



Elite Ecology

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**Todmorden Road,
Littleborough**



Biodiversity Net Gain Report

August 2026



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0. Executive Summary

This report has been prepared at the request of CRP Limited. It relates to the proposed re-development works at Todmorden Road, Littleborough, Rochdale, Greater Manchester, OL15 9EG (OS Grid Reference: SD 94068 16704). 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 plans are to extend the existing industrial buildings and add new parking areas. 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
- g4 16 – Tall Forbs
- h2b – Non-native and Ornamental Hedgerow
- h3d – Bramble Scrub
- u1 200 – Trees
- u1b – Developed Land – Sealed Surface
- u1b5 – Buildings
- u1c – Artificial Unvegetated, Unsealed Surface
- u1e – Built Linear Features
- w1g – Other Broadleaved Woodland
- w1g 33 – Line of Trees

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	1.60	N/A	0.67	N/A	-58.03	1.54	N/A	N/A	-3.77
Linear Habitats	0.39	N/A	0.12	N/A	-68.83	0.43	N/A	N/A	+11.16
Linear Habitat – Rivers and Streams	1.45	N/A	1.45	N/A	-0.00	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:

- Scattered Trees.
- Native Hedgerow.
- Wildflower Planting.

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 CRP Limited. It relates to the proposed re-development works at Todmorden Road, Littleborough, Rochdale, Greater Manchester, OL15 9EG (OS Grid Reference: SD 94068 16704). 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 located on an industrial state adjacent to the A6033 in Littleborough, a town in the borough of Rochdale, Greater Manchester.

The site measures approximately 0.96ha and contains a number of habitats. These include buildings, bramble scrub, developed land – sealed surface, modified grassland, non-native ornamental hedgerow, tall forbs, trees, and woodland. The habitats on site could have the potential to support a number of protected species. Photographs of the site are found within **Appendix E**.

Within the wider landscape further habitats are present. These come in the form of buildings, canals, developed land – sealed surface, modified grassland, trees, rivers, and woodland. This shows that the habitats in the area surrounding the site have the potential to support protected species.

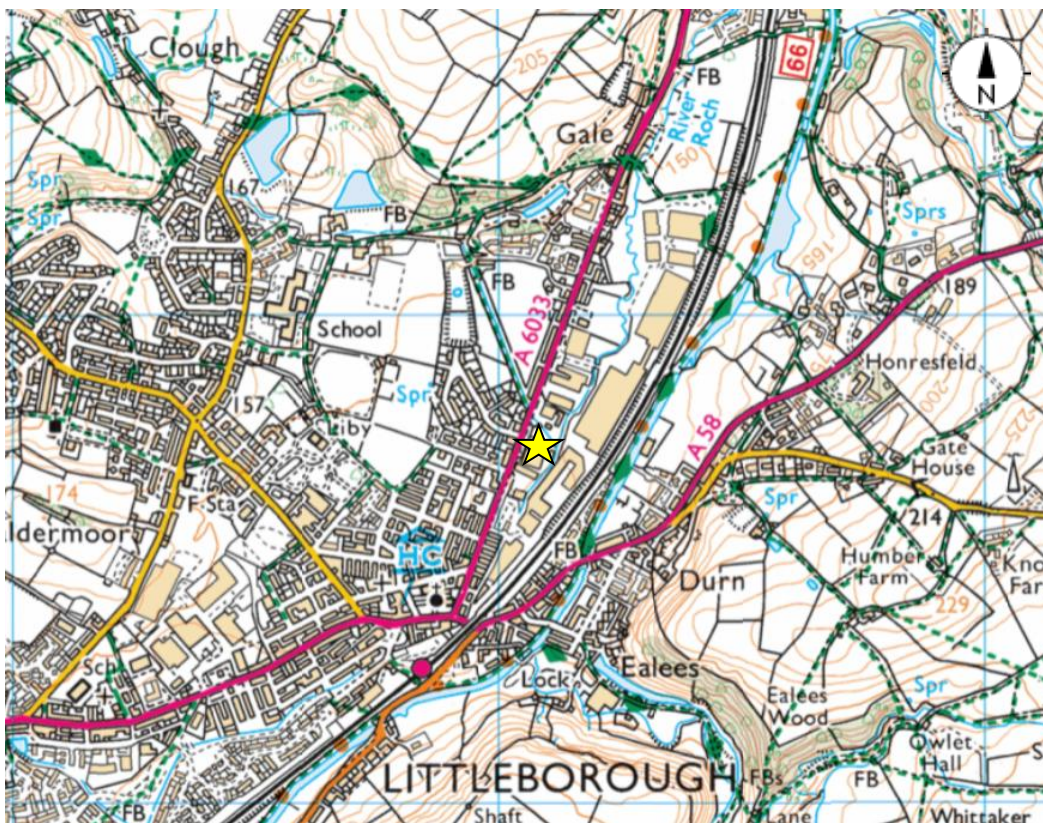
Figure 1: An aerial map showing the approximate boundary of the site at Todmorden Road, Littleborough (as shown by the red outline).



Figure 2: An aerial map showing the site at Todmorden Road, Littleborough (as shown by the yellow star) in relation to some of the local landscape.



Figure 3: An OS map obtained from Bing showing the site at Todmorden Road, Littleborough (as shown by the yellow star).



1.3 **Proposals**

Under the current proposals, the plans are to extend the existing industrial buildings and add new parking areas. 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 E**.

