Moderate – 2
- Fairly good – 2.5
- Good – 3

Calculations of Post-development Habitats

The calculation is informed by planning design, landscape plans, and proposed ecological mitigation. Plans are georeferenced into GIS and are similarly measured in hectares (ha) using vector layer polygons. These measurements are then converted into input into the DEFRA Statutory Biodiversity Metric Calculation Tool. A target condition will be assigned to each new habitat following the same scores as above. The calculator will generate a proposed time to hit this target condition and difficulty score.

3. Baseline Conditions

3.1 Habitats

The site walkover, completed on the 28th of April 2025, revealed multiple habitats on site. The full condition assessment of the habitats found on site can be found within **Appendix B**. The baseline habitat map, habitat codes and target notes for the site are located within **Appendix C**. The following habitats were recorded on site (in habitat code order).

On Site:

UKHAB	Metric	Condition	Justification
32 – Scattered Trees	Urban Trees	Good	All trees pass five of the conditioning criteria (see Appendix B).
g4 – Modified Grassland	Modified Grassland	Poor	Fails essential conditioning criterion A (see Appendix B).
u1 846 – Vegetated Garden	Introduced shrub	Condition Assessment N/A	No condition assessment required for this habitat.
U1 847 – Introduced Shrub			
u1b – Developed Land; Sealed Surface	Developed Land; Sealed Surface	N/A – Other	No condition assessment required for this habitat.
u1b5 – Buildings	Developed Land; Sealed Surface	N/A – Other	No condition assessment required for this habitat.
u1e 612 - Built Linear Feature - Fence	N/A	N/A – Other	No condition assessment required for this habitat.
U1e 853 Mortared Wall			
u1f – Sparsely Vegetated Urban	Ruderal	Condition Assessment N/A	No condition assessment required for this habitat.

3.2 Strategic Significance

The following table shows the strategic significance of the site. This is compared against freely available sources such as the Multi Agency Geographic Information for the Countryside (MAGIC) and local policy maps.

Habitats	Strategic Significance	Justification
All Habitats	Area/compensation not in local strategy/ no local strategy.	Area not identified in the local plan/strategy for biodiversity, nor is it deemed to be in a particularly ecologically valuable area.

3.3 Species

The preliminary ecological appraisal survey revealed that the habitats that have been outlined for the proposed development area do contain protected species potential. The following assessment has also taken into account the adjacent habitats and connectivity to the wider landscape for all protected and rare species.

Species	Further Works	Further Surveys Done	Summary of Results
Amphibians	None	No	The site contains no protected amphibian species, and the habitats are not considered likely to support any protected amphibian species. As such, the potential for protected amphibian species to be affected is negligible .
Badgers	None	No	Given the lack of field signs on-site and the habitat that could be utilised as sett creation features, the likelihood of badger presence is considered negligible , and no further action is required.
Bats	Surveys	Yes	The Buildings B1, B2 and B3 have been found to be in use as common pipistrelle day roosts. Mitigation has been proposed in the form of bat boxes to be placed close to the original roost locations. For further information please see the bat emergence report produced by Elite Ecology (September 2025)
Birds	Precautionary Measures	No	As a precautionary measure, it is recommended that any building and vegetation removal is undertaken outside of the bird breeding season (March to August, inclusive). If these features are required to be altered during the bird breeding season, then a further inspection by a suitably qualified ecologist is required no more than twenty-four hours before this process commences. This is to ensure that no active nest site is illegally destroyed, due to the protection afforded to all active bird nests under the Wildlife and Countryside Act 1981. If an active nest is found by a site inspection, an exclusion zone around the nest will be necessary to preserve this feature until the chicks have fledged the nest.
Crustaceans	None	No	No suitable aquatic habitats for crustaceans are present on-site. Therefore, the potential for crustaceans to be present on-site is considered negligible , and no further action is required.
Fish	None	No	There are no aquatic features on-site capable of supporting fish. As a result, the likelihood of fish occurring on the site is negligible , and no further action is required
Flora	None	No	The site contains no protected floral species, and the habitats are not considered likely to support any protected floral species. As such, the potential for protected flora species to be affected is negligible .
Hazel Dormouse	None	No	The site does not contain suitable habitats, such as woodland or dense hedgerows, for hazel dormice. In addition to this. Therefore, the potential for hazel dormice to be present on the site is considered negligible , and no further action is required.
Hedgehogs	Precautionary Measures	No	If trees or dense vegetation is cleared between the 1 st of November and the 31 st of March, then an inspection by a suitably qualified ecologist is required to ensure no hibernating hedgehogs are present on site. It is recommended that precautionary measures are incorporated if construction is undertaken at other times of the year. This will be to create provisions for hedgehogs to escape from all trenches dug into the ground, by creating slopes or providing ramps at the end of each working day.

			Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.
Invertebrates	None	No	The site includes areas of tree and shrub cover, providing some habitat for invertebrates. However, due to the limited extent of suitable habitat and the surrounding environment, the potential for invertebrate species to be present on the site is considered low , and no further action is required.
Otters	None	No	The site does not contain suitable aquatic habitats, such as rivers, streams, or large water bodies, that would support otters. As such, the potential for otters to be present on-site is considered negligible , and no further action is required.
Reptile	None	No	Based on the site conditions and the nature of the habitat, which does not provide suitable environments for reptiles, there is no evidence to suggest the presence of reptiles on the site. Therefore, the potential for reptiles to be present on the site is considered negligible , and no further action required.
Water voles	None	No	Based on the site conditions and the characteristics of the habitat, which do not provide the necessary features for supporting water voles, there is no evidence to suggest the presence of water voles on the site. Therefore, the potential for water voles to be present on the site is considered negligible , and no further action is required

4. Baseline Calculation and Proposal Impact

4.1 Existing Habitats

The table below outlines the existing site status based on the most recent field survey.

Area Habitats

Habitat Description	Habitat Area (ha)	Distinctiveness	Score	Condition	Score	Baseline Habitat Units	Habitats Retention (ha)			Habitat Units Lost
							Retained	Enhanced	Lost	
Modified grassland	0.24	Low	2	Poor	1	0.48	0.00	0.00	0.24	0.48
Developed land; sealed surface	0.08	V.Low	0	N/A - Other	0	0.00	0.00	0.00	0.08	0.00
Developed land; sealed surface	0.11	V.Low	0	N/A - Other	0	0.00	0.00	0.00	0.11	0.00
Ruderal/Ephemeral	0.01	Low	2	Poor	1	0.02	0.00	0.00	0.01	0.02
Urban tree	0.28	Medium	4	Good	3	3.36	0.25	0.00	0.03	0.36
Introduced shrub	0.01	Low	2	Condition Assessment N/A	1	0.02	0.00	0.00	0.01	0.02
TOTALS:	0.45*					3.88	0.25	0.00	0.47	0.88

*Areas excluding individual trees.

Based on the above information, the on-site habitat biodiversity value is calculated at **3.88** habitat units, with **0.88** units lost during the development. Therefore, **3.00** habitat units will remain.

Linear Habitats

No linear habitats were present in the baseline.

Watercourse Habitats

No watercourses were present in the baseline.

