



Land Southwest of Sutton Lane, Market Bosworth
Biodiversity Net Gain Report

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Author:	PH BSc (Hons), MSc (V1) TE BSc (Hons) MCIEEM (V2)
Review:	TE BSc (Hons) MCIEEM
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Summary

Table 1: Summary

Report Purpose	The objective of the present Biodiversity Net Gain (BNG) report is to provide an assessment as to whether the proposed development can deliver BNG or not for the design option(s) being considered.
Methodology	- A UKHab and condition assessment survey was carried out of the site on the 27th of June 2022 with reference to best practice guidelines by a suitably qualified ecologist. - A biodiversity metric calculation was made, using the prevailing biodiversity metric calculation spreadsheet at the time of writing (DEFRA Metric 3.1).
Results & Conclusions	Via the proposed scheme of habitat retention, enhancement and creation, assessment has shown that a biodiversity net gain in both habitats (49.04%) and hedgerows (14.09%) can be delivered via the proposed development, subject to the implementation of a detailed plan for the management and creation of the proposed habitats (such as via a Landscape Ecological Management Plan or similar with ref to British Standard BS 42020:2013). Outline habitat management requirements to achieve the target conditions are provided. Species specific biodiversity enhancements are also proposed, including a bat loft, swallow nest cups, and insect bricks. Given that the nationally accepted current standard for biodiversity net gain in development projects is to achieve an uplift percentage of 10%, with many developments failing to achieve this, it is considered that the present scheme in delivering a projected biodiversity net gain exceeding 10% in both habitats (49.04%) and hedgerows (14.09%) on site is exceptional in its design.

1. Introduction

Background

- 1.1. Elton Ecology Ltd was commissioned by Mr Adam Tarver to conduct a Biodiversity Net Gain (BNG) Study of the site known as Land Southwest of Sutton Lane, Market Bosworth.

Relevant Documents

- 1.2. The present assessment has been informed by the following documents:

- Breach House Landscape Strategy (Studio 31 Landscape Architects, October 2022)
- Concept Design 01, Project: Breach House (Studio 31, Issue 04 13/03/23)
- Sutton Lane Market Bosworth, Topographic Site Survey (SV Surveying Ltd, June 2022) (Drawing Number 22206-22-02)
- Land South-west of Sutton Lane, Market Bosworth, Tree Survey (RJ Tree Services Ltd, July 2022) (Ref: TS-SuttonLne_MB/01/RevB)
- Land South-west of Sutton Lane, Market Bosworth, Tree Survey & Constraints Plan01/RevB (RJ Tree Services Ltd, July 2022)

Site description

- 1.3. The site is located to the southwest of Sutton Lane, Market Bosworth, Leicestershire, CV13 0LB (Figure 1: Site Location Plan) (central OS grid reference: SK 40695 01524). The site comprises a grassland field compartment bound by hedgerows, fences, and mature scattered trees. A watercourse, Sutton Brook, is present at the southwest and southeast site boundaries, with a seasonally wet ditch in the centre of the site. Sutton Lane lies adjacent to the northeast site boundary and served the access to the site. A barn is present in the north of the site.

Development Proposals

- 1.4. The development proposals include the creation of a new dwelling barn in the southwest of the field compartment, set back from Sutton Lane, including courtyards and vehicular parking curtilage. The dwelling will be served by an access lane from Sutton Lane off the north site boundary.
- 1.5. Extensive habitat creation is proposed in the landscape design to include garden space, native species hedgerow planting, woodland planting, meadow enhancement, and parkland trees.

Planning status of project, certainty of design and assumptions made

- 1.6. The present strategy has been prepared to support a full planning application, and it is not expected there will be subsequent significant revisions to the landscape design.