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 3rd of June 2025 by **Mr. Matthew Cotterill**: PG Dip, Senior Ecologist and **Miss. Alison Burke**: BSc (Hons), Assistant Ecologist

The Biodiversity Net Gain Assessment has been carried out by **Mr. William Harrington**: BSc (Hons), 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 3rd of June 2025, revealed multiple habitats on site. The full condition assessment of the habitats found on site can be found within **Appendix C**. 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
g4 – Modified Grassland	Modified Grassland	Poor	Passes four out of seven conditioning criteria, but fails essential criterion A (see Appendix B).
g4 16 – Tall Forbs	Tall Forbs	Poor	Passes two out of three conditioning criteria (see Appendix B).
h2b – Non-native and Ornamental Hedgerow	Non-native and Ornamental Hedgerow	N/A	Automatically calculated by the Statutory Metric.
h3d – Bramble Scrub	Bramble Scrub	Condition Assessment N/A	Automatically calculated by the Statutory Metric.
u1 200 – Trees	Urban Tree	Moderate	Four trees pass four out of six conditioning criteria, two trees pass three out of six conditioning criteria (see Appendix B).
u1b – Developed Land – Sealed Surface	Developed Land; Sealed Surface	Condition Assessment N/A	Automatically calculated by the Statutory Metric.
u1b5 – Buildings	Developed Land; Sealed Surface	Condition Assessment N/A	Automatically calculated by the Statutory Metric.
u1c – Artificial Unvegetated, Unsealed Surface	Artificial Unvegetated, Unsealed Surface	Condition Assessment N/A	Automatically calculated by the Statutory Metric.
u1e – Built Linear Features	Built Linear Features	N/A - Other	Metric limitation.
w1g – Other Broadleaved Woodland	Other Woodland; Broadleaved	Moderate	Achieves a conditioning score of twenty-seven (see Appendix B).
w1g 33 – Line of Trees	Line of Trees	Moderate	Passes three out of five conditioning criteria (see Appendix B).
r2b – Other Rivers & Streams	Other Rivers & Streams	Fairly Poor	While the wetted channel of the River Roch and Town House Brook does not fall within the redline boundary, the riparian buffer is located on site. A river condition assessment has been undertaken and found the offsite watercourses to be in fairly poor condition.

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	Precautionary Measures	No	A herptile method statement is required to prevent harm to any amphibians which may be commuting through the site.
Badgers	Surveys	Yes	Badger camera trap survey has been undertaken between 27th April and 26th May 2026. No badgers were seen to be using the site.
Bats	Surveys	Yes	Due to the low potential of buildings B2 – B5 , one bat activity survey will be required on these buildings. This survey was undertaken on the 12 th August 2025 and it was found that the structures on site do not contain bat roosts.
Birds	Precautionary Measures	No	Vegetation and/or structure removal must occur outside of bird breeding season (March to August), otherwise inspection by an ecologist is required no more than twenty-four hours prior to removal.
Crustaceans	Precautionary Measures	No	A 10m buffer from the banks of the river to the east is necessary to prevent material run-off. A dust management plan is also required to prevent dust from entering the brook, which could impact crustaceans.
Fish	Precautionary Measures	No	A 10m buffer from the banks of the river to the east is necessary to prevent material run-off. A dust management plan is also required to

			prevent dust from entering the brook, which could impact fish.
Hedgehogs	Precautionary Measures	No	If vegetation is removed between 1 st of November and 31 st of March, an inspection by an ecologist is required to ensure hibernating hedgehogs are not present on site. Precautionary measures are also required to ensure hedgehogs do not become trapped in excavations or pipework,
Invertebrates	Precautionary Measures	No	A 10m buffer from the banks of the river to the east is necessary to prevent material run-off. A dust management plan is also required to prevent dust from entering the brook, which could impact aquatic invertebrates.
Molluscs	Precautionary Measures	No	A 10m buffer from the banks of the river to the east is necessary to prevent material run-off. A dust management plan is also required to prevent dust from entering the brook, which could impact molluscs.
Otter	Precautionary measures	Yes	A survey of the nearby waterbodies was undertaken on the 10/09/2025 and the 26/07/2026. No evidence of otter was found during these surveys.
Water Vole	Surveys	No	A survey of the nearby waterbodies was undertaken on the 10/09/2025 and the 26/07/2026. No evidence of watervole was found during these surveys.

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.

On Site:

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	0.122	Low	2	Poor	1	0.24	0.000	0.00	0.12	0.24
Tall Forbs	0.009	Low	2	Poor	1	0.02	0.000	0.00	0.01	0.02
Bramble Scrub	0.024	Medium	4	Condition Assessment N/A	1	0.10	0.000	0.00	0.02	0.10
Developed Land; Sealed Surface	0.701	V. Low	0	N/A - Other	0	0.00	0.192	0.00	0.51	0.00
Artificial Unvegetated. Unsealed Surface	0.011	V. Low	0	N/A - Other	0	0.00	0.000	0.00	0.01	0.00
Other Broadleaved Woodland	0.094	Medium	4	Moderate	2	0.75	0.000	0.00	0.09	0.75
Urban Tree	0.061	Medium	4	Moderate	2	0.49	0.024	0.00	0.04	0.30
TOTALS:	0.96*					1.60	0.22	0.00	0.81	1.41
*Areas excluding individual trees.										

Based on the above information, the on-site habitat biodiversity value is calculated at **1.60** habitat units, with **1.41** units lost during the development. Therefore, **0.19** habitat units will remain.

Linear Habitats

Hedge Description	Hedge length (km)	Distinctiveness	Score	Condition	Score	Baseline Hedge Units	Hedge Retention (km)			Hedge Units Lost
							Retained	Enhanced	Lost	
Non-native and Ornamental Hedgerow	0.017	V. Low	1	Poor	1	0.02	0.00	0.00	0.02	0.02
Line of Trees	0.092	Low	2	Moderate	2	0.37	0.03	0.00	0.06	0.25
TOTALS:	0.11					0.39	0.03	0.00	0.08	0.27

Based on the above information, the on-site hedgerow biodiversity value is calculated at **0.39** hedgerow units, with **0.27** units lost during the development. Therefore, **0.12** hedgerow units will remain.

Watercourse Habitats

Water course	Water course Length (km)	Distinctiveness	Score	Condition	Score	Baseline Units	Encroachment (Watercourse or riparian)	Retention (Km)		Water course Units Lost
								Retained	Lost	
Other Rivers & Streams	0.138	High	6	Fairly Poor	1.5	0.93	No Encroachment into Watercourse Major/Major Encroachment into riparian	0.138	0.00	0.00
Other Rivers & Streams	0.077	High	6	Fairly Poor	1.5	0.52	No Encroachment into Watercourse Major/Major Encroachment into riparian	0.077	0.00	0.00
TOTALS:	0.22					1.45		0.22	0.00	0.00

Based on the above information, the off-site watercourse biodiversity value is calculated at **1.45** units, with **0.00** units lost during the development. Therefore, **1.45** units will remain.