4.2 Proposed Habitats

Area Habitats

Habitat Description	Habitat Area (ha)	Target Distinctiveness	Score	Target Condition	Score	Time To Target Condition		Difficulty of Creation		Habitat Biodiversity Value
						Time (years)	Score	Difficulty	Score	
Modified grassland	0.05	Low	2	Poor	1	1	0.965	Low	1	0.10
Developed land; sealed surface	0.11	V.Low	0	N/A - Other	0	0	1.000	Low	1	0.00
Developed land; sealed surface (Buildings)	0.1	V.Low	0	N/A - Other	0	0	1.000	Low	1	0.00
Introduced shrub	0.04	Low	2	Condition Assessment N/A	1	1	0.965	Low	1	0.08
Vegetated garden	0.13	Low	2	Condition Assessment N/A	1	1	0.965	Low	1	0.25
Bare ground (Area under hedgerows)	0.02	Low	2	Poor	1	1	0.965	Low	1	0.04
Urban tree	0.34	Medium	4	Moderate	2	27	0.382	Low	1	1.04
TOTALS:	0.45*									1.50

*Areas excluding individual trees.

The above habitats, valued at **1.50** habitat units, combined with the remaining valued at **3.00** units, a habitat biodiversity value score of **4.50** habitat units is given by the metric calculation.

Linear Habitats

Linear Habitat Description	Linear Habitat Area (km)	Target Distinctiveness	Score	Target Condition	Score	Time To Target Condition		Difficulty of Creation		Linear Habitat Biodiversity Value
						Time (years)	Score	Difficulty	Score	
Non-native and ornamental hedgerow	0.43	V.Low	1	Poor	1	1	0.965	Low	1	0.41
TOTALS:	0.29									0.97

The above habitats, valued at **0.41** linear habitat units. No linear habitat units are within the baseline defaulting to **0.00** units. This will results in a total biodiversity value score of **0.41** linear habitat units given by the metric calculation

Watercourse Habitats

No watercourse habitats have been proposed as part of this project.

4.3 Total Net Unit Change

The net unit change for the area habitats on site is calculated at **+0.62**, which correlates to a gain of **16.05%** in biodiversity units.

The net unit change for the linear habitats on site is calculated at **+0.41**. A percentage gain can not be calculated due to the baseline being **0.00** units

4.4 Trading Rules

With the above proposed habitats, the trading rules are **not** satisfied. The table below breaks down the factors for passing or failing the trading rules:

Area Habitats:

Trading Summary			
Distinctiveness Group	Trading Rule	Trading Satisfied	Reason
Very High	Same habitat required – bespoke compensation option	Yes	No habitats of this distinctiveness were identified on site.
High	Same habitat required	Yes	No habitats of this distinctiveness were identified on site.
Medium	Same broad habitat or a higher distinctiveness habitat required (\geq)	Yes	The proposals provide 0.68 units of medium distinctiveness habitats. There is a cumulative surplus of 0.68 to offset lower distinctiveness habitats.
Low	Same distinctiveness or better habitat required (\geq)	Yes	0.40 units of low distinctiveness were lost under the current proposals. The proposals provide 0.35 units of low distinctiveness habitats. Remaining lost units will be offset by the units of medium distinctiveness generated by the proposals. This leaves a surplus of 0.62 units.

Linear Habitats:

Trading Summary			
Distinctiveness Group	Trading Rule	Trading Satisfied	Reason
Very High	Same habitat required – bespoke compensation option	Yes	No habitats of this distinctiveness were identified on site.
High	Same habitat required	Yes	No habitats of this distinctiveness were identified on site.
Medium	Same broad habitat or a higher distinctiveness habitat required (\geq)	Yes	No habitats of this distinctiveness were identified on site.
Low	Same distinctiveness or better habitat required (\geq)	Yes	No habitats of this distinctiveness were identified on site.
Very Low	Same distinctiveness or better habitat required (\geq)	Yes	The proposals provide 0.41 units of very low distinctiveness habitats. There is a cumulative surplus of 0.41.

5. Recommendations

5.1 Habitats

The net unit change for the area habitats on site is calculated at **+0.62 (16.05%)** units in habitat biodiversity, and a **0.41** unit gain in linear units. The project meets the trading rules, and exceeds the DEFRA Minimum 10% gain in habitat biodiversity. No further habitats are required.

6. Habitat Creation and Management

6.1 Soil Preparation

SOILS: Subgrade/subsoil to be prepared in accordance with BS 8601:2013 and BS 4428:1989 and scarified or ripped to 300mm depth (excluding root protection areas of retained trees refer to Tree Protection Plan) prior to spreading topsoil to alleviate compaction and promote drainage. Imported and as saved topsoil to be in accordance with BS 3882: 2015 'Multipurpose Grade' with minimum soil organic matter contents 1% greater than the minimal value (or as approved). Imported topsoil (and 'as saved' if requested) is to be laboratory tested to BS 3882:2015 and ameliorated as required to meet the required characteristics as detailed within Table 1 of BS 3882:2015 specification.

private lawn and amenity areas are to use unimproved topsoil or low fertility topsoil to BS 3882:2015. Grass areas to be a minimum depth of 150mm, shrub beds 450mm depth, and forestry/transplants 300mm depth. Any weed/grass growth is to be sprayed out with appropriate herbicide at least ten days prior to cultivation. All areas are to be cultivated to a minimum depth of 150mm removing weeds and rubbish/stones greater than 20mm in size. Incorporate proprietary non peat compost to BSI PAS 100 to 50mm depth evenly worked into soil during cultivation.

6.2 Habitats

6.2.1 Scattered Trees

New scattered trees are to be planted within the development; these are to consist of the following:

- 21 small sized trees: downy birch (*Betula pubescens*), oak (*Quercus robur*), rowan (*Sorbus aucuparia*) silver birch (*Betula pendula*) and wild cherry (*Prunus avium*), pear (*Pyrus communis*), walnut (*Juglans regia*) and whitebeam (*Sorbus aria*).

Tree planting will be attended to three times during the growing season (April-September) and once during the dormant season (October-March inclusive). Checks will involve the following:

- All plants shall be checked and firmed up in the ground as necessary.
- Any damaged shoots or branches shall be pruned cutting back to above a live, outward-facing bud or shoot.
- Weed growth within planting areas shall be removed during the summer visits. This is to be undertaken mechanically or by hand.
- Watering will be carried out during the growing season to maintain shrubs in active growth and in a healthy thriving condition. Watering will be carried out
- Thirteen times within the period for the first two years then reduced to seven times per year following.
- Any dead trees shall be removed ready for replacement planting in the winter visit.

These trees are to be planted accordance with BS 3936, BS8545 and The National Plant Specification – 'Rootballed Trees'.

These trees should be left to reach maturity

6.2.2 Control of Aggressive Weeds

Any weeds which grow on site and are thought to be aggressive and pose a threat to the success of the planted trees should be eradicated as soon as possible. These will be identified within a plant identification survey undertaken twice yearly; one in March and one in July. It will be necessary to remove all weeds found on site by hand during the first three years of the project, until the new trees are mature enough to survive. Any invasive species that appear on site will require eradication as soon as possible.