Objectives & Scope

1.7. With reference to the Development Proposals and best practice BNG reporting guidelines (CIEEM, 2021), the objectives & scope of the present strategy are to provide:

- An assessment as to whether the project can feasibly deliver BNG or not for the options being considered;
- Advice for the project to maximise its ability to deliver BNG considering factors such as location, design, construction methods and programme (where known/relevant);
- If on-site BNG can't be achieved, consideration of the potential for off-site delivery of BNG, either securing land in close proximity to the project site or other alternatives, including more distant land under direct control or a brokered agreement; and
- Where, following a review of the BNG Principles, the delivery of project-wide BNG as an outcome is not considered possible (e.g., as a result of impacts to irreplaceable habitats or other site constraints), a record of the reasons and next steps towards delivering biodiversity gains elsewhere through the project.

Planning Policy and Legislation

1.8. A summary of biodiversity planning policies and wildlife legislation relevant to the site is provided in Appendix 1.

2. Methodology

Personnel

- 2.1. The UKHab & condition assessment survey was carried out by TE BSc (Hons), MCIEEM. TE has professional experience in ecological consultancy since 2013, including Protected Species Survey, Extended Phase 1 Habitat Survey and report writing. Tim has attended formal training in advanced UKHab survey, designing Biodiversity Net Gain, and botanical species identification.
- 2.2. The BNG metric calculation was carried out by PH BSc (Hons), MSc. PH has attended formal training in UKHab survey, Biodiversity Net Gain, and botanical species identification.

Field Survey

UKHab & Condition Assessment Survey

- 2.3. A UKHab and condition assessment survey was carried out of the site on the 27th June 2022 with reference to best practice guidelines from UKHab Ltd (Butcher et al, 2020). The site was walked over, and the habitats present classified based on key indicator species present.
- 2.4. A Hedgerow was defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m long. Any bank, wall, ditch, or tree within 2m of the centre of the hedgerow is considered to be part of this habitat, as is the herbaceous vegetation within 2m of the centre.
- 2.5. The condition assessment was carried out with reference to guidance within the Biodiversity Metric 3.1 Condition Sheets and Technical Supplement (Natural England, 2022). The condition of each habitat was assessed by scoring each habitat parcel against the criteria set out in the Biodiversity Metric 3.1 Habitat Condition Assessment Sheets. A condition score was assigned to each habitat parcel based on a range of positive and negative indicators of quality against the optimum ecological state for the habitat, such as a grassland having species richness (positive) or the presence of invasive non-native plants (negative). This is used as an indicator for whether the habitat is a good or poor example of its habitat type/distinctiveness, and to inform future management for ecological enhancement where applicable.

Biodiversity Net Gain Metric Calculation

- 2.6. The prevailing biodiversity metric calculation spreadsheet at the time of writing was used, the Biodiversity Metric 3.1, with reference to the Technical Supplement and User Guide (Natural England, 2022).
- 2.7. The biodiversity metric 3.1 calculates the biodiversity units present as follows:

Baseline Habitats:

$$\text{Size of Habitat Parcel} \times \text{Distinctiveness} \times \text{Condition} \times \text{Strategic Significance} = \text{Baseline Biodiversity Units}$$

Post-intervention Habitats are calculated as above, and then:

$$\times \text{Difficulty} \times \text{Time to Target Condition} \times \text{Spatial Risk} = \text{Post-intervention Biodiversity Units}$$
- 2.8. The net gain or loss in Biodiversity Units is then calculated as:

$$\text{Post-intervention units} - \text{Baseline units} = (+/-) \text{ Net Change}$$

- 2.9 As the basis of the calculations, the Biodiversity Metric 3.1 requires the user to enter a series of variables for each baseline, enhanced or created habitat parcel. These variables and decisions made are summarised in the sections below and presented in the results section. No river habitats were present at the site, and as such variables relating only to river habitats have not been included.

Classification and Measurement of Habitats

- 2.10 The UK Habitat Classification System (UKHAB) (Butcher et al, 2020) was used during field surveys and converted to the appropriate habitat classification via the Metric 3.1 guidance (Natural England, 2022), to complete the broad habitat and habitat type variables of the metric 3.1 calculator.
- 2.11 The habitat areas were mapped via the QGIS 3.16.3 "Hannover" geographic information system application using a geo-referenced and ground-checked satellite image of the site.
- 2.12 Post-development habitat areas were measured from the illustrative Proposed Site Plans, georeferenced into QGIS.
- 2.13 Following the Biodiversity Metric 3.1 QGIS Template and Import Tool User Guide (Natural England Joint Publication JP039), each habitat parcel was entered into the QGIS Template where the data was exported into the Import Tool to consolidate the data to be entered into the Metric 3.1 calculator.