4.2 Proposed Habitats

Area Habitats

Note: The following proposed habitats are based on the proposed development plan **N1238 – PL[0]06** dated July 2024. In the absence of detailed landscaping plans, areas marked as 'Proposed area of landscaping' are assumed to be modified grassland.

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	
Developed Land; Sealed Surface	0.632	V. Low	0	N/A - Other	0	0	1.000	Low	1	0.00
Modified Grassland	0.138	Low	2	Moderate	2	4	0.867	Low	1	0.48
TOTALS:	0.77									0.48

The above habitats, valued at **0.48** habitat units, combined with the remaining valued at **0.19** units, a habitat biodiversity value score of **0.67** habitat units is given by the metric calculation.

Linear Habitats

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

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 **-0.93**, which correlates to a loss of **-58.03%** in biodiversity units.

The net unit change for the linear habitats on site is calculated at **-0.27**, which correlates to a loss of **-68.83%** in biodiversity units.

The net unit change for the water course habitats on site is calculated at **+0.00**, which correlates to neither a net gain or loss in biodiversity 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 ($\geq$)	No	There is a cumulative deficit of -1.14 units under the current proposals.
Low	Same distinctiveness or better habitat required ($\geq$)	Yes	There is a cumulative surplus of 0.22 units under the current proposals.

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 ($\geq$)	No	There is a cumulative deficit of -0.25 units under the current proposals.
Very Low	Same distinctiveness or better habitat required ($\geq$)	No	There is a cumulative deficit of -0.02 units under the current proposals.

Watercourse 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 are to be lost.
Medium	Same habitat required	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.

5. Recommendations

5.1 Habitats

The initial score, without enhancements, resulted in a **-0.93** loss in habitat units (-**58.03%**) and **0.27 (-68.83%)** loss in hedgerow units. The development therefore does not meet the DEFRA recommended 10% minimum net gain in biodiversity units, nor does it satisfy the trading rules.

Recommended Area Habitats

Habitat Description	Habitat Area (ha)	Target Distinctiveness	Score	Target Condition	Score	Time Till Target Condition		Difficulty of Creation		Habitat Biodiversity Value
						Time (years)	Score	Difficulty	Score	
Developed Land; Sealed Surface	0.632	V. Low	0	N/A - Other	0	0	1.000	Low	1	0.00
Other Neutral Grassland	0.138	Medium	4	Moderate	2	5	0.837	Low	1	0.92
Urban Tree	0.138	Medium	4	Moderate	2	27	0.382	Low	1	0.42
TOTALS:	0.77*	*Areas excluding individual trees								1.35

The above habitats, valued at **1.35** habitat units, combined with the remaining valued at **0.19** units, means a habitat biodiversity value score of **1.54** habitat units is given by the metric calculation.

Recommended Linear Habitats

Linear Habitat Description	Linear Habitat Length (km)	Target Distinctiveness	Score	Target Condition	Score	Time To Target Condition		Difficulty of Creation		Linear Habitat Biodiversity Value
						Time (years)	Score	Difficulty	Score	
Native Hedgerow	0.092	Low	2	Moderate	2	5	0.837	Low	1	0.31
TOTALS:	0.09									0.31

The above linear habitats, valued at **0.31** units, combined with the remaining valued at **0.12** units, a habitat biodiversity value score of **0.43** linear habitat units is given by the metric calculation.

5.2 Habitat Mitigation Score

The net unit change for the habitats on site is calculated at **-0.06**, which correlates to a loss of **-3.77%** in habitat biodiversity.

The net unit change for the hedgerows site is calculated at **+0.04**, which correlates to a gain of **+11.16%** in hedgerow biodiversity.

The net unit change for the watercourses is calculated at **+0.00**, which correlates to neither a net gain nor a net loss in watercourse biodiversity.

5.3 Trading Rules

The trading rules have **not** been 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	0.75 units of Other Broadleaved Woodland, and 0.10 units of Bramble Scrub are to be lost. 0.13 recommended units of Urban Tree and 0.92 recommended units of Other Neutral Grassland are recommended. A cumulative surplus of 0.20 units remains, however this does not satisfy the requirement to replace habitats with the same broad type or higher distinctiveness.
Low	Same distinctiveness or better habitat required ($\geq$)	Yes	0.24 units of Modified Grassland and 0.02 units of Tall Forbs are to be lost. A cumulative deficit of 0.06 units remains.

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 ($\geq$)	No	There is a cumulative deficit of -0.25 units under the current proposals.
Very Low	Same distinctiveness or better habitat required ($\geq$)	No	There is a cumulative deficit of -0.02 units under the current proposals.

Watercourse 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 are to be lost.
Medium	Same habitat required	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.

5.4 Trading Rules

The initial score, with enhancements, resulted in a **-0.06** unit loss in habitat units (-**3.77%**) and a **0.04** unit gain in linear habitats. A net gain in area habitats has not been achieved. As it stands there is a deficit of 0.22 habitat units and 0.15 watercourse units. A breakdown of the units required is given below:

Unit Type	Target	Baseline Units	Total Units Required on Site Post Development	Units Deficit
Area Habitats	10.00%	1.60	1.76	0.22
Hedgerow	10.00%	0.39	0.42	0.00
Rivers	10.00%	1.45	1.60	0.15

Due to the fact that there is no extraneous space for further recommendations, the following options are available:

Option 1: Consult the private market to purchase off-site biodiversity units. This should ideally be within the same LPA area or National Character Area to maximise the points gained.

Option 2: Acquire additional land off-site to use for biodiversity offsetting and habitat creation. This should ideally be within the same LPA area or National Character Area to maximise the points gained. These sites may be required to be registered as a biodiversity gain site, and habitat creation/enhancements and management must be secured for at least thirty years via a suitable legal agreement such as a planning obligation (section 106) with an LPA or a conservation covenant agreement with a responsible body.

Option 3: As a last resort, the client may wish to purchase statutory biodiversity credits from the government. Please note that the prices of these statutory credits are kept intentionally uncompetitive. The client will need to provide evidence that the other above options have been explored in order to purchase these credits.

Once an off-setting method has been agreed this document **MUST** be updated to provide evidence of a gain in biodiversity.

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.