6.3 Species Specific Enhancements

6.3.1 Bats

From the survey effort, **B1** **B2** and **B3** have been confirmed to support multiple day roosts for common pipistrelle (*Pipistrellus pipistrellus*) bats. Seven Integrated Eco Bat Box (one for each access point) are to be implemented into the new developments. These can be purchased by contacting admin@eliteecology.co.uk, and should be placed as close to the existing bat access points as possible. The recommended locations of these bat box are marked on **figure 4** below.

Figure 4: Annotated site plans to show the locations of the of the integrated bat boxes to mitigate for the loss of common pipistrelle (*Pipistrellus pipistrellus*) bats



In addition to this the development site is to incorporate a minimum of the following in addition to the mitigation:

- Two Integrated Eco Bat Boxes.

Including these boxes will provide further roosting opportunities. These should avoid any artificial lighting, whilst being sighted facing east, south-east, south, south-west, and/or west. The wooden poles are recommended to be at least partially shaded by some of the new trees. Boxes can be purchased by emailing admin@eliteecology.co.uk.

Artificial lighting **must avoid** linear features. If it is necessary to include artificial lighting in areas overlooking both hedgerows and trees, then this must include sensors to be triggered by larger bodies only. An artificial lighting plan should be drawn up to illustrate the spill of light. This is to include the proposed security lighting on the residential dwellings as well as all street lighting. This document should then be approved by a licenced bat ecologist. More information on bats and artificial lighting can be found within **Appendix G**.

6.3.2 Birds

The development site should be enhanced for birds by installing a variety of bird boxes on site. The development should incorporate a minimum of the following:

- Two Apex Bird Boxes.
- Two Apex Robin Boxes
- Two Large Bird Boxes

Boxes can be purchased by emailing admin@eliteecology.co.uk.

The boxes should be positioned two-to-four metres high on a wall. They must be placed between northern and eastern elevations, thus avoiding strong sunlight and the wettest winds.

The entrance of the box must be kept clear of obstructions, such as branches and vegetation. All bird enhancements must be situated in a way that prevents access to predators, such as cats.

6.3.3 Hedgehogs (*Erinaceus europaeus*)

It is recommended that small gaps are left within any boundary fencing (if used) to enable the specimens to continue to commute through the area (an example can be found within **Figure 5**). This will ensure that the local hedgehog populations do not become fragmented within the local landscape.

Figure 5: An image of an example hedgehog tunnel (obtained from RSPB).



7 Timing, Phasing, and Duration of Conservation Measures

7.1 Construction Phase

Creation	Timing	Species
Tree Planting	Plant between October and April.	21 small sized trees: downy birch (<i>Betula pubescens</i>), oak (<i>Quercus robur</i>), rowan (<i>Sorbus aucuparia</i>) silver birch (<i>Betula pendula</i>) and wild cherry (<i>Prunus avium</i>), pear (<i>Pyrus communis</i>), walnut (<i>Juglans regia</i>) and whitebeam (<i>Sorbus aria</i>).

7.2 Operational Phase

Management	Reason for and Frequency of schedule	Yearly Management									
Scrub	Allow for variation in the structure and maturity of the scrub whilst ensuring the habitat is still available for use by wildlife	Year 1- Plant Recommended Species All plants shall be checked and firmed up in the ground as necessary Any damaged shoots or branches shall be pruned cutting back to above a live, outward-facing bud or shoot. Weed growth within planting areas shall be removed during the summer visits. This is to be undertaken mechanically or by hand. Watering will be carried out during the growing season to maintain shrubs in active growth and in a healthy thriving condition. Watering will be carried out Thirteen times within the period for the first two years then reduced to seven times per year following. Any dead trees shall be removed ready for replacement planting in the winter visit.	Year 2- All plants shall be checked and firmed up in the ground as necessary Any damaged shoots or branches shall be pruned cutting back to above a live, outward-facing bud or shoot. Weed growth within planting areas shall be removed during the summer visits. This is to be undertaken mechanically or by hand. Watering will be carried out during the growing season to maintain shrubs in active growth and in a healthy thriving condition. Watering will be carried out Thirteen times within the period for the first two years then reduced to seven times per year following. Any dead trees shall be removed ready for replacement planting in the winter visit.	Year 3- All plants shall be checked and firmed up in the ground as necessary Any damaged shoots or branches shall be pruned cutting back to above a live, outward-facing bud or shoot. Weed growth within planting areas shall be removed during the summer visits. This is to be undertaken mechanically or by hand. Watering will be carried out during the growing season to maintain shrubs in active growth and in a healthy thriving condition. Watering will be carried out Thirteen times within the period for the first two years then reduced to seven times per year following. Any dead trees shall be removed ready for replacement planting in the winter visit.	Year 4- No action.	Year 5- No action.	Year 6- No action.	Year 7- No action.	Year 8- No action.	Year 9- No action.	Year 10- No action.
		Year 11- No action.	Year 12- No action.	Year 13- No action.	Year 14- No action.	Year 15- No action.	Year 16- No action.	Year 17- No action.	Year 18- No action.	Year 19- No action.	Year 20- No action.
		Year 21- No action.	Year 22- No action.	Year 23- No action.	Year 24- No action.	Year 25- No action.	Year 26- No action.	Year 27- No action.	Year 28- No action.	Year 29- No action.	Year 30- No action.

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Control of Aggressive Weeds	Any weeds which grow on site and are thought to be aggressive and pose a threat to the success of the planted trees should be eradicated. Plant ID survey undertaken twice yearly	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		plant ID survey: March	plant ID survey: March	plant ID survey: March	plant ID survey: July	plant ID survey: March	plant ID survey: July	plant ID survey: March	plant ID survey: July	plant ID survey: March	plant ID survey: March
		Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
		plant ID survey: March	plant ID survey: March	plant ID survey: March	plant ID survey: July	plant ID survey: March	plant ID survey: March	plant ID survey: July	plant ID survey: March	plant ID survey: July	plant ID survey: March
		plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July
		Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
		plant ID survey: March	plant ID survey: March	plant ID survey: March	plant ID survey: July	plant ID survey: March					
		plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July	plant ID survey: July

7.3 Post-works - Habitat Condition Monitoring Timetable

Post-Monitoring Type	Colour
Progression Check	Yellow
Assessing if habitat has met target condition	Red
Monitoring if Target condition is retained	Green

Habitat	Year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
New scattered trees	Yellow														
Habitat	Year														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
New scattered trees	Yellow	Red	Green	Green	Green										

Species-specific Enhancement	Year				
	1	2	3	4	5
Bat Boxes	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.	No action.	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.
Bird Boxes	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.	No action.	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.
Bee Bricks	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.	No action.	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.
Hedgehog Boxes	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.	No action.	No action.	Ascertaining whether the enhancement is in use, and whether the condition is still appropriate.

8. Good Practice Principles for Development

The table below outlines the ten principles as outlined by the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment (IEMA), whilst outlining whether the project meets each principle, and a justification as to why this has or has not occurred.