Strategic Significance

- 2.14 This is a score based on whether the location of the habitat is significant for nature. An assessment of this variable requires consideration as to whether the site is located within the relevant biodiversity local strategy, plan or policy, designated sites for nature conservation, and the sites position within the landscape. Strategic Significance was determined with reference to guidance from the Leicestershire County Council Ecology Unit 'Applying the Biodiversity Net-gain metric – Interim guidance for assessing strategic significance in Leicestershire and Rutland' March 2022.

Bespoke Compensation Agreed for Unacceptable Losses

- 2.15 This is a yes/no decision cell to indicate whether bespoke compensation has been agreed with decision makers for any losses in very high distinctiveness habitats.

Temporal Multiplier

- 2.16 Within the temporal multiplier for each created/ enhanced habitat parcel the metric requires the user to enter the following variables:
- Habitat created in advance/ years: The metric 3.1 rewards habitat creation in advance of losses by reducing the temporal risk multipliers added.
 - Delay in starting habitat creation/ years. If there will be a significant delay in the creation of a habitat type relative to any losses (e.g. phased development), the number of full years that the creation will be delayed is entered. The metric 3.1 then adds the number of years to the pre-populated time to target condition, which increases the effect of the risk multiplier.

Limitations

- 2.17 The accuracy of habitat area measurement is limited by the methods by which the baseline data was collected and resolution of development proposal plans. In this instance, baseline habitat areas have been calculated by cross referencing illustrative habitat plans mapped in

- the field with georeferenced aerial imagery. Post-development habitat areas were measured from the concept landscape PDF plans, georeferenced into QGIS.
- 2.18 Reasonable assumptions have been made with regards to the type/condition of habitats that could be created, which would need to be informed by a detailed Landscape Ecological Management Plan.
- 2.19 The Biodiversity Metric uses habitats as a proxy for biodiversity, which is a simplification of the real world. Although informed by evidence and reasoning, the outputs of the Metric are not scientifically precise or absolute values. The generated biodiversity unit scores are a proxy for the relative biodiversity worth of a habitat or site. The metric and its outputs must be interpreted with ecological expertise and a common-sense approach. The metric is an aid to biodiversity decisions only.
- 2.20 All dimensions and distances provided are approximate.
- 2.21 The present study has been informed by a sketch Proposed Site Plan, and as such assumptions have been made regarding the final planned design including the precise extent of proposed residential gardens and property boundaries.

3. Baseline Conditions

Baseline Habitats

- 3.1. The baseline habitat areas and condition assessments at the site including the data entered into the biodiversity metric are given in Tables 2, 3 & 4 below and mapped on Figure 2: Baseline Habitat Plan. The hedgerow habitat lengths and condition assessments are provided in Tables 5, 6, 7 & 8 and mapped on Figure 2: Baseline Habitat Plan. Photographs of the habitats referred to are presented in Appendix 2: Photographs. The key defining botanical species present of each habitat type are provided.
- 3.2. River habitats were present at the south site boundary, however, river habitat will not be impacted under the development proposals and therefore rivers have not been included in the assessment.