Wildflower and private lawn areas to be 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 Wildflower Meadow (Other Neutral Grassland)

A wildflower meadow should form part of the site to maximise biodiversity. This is to be located around much of the site perimeter, in the areas of proposed landscaping. A variety of wildflower mixes can be found on the [Meadowmania](#) or [Wildflower Turf](#) webpages. It is recommended that [EM2 standard general purpose meadow mixture](#) and [Hedgerow Mixture EH1](#) around along the base of trees, or similar is used. Seeding is to be sown at a rate of 4g/m². A list of recommended species will be provided in **Section 7**.

This must be connected to other habitat features to ensure beneficial invertebrates, such as bees and butterflies, can find and utilise this habitat. This is due to some species not crossing open areas, so connectivity with linear habitat features is critical. Further information on creating wildflower meadows can be found [here](#).

These areas should be mown once a year:

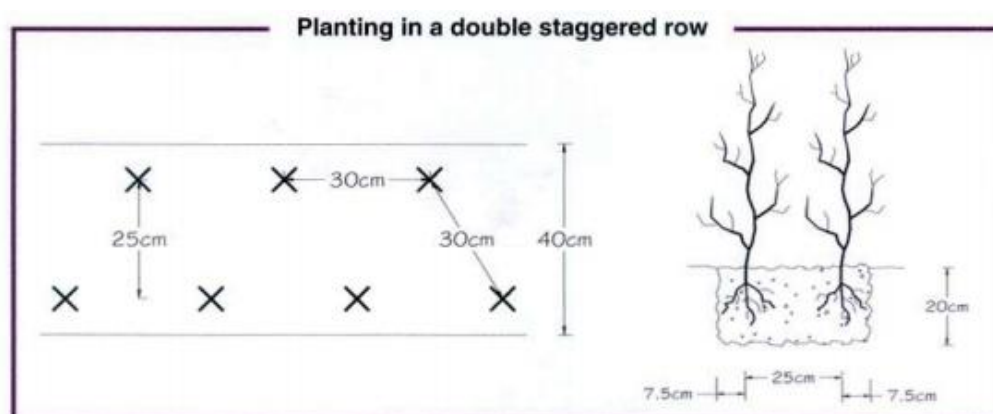
- **Autumn cut** - cut between the end of August and late November.

Management of the grassland should avoid mowing of the entire space, to allow patches of taller or rough grassland patches and flowering to take place.

6.2.2 Hedgerows

A native hedgerow is recommended to be planted along the south-eastern site boundary. All new hedgerows are to consist of at least five native species per 30m. A typical mix of shrubs to create a traditional hedgerow is: 50% hawthorn (*Crataegus monogyna*), 25% hazel (*Corylus avellana*), 15% field maple (*Acer campestre*), 2% holly (*Ilex aquifolium*), 2% wild privet (*Ligustrum vulgare*), 2% guelder rose (*Viburnum opulus*), 2% dog rose (*Rosa canina*), and 2% buckthorn (*Rhamus frangula*) for every 30m of the hedge. One tree is to be incorporated into the hedge every 20m. It is recommended that field maple (*Acer campestre*) and oak (*Quercus robur*) are used. Hedgerows can be planted at either three plants per meter planted at 33cm intervals or at five plants per metre in a staggered double row, with 33cm between each plant along the row and 40cm between the rows.

Figure 4: Planting a double Staggered hedge, taken from Planting a Native Hedgerow, by Wycombe District Council 2008



Further recommendations on the hedge include the way it will be managed:

1st year

- Weed around the base of the shrub to prevent competition.
- In late summer any shrubs that have died will be replaced in the autumn.
- In the shrub's first spring cut the hedge down to 45-60cm off the ground to promote a thicker hedge.

Long-term

Leaving a wild, undisturbed margin adjacent to the hedgerow, ideally 2m will encourage growth around the base of the hedge, providing cover for small mammals and nesting sites for birds.

Hedgerow tops will be cut by chainsaw and **never** flailed as this can severely damage and impede the growth of a hedge after repeated cuts. The hedge must not be cut under 2m in height.

Hedgerows will be cut in 1/3 sections offset by a year and then re-cut every five years. This will ensure that the health of the hedgerow is maintained.

6.2.3 Scattered Trees

Thirty-four trees are to be planted. These are to consist of:

Thirty-four small sized trees: Downy birch (*Betula pubescens*), holly (*Ilex aquifolium*), hornbeam (*Carpinus betulus*), rowan (*Sorbus aucuparia*), silver birch (*Betula pendula*), wild cherry (*Prunus avium*), and wild service tree (*Sorbus torminalis*).

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

6.2.4 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 habitats 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. The identification of any invasive species will take place within a plant identification survey undertaken twice yearly; one in March and one in July.

6.3 Species Specific Enhancements

6.3.1 Bats

It is recommended that the development site should incorporate a minimum of the following:

- Four Eco Bat Boxes.

Including these boxes will providing further roosting opportunities. These should avoid any artificial lighting, whilst being sighted facing east, south-east, south, south-west, and/or west. They can be affixed to the side of a building or on an existing tree. 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.

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

The boxes should be positioned two to four metres high on a wall or a tree. 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.