Principle	Definition as set out by CIEEM and IEMAS	Principle met?	Justification
Principle 1: Apply the Mitigation Hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.	Yes	All required surveys have been undertaken and mitigation has been put forward. This principle has not been met.
Principle 2: Avoid Losing Biodiversity that Cannot be Offset by Gains Elsewhere	Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve no net loss or net gain.	Yes	No irreplaceable habitats occur on site. The habitats on site are common and of varying quality. This report has offered recommendations for habitats of a higher standard.
Principle 3: Be Inclusive and Equitable	Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to net gain. Achieve net gain in partnership with stakeholders where possible and share the benefits fairly among stakeholders.	Yes	Feedback from the stakeholders is welcome and this document is to be updated to fit requirements. This Biodiversity Net Gain Report has included recommendations to benefit the site while allowing it to be used for its intended purpose.
Principle 4: Address Risks	Mitigate difficulty, uncertainty and other risks to achieving net gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.	Yes	Post monitoring and a management scheme has been recommended to ensure habitats meet the target conditions.
Principle 5: Make a Measurable Net Gain Contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.	Yes	If the recommended Habitats are implemented: The net unit change for the area habitats on site is calculated at +0.62, which correlates to a gain of 16.05% in biodiversity units. The net unit change for the linear habitats on site is calculated at +0.41. A percentage gain can not be calculated due to the baseline being 0.00 units
Principle 6: Achieve the Best Outcomes for Biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when: <ul style="list-style-type: none"> ➤ Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses. ➤ Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation. ➤ Achieving net gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels. ➤ Enhancing existing or creating new habitat. ➤ Enhancing ecological connectivity by creating more bigger, better and joined areas for biodiversity. 	Yes	If the recommended Habitats are implemented: The net unit change for the area habitats on site is calculated at +0.62, which correlates to a gain of 16.05% in biodiversity units. The net unit change for the linear habitats on site is calculated at +0.41. A percentage gain can not be calculated due to the baseline being 0.00 units

Principle 7: Be Additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).	Yes	The habitats and species-specific enhancements recommended will improve the site for local fauna.
Principle 8: Create a Net Gain Legacy	Ensure net gain generates long-term benefits by: <ul style="list-style-type: none"> ➤ Engaging stakeholders and jointly agreeing practical solutions that secure net gain in perpetuity. ➤ Planning for adaptive management and securing dedicated funding for long-term management. ➤ Designing net gain for biodiversity to be resilient to external factors, especially climate change. ➤ Mitigating risks from other land uses. ➤ Avoiding displacing harmful activities from one location to another. ➤ Supporting local-level management of net gain activities. 	Yes	Post monitoring and a management scheme has been recommended to ensure habitats meet the target conditions.
Principle 9: Optimise Sustainability	Prioritise biodiversity net gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.	No	No wider environmental benefits or sustainability measures.
Principle 10: Be Transparent	Communicate all net gain activities in a transparent and timely manner, sharing the learning with all stakeholders	Yes	Feedback from the stakeholders is welcome and this document is to be updated to fit requirements. This Biodiversity Net Gain Report has included recommendations to benefit the site while allowing it to be used for its intended purpose.

9. References

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10. Appendices

Appendix A: Site Plans

Appendix B: Habitat Condition Assessment Sheets

Appendix C: Baseline Habitat Map

Appendix D: New Habitat Maps

Appendix E: Site Photographs

Appendix F: Biodiversity Net Gain Relevant Policies

Appendix G: Bat and Artificial Light

Appendix A: Site Plans



Appendix B: Habitat Condition Assessment Sheets

Habitat: Modified Grassland Condition Assessment Criteria		Criterion Passed
A	<p>There are 6-8 vascular plant species per m² present, including at least 2 forbs (these may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition.</p> <p>Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m², please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.</p>	No
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No
C	<p>Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble <i>Rubus fruticosus</i> agg. may be present).</p> <p>Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.</p>	Yes
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	No
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	No
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	Yes
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴).	Yes
Condition	Poor	Score 3/7 but fails criterion A

Note: As the habitat fails Criteria A, it is automatically classed as being in a poor condition.

Footnote 1 – Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.

Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 4 – Wildlife and Countryside Act 1981 (as amended).

Habitat: Scattered Trees (T1)		
Condition Assessment Criteria		Criterion Passed
A	The tree is a native species (or at least 70% within the block are native species).	No
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes
C	The tree is mature (or more than 50% within the block are mature) ¹ .	Yes
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Yes
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes
Condition	Good	Score
		5/6

Habitat: Scattered Trees (T2-12)		
Condition Assessment Criteria		Criterion Passed
A	The tree is a native species (or at least 70% within the block are native species).	Yes
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes
C	The tree is mature (or more than 50% within the block are mature) ¹ .	Yes
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Yes
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes
Condition	Good	Score
		6/6

Habitat: Scattered Trees (Young trees x 4)		
Condition Assessment Criteria		Criterion Passed
A	The tree is a native species (or at least 70% within the block are native species).	Yes
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes
C	The tree is mature (or more than 50% within the block are mature) ¹ .	No
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Yes
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes
Condition	Good	Score
		5/6

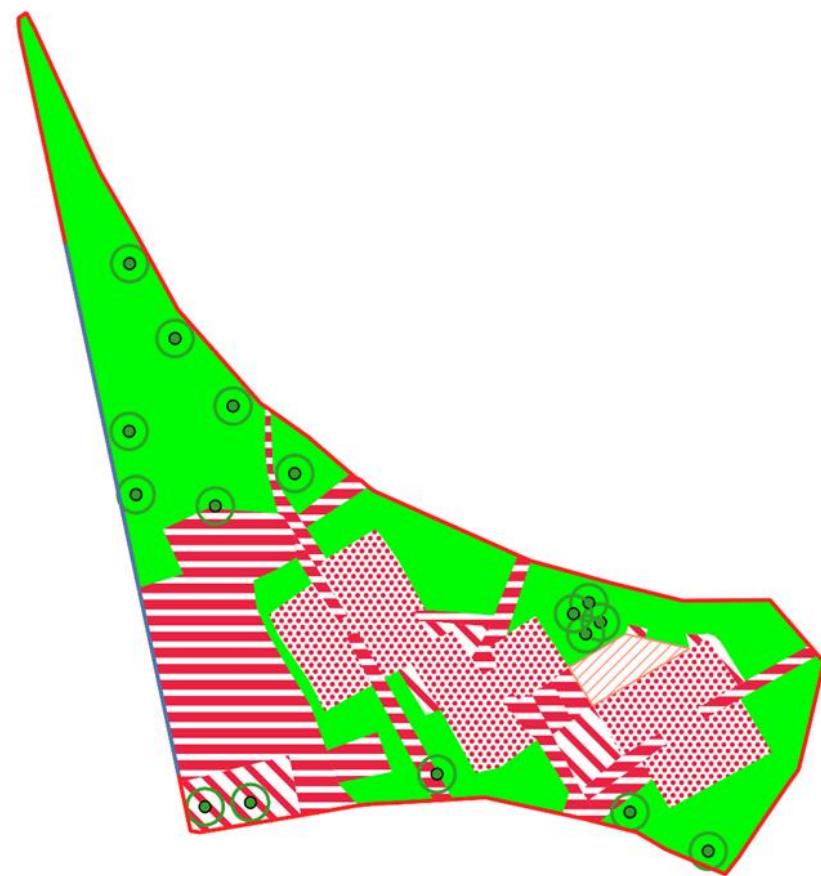
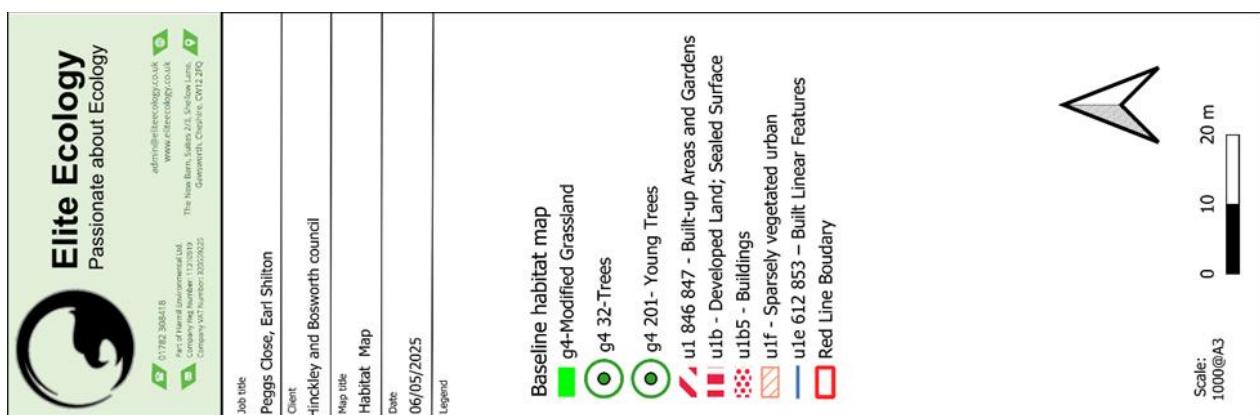
Footnote 1 - See gov.uk standing advice on ancient and veteran trees. Available from:

[Keepers of time: ancient and native woodland and trees policy in England \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/keepers-of-time-ancient-and-native-woodland-and-trees-policy-in-england)

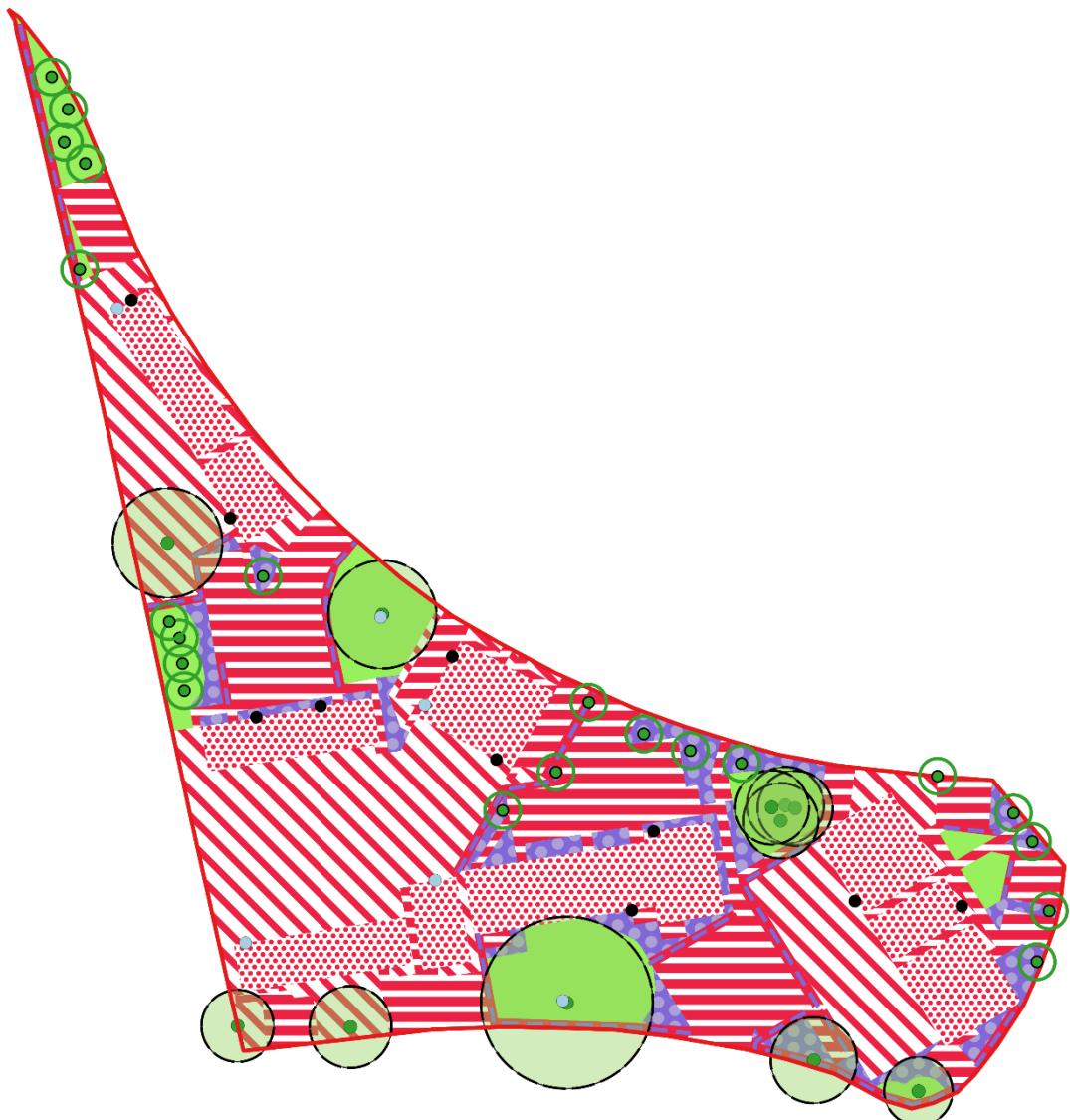
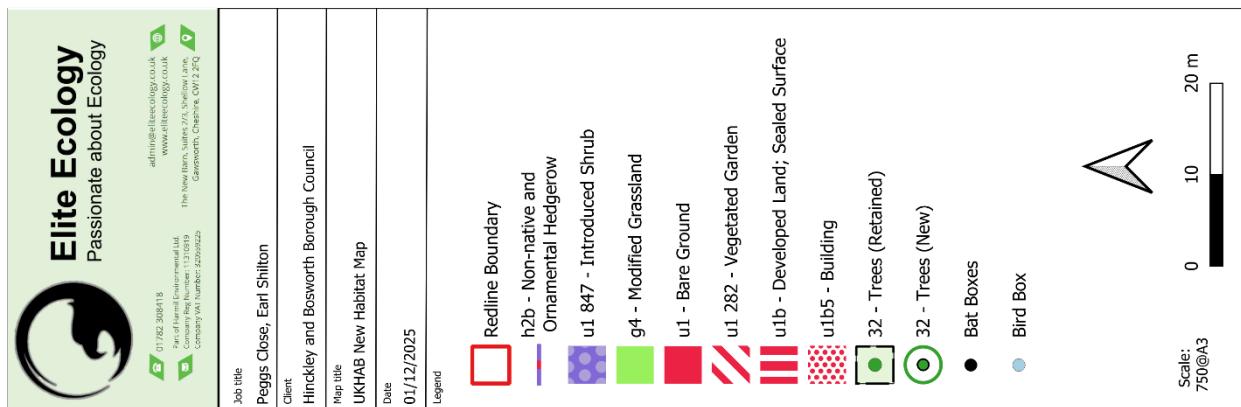
and:

[Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions)

Footnote 2 - Enhancement of this habitat type is only possible by improving the habitat so that it meets all Criteria B, D and F. It is not possible or appropriate to enhance individual tree/s through meeting just one or two of those Criteria, nor by meeting Criteria A, C or E.