Table 2: Site Habitat Baseline Areas

UKHab Habitat Code	UKHab Habitat Classification	Data Entered into Metric								Baseline Habitat Units	Description	Photograph Ref No. (Appendix 2: Photographs)
		Unique Polygon Reference No.	Broad Habitat	Habitat Type	Area (hectares)	Condition	Strategic Significance	Area retained	Area enhanced			
g3c	Other Neutral Grassland	1	Grassland	Other Neutral Grassland	1.6878	Poor	Location ecologically desirable but not in local strategy	0.2147	0	13.24	Grass species cover was more than >75% of the sward with a low abundance of wildflowers. Grass species included abundant Yorkshire-fog <i>Holcus lanatus</i> and common bent <i>Agrostis capillaris</i>, with occasional cock's-foot <i>Dactylis glomerata</i>, crested dog's-tail <i>Cynosurus cristatus</i>, timothy <i>Phleum pratense</i>, meadow foxtail <i>Alopecurus pratensis</i>, perennial rye-grass <i>Lolium perenne</i>, and false oat-grass <i>Arrhenatherum elatius</i>. Forb species abundance was low relative to grasses and included those indicative of nutrient rich conditions such as creeping thistle <i>Cirsium arvense</i>, hogweed <i>Heracleum sphondylium</i>, broad-leaved dock <i>Rumex obtusifolius</i>, prickly sow-thistle <i>Sonchus asper</i>. Occasional meadow buttercup <i>Ranunculus acris</i> was also present. Occasional common sorrel <i>Rumex acetosa subsp. acetosa</i> was present towards the south of the west field compartment. The field to the east was ranker and more tussocky in sward type and height, with frequent false oat grass and cock's foot, and a higher abundance of tall herb species indicative of nutrient rich conditions. Areas of mown neutral grassland were present in the site, creating an informal path around field boundaries and a managed area at the northwest of the site.	1
g3c	Other Neutral Grassland	2	Grassland	Other Neutral Grassland	5.2869	Poor		0	5.4701	48.14		
u1b	Developed Land; Sealed Surface	3	Urban	Developed Land; Sealed Surface	0.0342	N/A – Other		0.0342	0	0.00	A complex of single storey agricultural buildings was present in the northwest of the site. Concrete hardstanding was present around the buildings.	2
w1d	Wet Woodland	4	Woodland and Forest	Wet Woodland	0.3889	Moderate		0.3889	0	5.13	The wet woodland at the southwest of the site was dominated by crack-willow <i>Salix fragilis</i> with occasional oak <i>Quercus sp.</i> The understorey contained mostly woody hedgerow species including hawthorn <i>Crataegus monogyna</i>, plum <i>Prunus domestica subsp. domestica</i>, crab apple <i>Malus sylvestris</i>, and elder <i>Sambucus nigra</i>. Ground flora included abundant common nettle and cleavers, occasional bramble, herb-robert <i>Geranium robertianum</i>, and hogweed, with rarely present red campion <i>Silene dioica</i>.	3
U	Urban Tree	5	Urban	Urban Tree (existing medium tree)	0.3296 (Not included in area total)	Moderate	Location ecologically desirable but not in local strategy	0.3296	0	4.35	9 medium trees on site, area calculated via Metric 3.1 'urban tree' tool	
Total Area					7.3978	Total Baseline Habitat Units				70.86		

Table 3: Condition Assessment – Other Neutral Grassland (Adapted from Natural England, 2022)

Condition Sheet: Grassland Habitat Type (medium, high & very high distinctiveness)					
Condition Assessment Criteria		Polygon Ref No. 1		Polygon Ref No. 2	
		Condition Achieved (Y/N)	Notes/Justification	Condition Achieved (Y/N)	Notes/Justification
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	N	The sward is dominated by grass species with wildflowers not clearly visible.	N	The sward is dominated by grass species with wildflowers not clearly visible.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	Sward height less than 7cm limited to field boundaries and less than 20% of whole habitat	N	Sward height less than 7cm limited to field boundaries and less than 20% of whole habitat
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	N	No bare ground cover	N	No bare ground cover
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Y	No bracken or scrub	Y	No bracken or scrub
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Y	No invasive non-native species recorded	Y	No invasive non-native species recorded
6	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	N	7 – 9 species per m2 only	N	7 – 9 species per m2 only
Criterion 1 Achieved (Essential for good condition for non-acid grassland) (Y/N)		N		N	
Number of criteria passed		2		2	
Condition Assessment Result	Condition Assessment Score	Polygon Ref No. 1 Score Achieved ×/✓		Polygon Ref No. 2 Score Achieved ×/✓	
Passes 5 of 6 criteria, including essential criterion 1 and 6.	Good (3)				
Passes 3 or 4 of 6 criteria, including essential criterion 1.	Moderate (2)				
Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6	Poor (1)	✓		✓	