7. Timing, Phasing, and Duration of Conservation Measures

7.1 Construction Phase

Creation	Timing	Species
Hedge	Plant between October and April.	50% hawthorn (<i>Crataegus monogyna</i>), 25% hazel (<i>Corylus avellana</i>), 15% field maple (<i>Acer campestre</i>), 2% holly (<i>Ilex aquifolium</i>), 2% wild privet (<i>Ligustrum vulgare</i>), 2% guelder rose (<i>Viburnum opulus</i>), 2% dog rose (<i>Rosa canina</i>), and 2% buckthorn (<i>Rhamus frangula</i>) for every 30m of the hedge. One tree is to be incorporated into the hedge every 20m, field maple (<i>Acer campestre</i>) and oak (<i>Quercus robur</i>).
Wildflower Planting	Wildflower Meadow mix May to September	Wildflowers total 20%: Borage (<i>Borago officinalis</i>) 1.4%, corn poppy (<i>Papaver rhoeas</i>) 2.0%, cornflower (<i>Cenaturea cyanus</i>) 1.6%, lesser knapweed (<i>Centaurea nigra</i>) 0.6%, musk mallow (<i>Malva moschata</i>) 0.4%, ox eye daisy (<i>Leucanthemum Vulgare</i>) 0.6%, red campion (<i>Silene Dioica</i>) 3.0%, wild red clover (<i>Trifolium pratense</i>) 1.0%, ribwort plantain (<i>Plantago lanceolata</i>) 2.4%, salad burnet (<i>Sanguisorba Minor</i>) 3.0%, selfheal (<i>Prunella Vulgaris</i>) 1.0%, white campion (<i>Silene Alba</i>) 2.4%, and yarrow, (<i>Achillea millefolium</i>) 0.6%. Grasses (Total 80%): Chewings fescue (<i>Festuca rubra subsp. commutata</i>) 24%, common bent (<i>Agrostis capillaris</i>) 4.4%, crested dogs tail (<i>Cynosurus cristatus</i>) 1.6%, slender creeping red fescue (<i>Festuca rubra subsp. litoralis</i>) 20%, strong creeping red fescue (<i>Festuca rubra</i>) 28%, sweet vernal grass (<i>Anthoxanthum odoratum</i>) 1%, and yellow oat grass (<i>Trisetum flavescens</i>) 1%.
Tree Planting	Plant between October and April.	Individual: Thirty-four small-sized trees: Downy birch (<i>Betula pubescens</i>), holly (<i>Ilex aquifolium</i>), hornbeam (<i>Carpinus betulus</i>), rowan (<i>Sorbus aucuparia</i>), silver birch (<i>Betula pendula</i>), wild cherry (<i>Prunus avium</i>), and wild service tree (<i>Sorbus torminalis</i>).

7.2 Operational Phase

Management	Reason for and Frequency of schedule	Yearly Management									
Hedgerows Management –	Allow for structural integrity of the hedge and ensure the hedge is still available for wildlife.	Year 1 Plant hedgerow be made up of at least five different native species. These hedgerows will be planted at 30cm intervals.	Year 2 Weed around the base of the shrub to prevent competition. In late summer, any shrubs that have died will be replaced in the autumn. In the shrub's first spring cut the hedge down to 45-60cm off the ground to promote a thicker hedge. Leave a wild undisturbed margin adjacent to the hedge.	Year 3 Weed around the base of the shrub to prevent competition. In late summer, any shrubs that have died will be replaced in the autumn. Allow the hedge to reach an average height of 2m with a width of 1.5m. Leave a wild undisturbed margin adjacent to the hedge.	Year 4 Weed around the base of the shrub to prevent competition. In late summer, any shrubs that have died will be replaced in the autumn. Allow the hedge to reach an average height of 2m with a width of 1.5m. Leave a wild undisturbed margin adjacent to the hedge.	Year 5 Weed around the base of the shrub to prevent competition. In late summer, any shrubs that have died will be replaced in the autumn. Allow the hedge to reach an average height of 2m with a width of 1.5m. Leave a wild undisturbed margin adjacent to the hedge.	Year 6 Cut the 1 st 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 7 Cut the 2 nd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 8 Cut the 3 rd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 9 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 10 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.
		Year 11 Cut the 1 st 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 12 Cut the 2 nd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 13 Cut the 3 rd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 14 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 15 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 16 Cut the 1 st 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 17 Cut the 2 nd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 18 Cut the 3 rd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 19 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 20 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.
		Year 20 Cut the 1 st 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 21 Cut the 2 nd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 22 Cut the 3 rd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 23 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 24 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 25 Cut the 1 st 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 27 Cut the 2 nd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 28 Cut the 3 rd 1/3 of the hedge. Leave deadwood where it has been felled or move into a shaded area. Re-cut section every five years. Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 29 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.	Year 30 Weed around the base of the shrub to prevent competition. Leave a wild undisturbed margin adjacent to the hedge.

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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 plant ID survey: March plant ID survey: July	Year 2 plant ID survey: March plant ID survey: July	Year 3 plant ID survey: March plant ID survey: July	Year 4 plant ID survey: March plant ID survey: July	Year 5 plant ID survey: March plant ID survey: July	Year 6 plant ID survey: March plant ID survey: July	Year 7 plant ID survey: March plant ID survey: July	Year 8 plant ID survey: March plant ID survey: July	Year 9 plant ID survey: March plant ID survey: July	Year 10 plant ID survey: March plant ID survey: July
		Year 11 plant ID survey: March plant ID survey: July	Year 12 plant ID survey: March plant ID survey: July	Year 13 plant ID survey: March plant ID survey: July	Year 14 plant ID survey: March plant ID survey: July	Year 15 plant ID survey: March plant ID survey: July	Year 16 plant ID survey: March plant ID survey: July	Year 17 plant ID survey: March plant ID survey: July	Year 18 plant ID survey: March plant ID survey: July	Year 19 plant ID survey: March plant ID survey: July	Year 20 plant ID survey: March plant ID survey: July
		Year 21 plant ID survey: March plant ID survey: July	Year 22 plant ID survey: March plant ID survey: July	Year 23 plant ID survey: March plant ID survey: July	Year 24 plant ID survey: March plant ID survey: July	Year 25 plant ID survey: March plant ID survey: July	Year 26 plant ID survey: March plant ID survey: July	Year 27 plant ID survey: March plant ID survey: July	Year 28 plant ID survey: March plant ID survey: July	Year 29 plant ID survey: March plant ID survey: July	Year 30 plant ID survey: March plant ID survey: July
Trees	To maximise biodiversity. Beneficial to local fauna.	Year 1- Plant recommended species. Leave to mature.	Year 2- No action.	Year 3- No action.	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- Prune to extend life of tree. Prune no more than 25%.	Year 29- Prune to extend life of tree. Prune no more than 25%.	Year 20- Prune to extend life of tree. Prune no more than 25%.
Wildflower Planting	To maximise biodiversity. Beneficial to invertebrates	Year 1 - Sow May to September	Year 2 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 3 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 4 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 5 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 6 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 7 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 8 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 9 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 10 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.
		Year 11 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 12 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 13 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 14 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 15 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 16 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 17 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 18 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 19 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 20 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.
		Year 21 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 22 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 23 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 24 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 25 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 26 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 27 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 28 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 29 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.	Year 30 Autumn cut - Cut back to height of 7.5cm only and cut between the end of August and late November.