Appendix C: Baseline Habitat Map

Appendix D: New Habitat Map



Appendix E: Site Photographs

Plate 1: Image showing the western elevation of B1.



Plate 2: Image showing the southern elevation of B1.

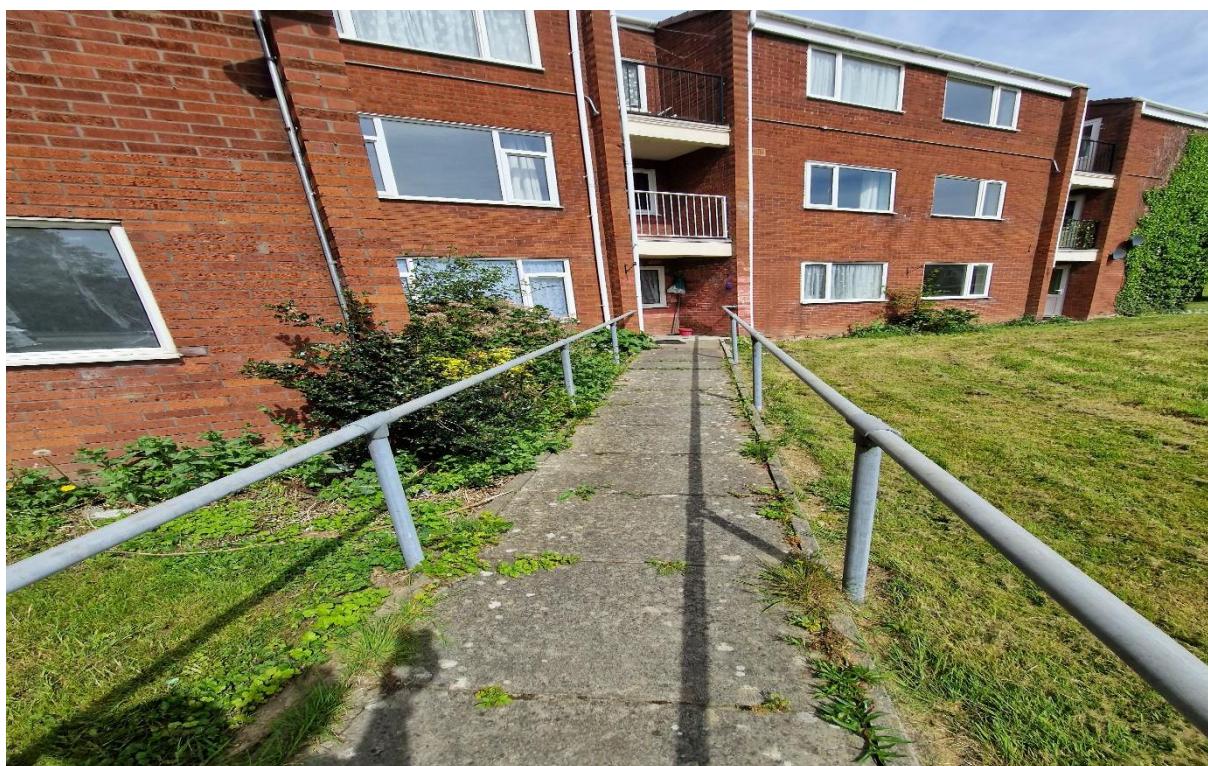


Plate 3: Image showing the eastern elevation of **B1**.



Plate 4: Image showing the eastern elevation of **B2**.



Plate 5: Image showing the northern elevation of B2.



Plate 6: Image showing the northern elevation of B2.



Plate 7: Image showing the western and northern elevation of **B1** and **B2**.

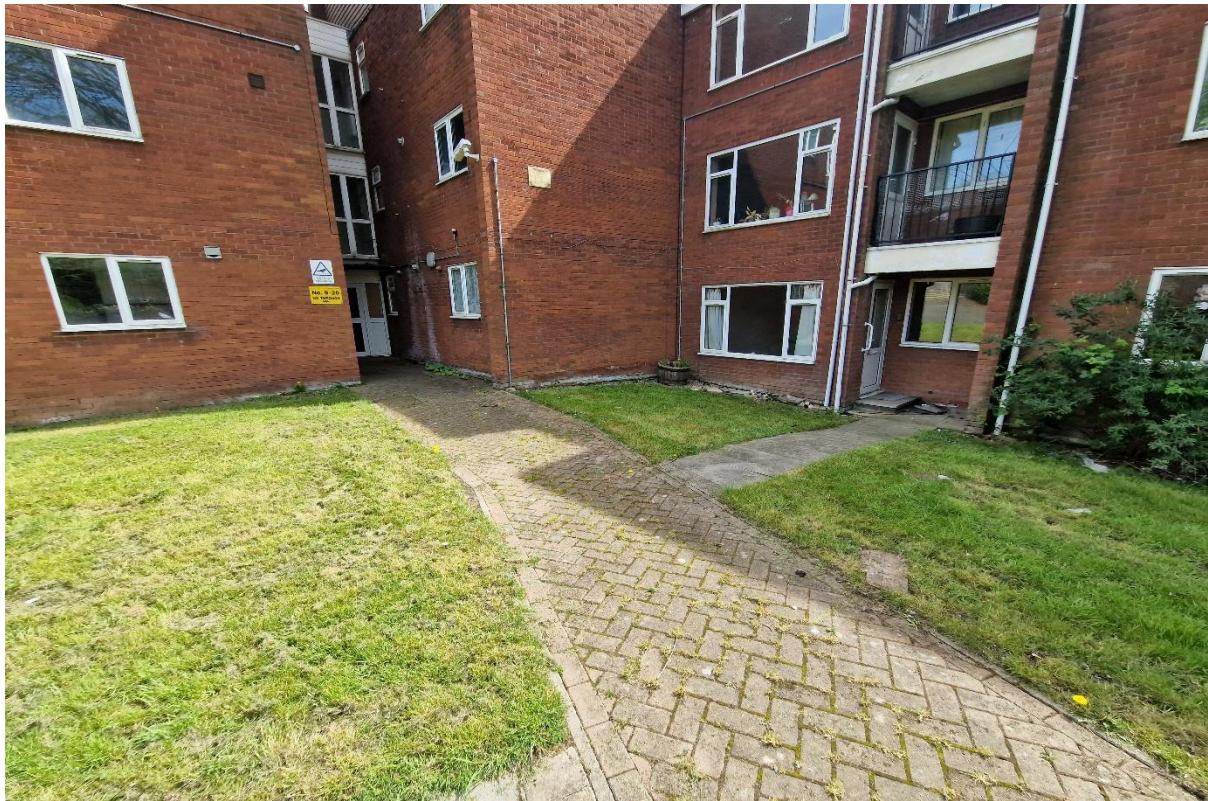


Plate 8: Image showing the northern elevation of **B3**.