Table 4: Condition Assessment – Wet Woodland (Adapted from Natural England, 2022)

Condition Sheet: WOODLAND Habitat Type						
Indicator		Good (3 Points)	Moderate (2 points)	Poor (1 point)	Score per indicator	Notes/Justification
1	Age distribution of trees	Three age classes present	Two age classes present	One age class present	2	
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland	3	
3	Invasive plant species	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover	3	
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel	3	5 species
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native	3	
6	Open space within woodland ⁴	10 - 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space	1	
7	Woodland regeneration	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland	2	
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high-risk pest or disease present	2	
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community	1	
10	Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots	3	canopy, understorey, ground flora
11	Veteran trees	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland	1	
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	1	
13	Woodland disturbance	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground	1	Abundant nettle and cleavers
Total Score						26
Condition Assessment Result				Condition Assessment Score		Result Achieved
Total score >32 (33 to 39)				Good (3)		Moderate
Total score 26 to 32				Moderate (2)		
Total score <26 (13 to 25)				Poor (1)		

Table 5: Site Hedge Baseline

UkHab Code	Data Entered into Metric							Hedgerow Baseline Units	Description	Photograph Ref No. (Appendix 2: Photographs)
	Hedgerow number*	Hedgerow Type	Length (km)	Condition	Strategic Significance	Length retained	Length enhanced			
h2a	1	Native Species Rich Hedgerow – Associated with bank or ditch	0.244	Good	Location ecologically desirable but not in local strategy	0.244	N/A	4.83	Species included abundant hawthorn <i>Crataegus monogyna</i> and blackthorn <i>Prunus spinosa</i> with frequent elder <i>Sambucus nigra</i>, crab apple <i>Malus sylvestris</i>, and occasional field maple <i>Acer campestre</i>, goat willow <i>Salix caprea</i>, oak <i>Quercus sp.</i>, ash <i>Fraxinus excelsior</i>, and crack-willow <i>Salix fragilis</i>. Gound flora and climbers included great willowherb <i>Epilobium hirsutum</i>, hedge bindweed <i>Calystegia sepium</i>, hogweed <i>Heracleum sphondylium</i>, bramble, hedge woundwort <i>Stachys sylvatica</i>, creeping thistle, bittersweet <i>Solanum dulcamara</i>, false oat-grass, meadowsweet <i>Filipendula ulmaria</i>, and red campion <i>Silene dioica</i>. A wet ditch was present as an associated feature along the length of the hedgerow. The hedgerow was approximately 2m-3m in height and width, and 245m in length. Standard trees were goat willow, ash, and oak.	4
h2a	2	Native Species Rich Hedgerow – Associated with bank or ditch	0.163	Good	Location ecologically desirable but not in local strategy	0.163	N/A	3.23	Woody canopy species included blackthorn, hawthorn, elder, wild privet <i>Ligustrum vulgare</i>, ash, crack willow, and scots pine. Ground flora, climbers, and other species included field rose <i>Rosa arvensis</i>, cleavers, hogweed, and red campion. A wet ditch was present as an associated feature along the length of the hedgerow. The hedgerow was approximately 2-3m in height, 3m+ in width, and 170m in length. Standard trees were one Scots pine and one ash tree.	5
h2a	3	Native Species Rich Hedgerow with trees	0.132	Good	Location ecologically desirable but not in local strategy	0.132	N/A	2.61	Woody canopy species included abundant blackthorn and hawthorn with occasional elder, ash, oak, hazel, field maple Climbers included honey suckle. The hedgerow was approximately 2-3m in height, 3m+ in width, and 300m in length. Standard trees included frequent veteran oaks trees.	6
h2a	4	Native Hedgerow with trees	0.294	Good	Location ecologically desirable but not in local strategy	0.294	N/A	3.88	Woody species included oak species <i>Quercus sp.</i>, hawthorn, blackthorn, and crab apple. Field rose was also present. Standard trees included frequent veteran oaks trees.	7
w1g6	5	Line of Trees	0.232	Moderate	Location ecologically desirable but not in local strategy	0.232	N/A	1.02	A line of trees was present at the east and south site boundary of the east field compartment. Species included crack willow, oak, hawthorn, blackthorn, elder, goat willow, alder <i>Alnus glutinosa</i>, ash, and hazel <i>Corylus avellana</i>.	8
Total			1.07 (rounded up by metric)	Total				15.57		