7.3 Post-works - Habitat Condition Monitoring Timetable

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

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

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.

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 CIEEMA 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.	No	Recommendations for off-setting have been recommended, however the recommendations still do not satisfy the required 10% gain in biodiversity units.
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.	No	A measurable net gain has not been achieved.
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.	No.	The net unit change for the habitats on site is calculated at - 0.06 , which correlates to a loss of -3.77% in habitat biodiversity. The net unit change for the hedgerows site is calculated at +0.04 , which correlates to a gain of +11.16% in hedgerow biodiversity. The net unit change for the watercourses is calculated at +0.00 , which correlates to neither a net gain nor a net loss in watercourse biodiversity.
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: ➤ 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.	No	The net unit change for the habitats on site is calculated at - 0.06 , which correlates to a loss of -3.77% in habitat biodiversity. The net unit change for the hedgerows site is calculated at +0.04 , which correlates to a gain of +11.16% in hedgerow biodiversity. The net unit change for the watercourses is calculated at +0.00 , which correlates to neither a net gain nor a net loss in watercourse biodiversity.

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 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: ➤ 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.	No	A measurable net gain has not been achieved.
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 B: Habitat Condition Assessment Sheets

Habitat: Modified Grassland		
Condition Assessment Criteria		Criterion Passed
A	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. 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.	No
B	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No
C	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). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	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.	Yes
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
		4/7 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: Individual Trees (T1, T2, T5, T6)			
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.		No
F	More than 20% of the tree canopy area is oversailing vegetation beneath.		Yes
Condition	Moderate	Score	4/6

Habitat: Individual Trees (T3, T4)			
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 .		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.		No
F	More than 20% of the tree canopy area is oversailing vegetation beneath.		Yes
Condition	Moderate	Score	3/6

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/government/uploads/system/uploads/attachment_data/file/67444/Keepers_of_time_-_ancient_and_native_woodland_and_trees_policy_in_England.pdf) and [Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/67444/Ancient_woodland,_ancient_trees_and_veteran_trees_advice_for_making_planning_decisions_-_GOV.UK.pdf)

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

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Habitat: Urban – Tall Forbs			
Condition Assessment Criteria			Criterion Passed
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.		No
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.		No
C	"Invasive non-native plant species (listed on Schedule 9 of WCA ¹) and others which are to the detriment of native wildlife (using professional judgement) ² cover less than 5% of the total vegetated area ³ .		Yes
Condition	Poor	Score	1/3

Footnote 1 – Wildlife and Countryside Act 1981 (as amended).

Footnote 2 – Sources of information about detrimental non-native species can be found on the GB Non-native Species Secretariat (GBNNSS) website:
[Home » NNSS \(nonnativespecies.org\)](https://www.nonnativespecies.org/)

and Natural England Access to Evidence page should also be checked for up-to-date information:
[Horizon-scanning for invasive non-native plants in Great Britain - NECR053 \(naturalengland.org.uk\)](https://naturalengland.org.uk/horizon-scanning-for-invasive-non-native-plants-in-great-britain-NECR053)

For criterion C – For green roof habitat types only – buddleia *Buddleja davidii* should be assessed alongside Schedule 9 species. This species impairs the health of the local ecosystem and reduces the biodiversity potential of the roof. It is also a sign that a roof has not been planted and seeded correctly in subsequent years.

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.

Habitat: Other Broadleaved Woodland					
Condition Assessment Criteria					
Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
A	Age distribution of trees	Three age-classes ¹ present.	Two age-classes ¹ present.	One age-class ¹ present	2
B	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland ² .	Evidence of significant browsing pressure is present in less than 40% of whole woodland ² .	Evidence of significant browsing pressure is present in 40% or more of whole woodland ² .	3
C	Invasive plant species	No invasive species ³ present in woodland.	Rhododendron <i>Rhododendron ponticum</i> or cherry laurel <i>Prunus laurocerasus</i> not present, and other invasive species ³ <10% cover.	Rhododendron or cherry laurel present, or other invasive species ³ ≥10% cover.	3
D	Number of native tree species	Five or more native tree or shrub species ⁴ found across woodland parcel.	Three to four native tree or shrub species ⁴ found across woodland parcel.	Two or less native tree or shrub species ⁴ across woodland parcel.	3
E	Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native ⁵ .	50 – 80% of canopy trees and 50 – 80% of understory shrubs are native ⁵ .	<50% of canopy trees and <50% of understory shrubs are native ⁵ .	2
F	Open space within woodland	10 – 20% of woodland has areas of temporary open space ⁶ . Unless woodland is <10ha, in which case 0 – 20% temporary open space is permitted ⁷ .	21 – 40% of woodland has areas of temporary open space ⁶ .	<10% or >40% of woodland has areas of temporary open space ⁶ . But if woodland <10ha has <10% temporary open space, please see Good category ⁷ .	3
G	Woodland regeneration	All three classes present in woodland ⁸ ; trees 4 – 7cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland ⁸ .	No classes or coppice regrowth present in woodland ⁸ .	1
H	Tree health	Tree mortality 10% or less, no pests or diseases and no crown dieback ⁹ .	11% to 25% tree mortality and or brown dieback or low-risk pest or disease present ⁹ .	Greater than 25% tree mortality and or any high-risk pest or disease present ⁹ .	3
I	Vegetation and ground flora	Recognisable NVC plant community ¹⁰ at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community ¹⁰ at ground layer present.	No recognisable woodland NVC plant community ¹⁰ at ground layer present.	1
J	Woodland vertical structure	Three or more storeys across all survey plots, or a complex woodland ¹¹ .	Two storeys across all survey plots ¹¹ .	One or less storey across all survey plots ¹¹ .	2
K	Veteran trees	Two or more veteran trees ¹² per hectare.	One veteran tree ¹² per hectare.	No veteran trees ¹² present in woodland.	1
L	Amount of deadwood	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities ¹³ .	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities ¹³ .	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities ¹³ .	1
M	Woodland disturbance	No nutrient enrichment or damaged ground evident ¹⁴ .	Less than 1 hectare in total of nutrient enrichment across woodland area, and or less than 20% of	1 hectare or more of nutrient enrichment, and or 20% or more of woodland area has damaged ground ¹⁴ .	2

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			woodland area has damaged ground ¹⁴ .		
Condition	Moderate	Score		27/39	

Footnotes below refer to the EWBG woodland condition assessment details: EWBG (No date). Assessing your Woodland's Condition [online]. Available from:

[Woodland Wildlife Toolkit \(sylva.org.uk\)](http://sylva.org.uk)

The woodland condition assessment survey methodology is outlined in the EWBG toolkit. However, the criteria on this sheet are those specific to the Statutory Biodiversity Metric and must be used when assessing woodland condition.