Plate 9: Image showing the western elevation of B3.



Plate 10: Image showing the lifted flashing on the southern elevation of B1.



Plate 11: Image showing the drip edge vent on B1.



Plate 12: Image showing the missing edge tile on B1.



Plate 13: Image showing the vent in flashing part of **B2**.



Plate 14: image showing the ridge vent on **B1**.

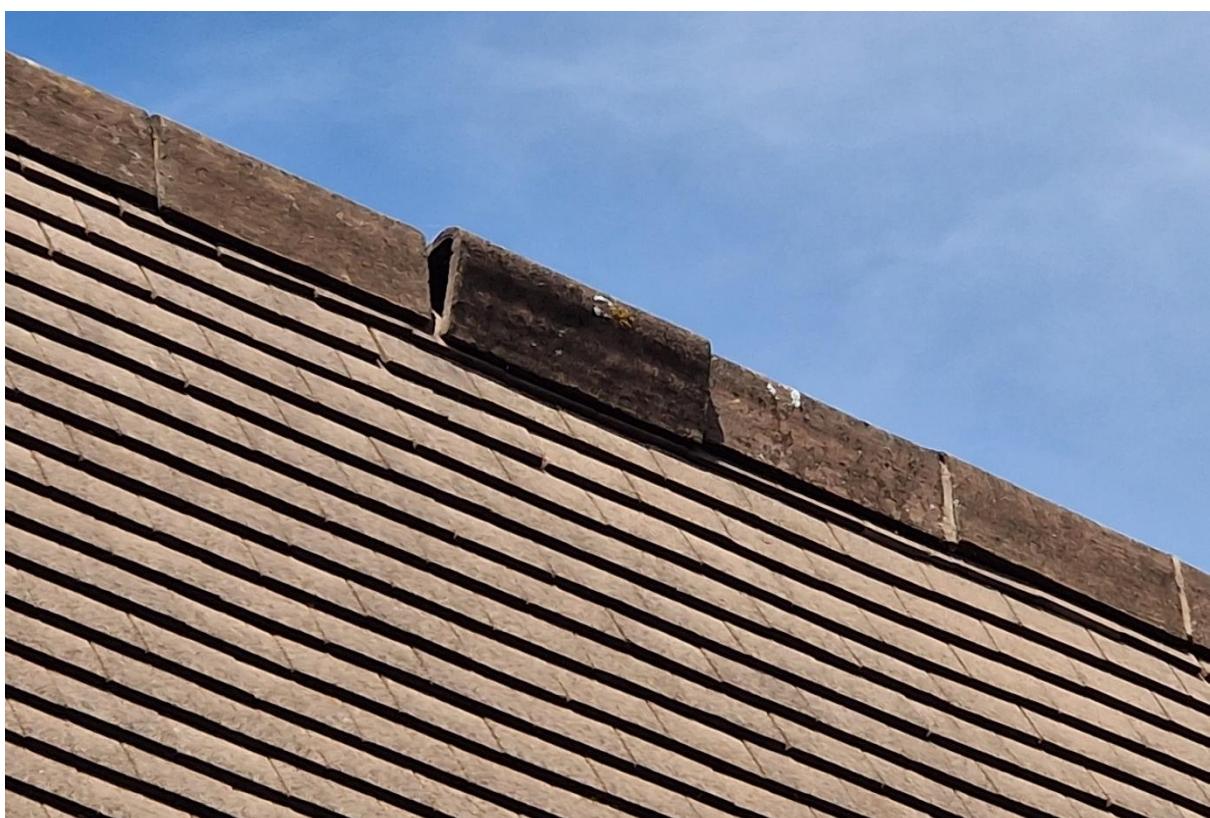


Plate 15: Image showing loose wood panels on B3.



Plate 16: Image showing the missing wood panels on B3.



Plate 17: Image showing the modified grassland on the north-east of the site.



Plate 18: Image showing the scattered trees on the western side of site.



Plate 19: Image showing the young trees on the eastern side of site.



Plate 20: Image showing the introduced shrub habitat on the north-west of the site.



Plate 21: Image showing the sealed surface in the north of the site.



Plate 22: Image showing the fence on the northern side of site.



Plate 23: Image showing the wall on the centre of the site.

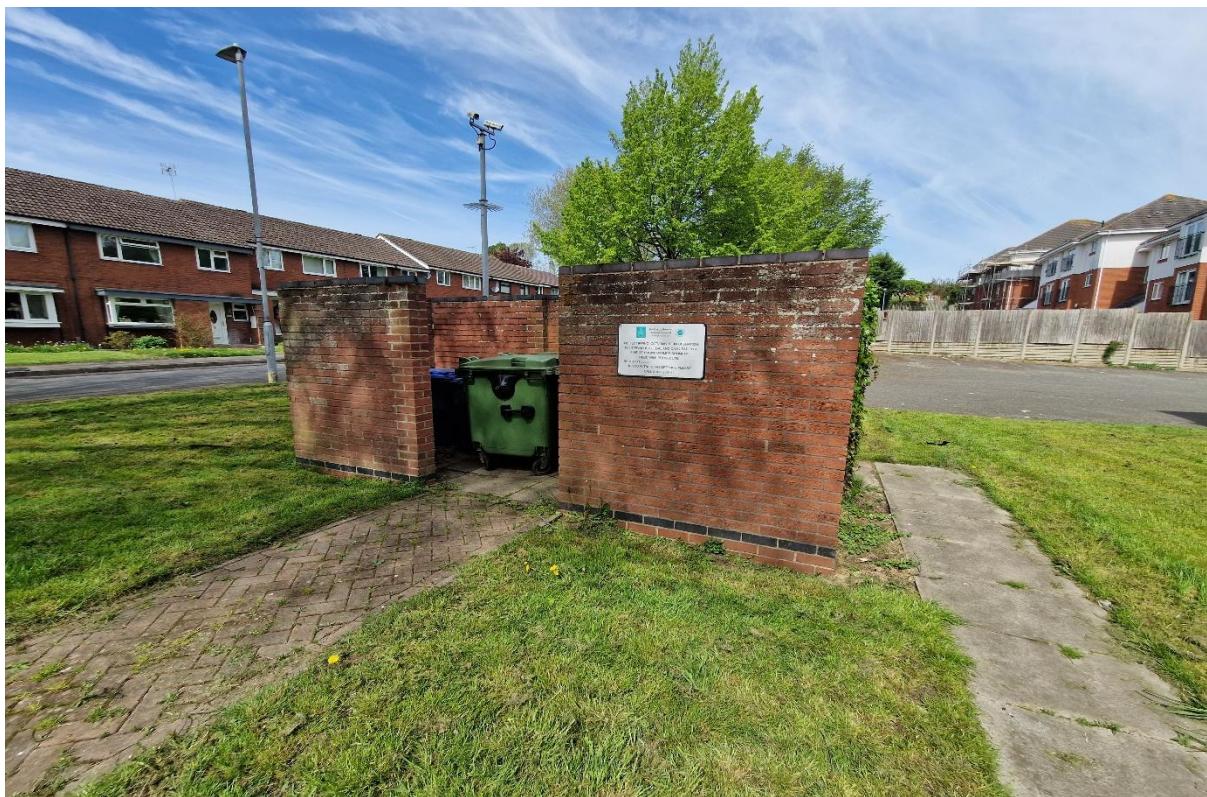


Plate 24: Image showing flower bed habitat on the southern side of site.