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch *Betula* sp., cherry *Prunus* sp. or Sorbus sp.: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). For birch, cherry or Sorbus species; 0 - 20 years = Young; 21 - 60 years = Intermediate; >60 years = Old. A recognisable age-class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age-class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly.

Check for the presence of all plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), particularly the following invasive non-native species: American skunk cabbage *Lysichiton americanus*; Himalayan balsam *Impatiens glandulifera*; Japanese knotweed *Reynoutria japonica*; cherry laurel *Prunus laurocerasus*; shallon *Gaultheria shallon*; snowberry *Symphoricarpos albus*; variegated yellow archangel *Lamiastrum galeobdolon* subsp. *argentatum*; rhododendron *Rhododendron ponticum*; and tree-of-heaven *Ailanthus altissima*.

Footnote 4 - See EWBG method INDICATOR 4 and Table 2 for more information. The number of different native tree or shrub species including young trees and shrubs. A list of commonly found native tree and shrub species is provided in Table 2. Not all species listed are native to all parts of the UK. Note a list of commonly found non-native tree species are also included and should be recorded if present.

Footnote 5 - See EWBG method INDICATOR 5 and for more information. The abundance of native tree species in upper (>5 m) and understorey (up to 5 m) layers including young trees and shrubs.

Footnote 6 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (for example, glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (for example, tarmac, buildings, rivers). Area is at least 10 m wide with less than 20% covered by shrubs or trees.

Footnote 7 – Given the increased ratio of edge habitat to woodland where the woodland is <10ha.

Footnote 8 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, but the regeneration indicator gathers additional information by considering regeneration potential - if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 9 - See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level.

Footnote 10 - See EWBG method INDICATOR 10 directing to NVC key for more information. The 'UKHab to NVC translation table' in the UK Habitat Classification resources may also be useful to assess this.

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Footnote 11 – This criterion looks at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer. There might be no storeys where the woodland has been felled. See EWBG INDICATOR 11 for more information.

Footnote 12 - See EWBG method INDICATOR 12 for more information. 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.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions)

and:

<https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

EWBG INDICATOR 12 is the relevant indicator.

Footnote 13 – See EWBG method INDICATOR 13 for more information. This includes logs, large dead branches on the forest floor and stumps (<1 m tall) >20 cm diameter at narrowest point and >50 cm long. Also includes standing dead trees (>1 m tall) and also deadwood on standing live trees. Diameter is measured at the narrowest point on the stem. Minimum diameter of 20 cm.

Footnote 14 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery, animal poaching or litter.

Habitat: Line of Trees			
Condition Assessment Criteria ¹			Criterion Passed
A	At least 70% of trees are native species.		Yes
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.		Yes
C	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.		No
D	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice ² .		No
E	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.		Yes
Condition	Moderate	Score	3/5

Footnote 1 – DEFRA (2007) Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd ed [online]. Defra, London. PB1195. Available from: Hedgerow Survey Handbook (publishing.service.gov.uk).

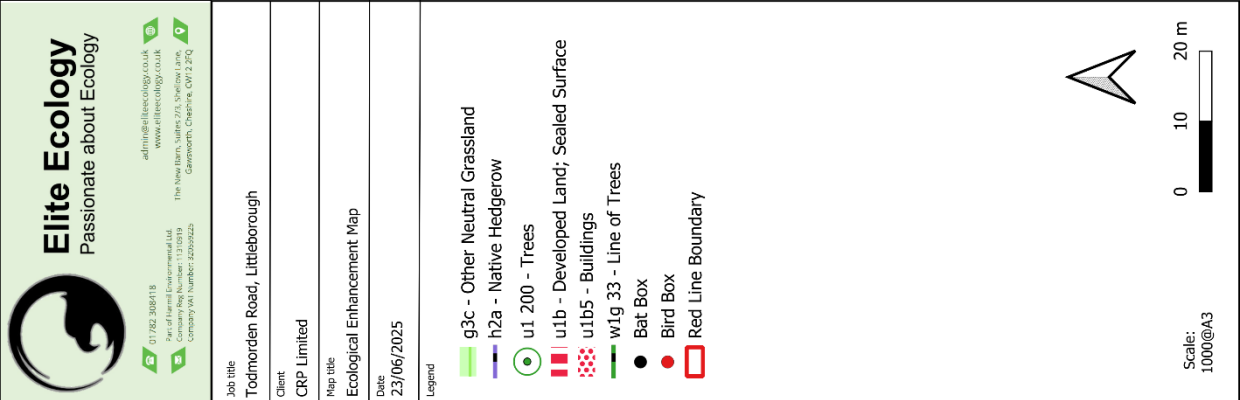
Footnote 2 – Where ancient and veteran trees are present, see gov.uk standing advice on ancient and veteran trees. Available from:

[Keepers of time: ancient and native woodland and trees policy in England \(publishing.service.gov.uk\)](https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions)

and

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

Appendix D: New Habitat Map



Appendix E: Site Photographs

Plate and Description	Image
Plate 1: Image showing the northern entrance to site.	
Plate 2: Image showing sealed surface and buildings in the southern portion of the site.	

Plate 3: Image showing an area of modified grassland and fencing in the north of the site.



Plate 4: Image showing the woodland in the north of site.



Plate 5: Image showing the non-native and ornamental hedgerow on the western site boundary.

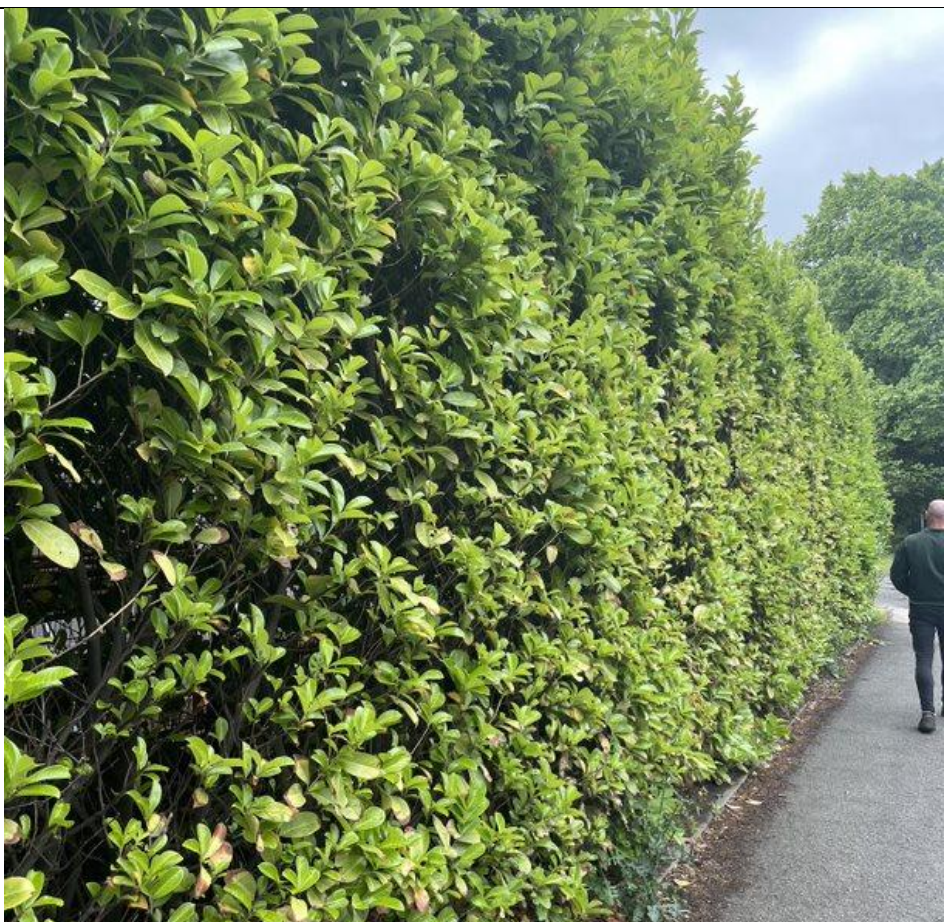


Plate 6: Image showing the River Roch east of the site.



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

Rochdale Borough Council Core Strategy

G7 – Increasing the value of biodiversity and geodiversity

We will ensure that sites and features of biodiversity and geodiversity importance are given full and appropriate recognition and protection. Opportunities for enhancing biodiversity and geodiversity, creating new sites and features of interest and improving opportunities for public enjoyment will be supported. No development should result in a net loss of biodiversity or geodiversity interest in the borough and overall development in the borough should result in a net gain.

Particular priorities for biodiversity and geodiversity are:

1. **The South Pennine Moors** – our focus is to maintain and enhance the peatland habitats of the moorland and to support development, land and water management activities which provide an opportunity to conserve and enhance the value of moorland for upland breeding birds of conservation significance and the habitats on which they depend and which do not harm biodiversity value. Our focus is the designated Special Protection Area and Special Area of Conservation but also the wider moorland where such interest is present or could be supported through appropriate development or land management. We will also protect and support enhancement measures for areas of geodiversity value.
2. **The Rochdale Canal** – our focus is to ensure that the Rochdale Canal Special Area of Conservation and the wider biodiversity interest of the canal is given full and appropriate protection and ensure that development which delivers the economic and recreational value of the Rochdale Canal and its wider corridor supports and does not harm its biodiversity value.
3. **Upland farmland** – our focus is to ensure that the biodiversity interest of upland farmland including its value for birds, woodland and grassland is protected and opportunities for enhancement and the creation of new interest maximised through land management improvements and appropriate development activities.
4. **Countryside around towns** – our focus is to protect and enhance the biodiversity interest of river valleys, woodland, water and farmland including the reclamation of derelict and neglected land and flood risk management measures. We will also support actions which enhance public access and enjoyment of countryside close to urban areas including Local Nature Reserves and the wider countryside.
5. **Urban Areas** – our priority is to protect and enhance existing urban biodiversity and to support opportunities for new urban biodiversity corridors, sites and features including sustainable urban drainage schemes, new public realm provision, street trees and urban woodlands, ponds and lodges, green roofs natural play areas.
6. **Designated sites of ecological importance** – will be given appropriate protection according to their European, national or local status and in accordance with policies in other development plan documents, supporting Supplementary Planning Documents and Biodiversity Action Plans.
7. **Protected Species** – development proposals which would affect a species protected by law or its habitat will not be permitted unless it can be demonstrated that:
 - a. There is no adverse impact on the species concerned;
 - b. Damage to habitats is minimal and alternative habitat provision is effective in maintaining those species.

Opportunities to protect, enhance and create features of biodiversity or geodiversity interest should be informed by the detail of any formal designation of a site or area and supporting plans and guidance such as Local Biodiversity Action Plans, Green Infrastructure Strategies and Action Plans and the Council's Biodiversity and Development SPD.

We will expect development proposals and improvements to:

- a. Protect and include existing biodiversity (including established biodiversity interest on brownfield land) within new developments, public realm and open spaces and meet the requirements of the Biodiversity and Development SPD, Greater Manchester and Local Biodiversity Action Plans;
- b. Protect and enhance existing features such as peatland, ponds, wetlands, reservoirs, mill lodges, trees, hedges, wooded areas, meadows, flora and fauna;
- c. Take opportunities to promote biodiversity and create new habitats through new development using landscaping and building and construction features wherever possible (e.g. ponds, species of vegetation, green roofs and walls, bat boxes, roof space, appropriate nest boxes and landscaping);
- d. Enhance strategic wildlife corridors and the most natural areas and ensure that habitats and corridors are not fragmented by development;
- e. Improve access where appropriate to new or existing biodiversity interest for public enjoyment; and
- f. Protect important geology and take opportunities to increase interest and accessibility.

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 myotis 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 specifies 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 cat's 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.

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The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyors on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to Elite Ecology. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then Elite Ecology takes no responsibility for this.

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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.