Appendix F: Biodiversity Net Gain Relevant Policies

Environmental Act 2021

Part 6 on nature and biodiversity covers all areas of biodiversity net gain across two core sections. This Act mandates that all planning meets a minimum of a 10% gain in biodiversity calculated using the appropriate Metric and that the newly created habitats are secured for at least 30 years.

National Planning Policy Framework (NPPF)

While currently not a legal obligation, biodiversity and environmental net gains are mentioned in the revised National Planning Policy Framework (NPPF) within the following paragraphs (please refer to the NPPF for the full quotations):

Achieving sustainable development

Paragraph 8 Section C. *“an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”*

Preparing and reviewing plans

Paragraph 33. *“Local plans and spatial development strategies should be informed throughout their preparation by a sustainability appraisal that meets the relevant legal requirements. This should demonstrate how the plan has addressed relevant economic, social and environmental objectives (including opportunities for net gains). Significant adverse impacts on these objectives should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be pursued. Where significant adverse impacts are unavoidable, suitable mitigation measures should be proposed (or, where this is not possible, compensatory measures should be considered).”*

Identifying land for homes

Paragraph 77 section A. *“consider the opportunities presented by existing or planned investment in infrastructure, the area’s economic potential and the scope for net environmental gains”*

Promoting sustainable transport:

Paragraph 109 section F. *“identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.”*

Making effective use of land:

Paragraph 125 section A. *“encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains – such as developments that would enable new habitat creation or improve public access to the countryside.”*

Conserving and enhancing the natural environment

Paragraph 187 Section D. “minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs”

Habitats and biodiversity

Paragraph 192. “To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and **safeguard components of local wildlife-rich habitats** and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, **enhancement, restoration or creation**;

and b) promote **the conservation, restoration and enhancement of priority habitats**, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing **measurable net gains for biodiversity**.”

Paragraph 1893. “When determining planning applications, local planning authorities should apply the following principles:

a) if **significant harm to biodiversity** resulting from a development **cannot be avoided** (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then **planning permission should be refused**;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the **loss or deterioration of irreplaceable habitats** (such as ancient woodland and ancient or veteran trees) **should be refused**, unless there are wholly exceptional reasons and a suitable compensation strategy exists;

and d) development whose primary objective is to conserve or enhance biodiversity **should be supported**; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can **secure measurable net gains for biodiversity** or enhance public access to nature where this is appropriate.”

Local Plan

Hinckley and Bosworth Borough Council's Local Plan

Development proposals must demonstrate how they conserve and enhance features of nature conservation and geological value including proposals for their long-term future management. All development should provide a net gain in biodiversity where possible. As a minimum, there should be no net loss of biodiversity. All proposals should be supported by evidence to demonstrate a biodiversity net gain using the recognised biodiversity accounting metric. Major developments in particular must include measures to deliver biodiversity gains through opportunities to:

- a) restore and enhance existing features on site
- b) create additional habitats and ecological networks
- c) The linking of existing habitats to create links between ecological networks and where possible, with adjoining features.

Proposals where the primary objective is to conserve or enhance biodiversity or geological interest will be permitted where they comply with other relevant policies in the plan. The retention and enhancement of linear features which enables strong connectivity of biodiversity as part of an integrated habitat network will be supported; this includes networks of hedgerows and ditches; enhanced habitats along the River Sence and Ashby Canal; roadside verges; and (cumulatively) private gardens. On site features should be retained, buffered and managed favourably to maintain their ecological value, connectivity and functionality in the long-term. The removal or damage of such features shall only be acceptable where it can be demonstrated the proposal will result in no net loss of biodiversity and where the integrity of local ecological networks can be secured. If the harm cannot be prevented, adequately mitigated against or appropriate compensation measures provided, planning permission will be refused. 12.43The 2019 'State of Nature Report' indicates that biodiversity across the UK is continuing to decline and as such change is required in relation to how we manage land. In Hinckley & Bosworth to repair and improve the biodiversity network and habitat connectivity it will require protecting and creating further non-designated sites. In response to this and in recognition of the importance and value of biodiversity in the borough, the local planning authority will first and foremost seek to avoid harm or loss to biodiversity. If harm cannot be avoided or fully mitigated, compensatory measures will be sought as a last resort to off-set the impacts of the development.

12.44 The Borough Council's Phase 1 Habitat Survey (2020) found that habitats of conservation value are generally more abundant in the east and north, within deciduous and ancient woodlands while intensively farmed land across much of the centre and west offers relatively limited area and diversity of such habitats. The current network of habitats is characterised by fragmentation and there is a need to expand and re-connect existing areas and restore habitats where they have been destroyed. In seeking to contribute toward environmental gain, the connection or reconnection of habitats or the provision of compensatory measures, proposals should seek to contribute towards the objectives for priority habitats and species identified in the UK and Leicester, Leicestershire and Rutland Biodiversity Action Plans (BAP) and delivery of the Green Infrastructure Strategy. The

following eight habitat types were identified within the Borough as 'priority habitats' by the Leicester, Leicestershire and Rutland Biodiversity Action Plan (2016):

- Coastal and floodplain grazing marsh
- Deciduous woodland
- Good quality semi-improved grassland
- Lowland dry acid grassland
- Lowland fens
- Lowland heathland
- Lowland meadows and traditional orchard

12.45 The Biodiversity Assessment provides a baseline assessment of biodiversity and sites of nature conservation interest in the borough. The assessment identifies key sites which should be protected, areas which would benefit from habitat creation and those which would benefit from 'green corridors'.

12.46 The Borough Council's Green Infrastructure Strategy (2020) highlighted that habitat connectivity was a key challenge for biodiversity in Hinckley & Bosworth. In response to this and linked to the challenge of the climate crisis it is important that habitats do not become isolated as species find themselves less able to respond to natural fluctuations and can face heightened risk of decline and extinction. Waterways such as Ashby Canal and the River Sence provide a degree of connectivity between the Borough's locally designated sites however their impact is limited. This is due to the sizeable agricultural area of the Borough which has limited value for wildlife, therefore linear features which create strong connecting links across the biodiversity network will be supported by the Borough Council.

Appendix G: Bats and Artificial Light

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotid bats (Myotis spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species species that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ To introduce lighting curfews or use of PIR sensors.

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ To consider no lighting solutions where possible.

Options such as white lining, good signage and LED cats eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ To use only high pressure sodium or warm white LED lamps where possible.

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ To minimise the spread of light.

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ To consider the height of the lighting column.

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ To avoid reflective surfaces below lights.

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

11. Notice to Readers: Conditions of this Report

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The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

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No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.