Table 6: Condition Assessment – Hedgerows without trees (Adapted from Natural England, 2022)

Condition Sheet: Hedgerow Habitat Types					
Attributes and functional groupings (A, B, C, D)	Criteria (the minimum requirements for ‘favourable condition’)	Condition Achieved (Y/N)			
		Hedge 1	Hedge 2	Hedge 3	Hedge 4
Functional Group A.					
A1. Height	>1.5 m average along length	Y	Y	See Table 7	
A2. Width	>1.5 m average along length	Y	Y		
Functional Group B.					
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless ‘line of trees’)	Y	Y		
B2. Gap - hedge canopy continuity	Gaps make up <10% of total length and no canopy gaps >5 m	Y	Y		
Functional Group C.					
C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	N	N		
C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Y	Y		
Functional Group D					
D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Y	Y		
D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Y	Y		
Condition Categories					
Category/ Weighting (score)	Maximum number of attributes that can fail to meet ‘favourable condition’ criteria	Hedge 1	Hedge 2	Hedge 3	Hedge 4
Good (3)	No more than 2 failures in total; AND No more than 1 in any functional group.	✓	✓		
Moderate (2)	No more than 4 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).				
Poor (1)	Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).				

Table 7: Condition Assessment – Hedgerows with trees (Adapted from Natural England, 2022)

Condition Sheet: Hedgerow Habitat Types					
Attributes and functional groupings (A, B, C, D & E)	Criteria (the minimum requirements for ‘favourable condition’)	Condition Achieved (Y/N)			
		Hedge 1	Hedge 2	Hedge 3	Hedge 4
Functional Group A.					
A1. Height	>1.5 m average along length	See Table 6		Y	Y
A2. Width	>1.5 m average along length			Y	Y
Functional Group B.					
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless ‘line of trees’)			Y	Y
B2. Gap - hedge canopy continuity	Gaps make up <10% of total length and no canopy gaps >5 m			Y	Y
Functional Group C.					
C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)			N	N
C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground			Y	Y
Functional Group D					
D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species			Y	Y
D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities			Y	Y
Functional Group E					
E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.			Y	Y
E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). 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.			Y	Y
Condition Categories					
Category/ Weighting (score)	Maximum number of attributes that can fail to meet ‘favourable condition’ criteria	Hedge 1	Hedge 2	Hedge 3	Hedge 4
Good (3)	"No more than 2 failures in total; AND No more than 1 failure in any functional group."			✓	✓
Moderate (2)	No more than 5 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition).				
Poor (1)	Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).				

Table 8: Condition Assessment – Line of trees (Adapted from Natural England, 2022)

Condition Sheet: LINE OF TREES Habitat Type				
Condition Assessment Criteria			Condition Achieved (Y/N)	Notes/Justification
1	More than 70% of trees are native species.		Y	
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.		N	
3	Includes one or more mature or veteran tree.		Y	Mature trees present
4	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 anthropogenic operations.		N	Not present, mown grass
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). 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.		Y	
Number of Criteria Passed				4
Condition Assessment Result		Condition Assessment Score	Score Achieved ×/✓	
Passes 5 of 5 criteria		Good (3)	✓	
Passes 3 or 4 of 5 criteria		Moderate (2)		
Passes 0, 1 or 2 of 5 criteria		Poor (1)		

4. BNG Good Practice Principles for Development

- 4.1. Justification of how the Good Practice Principles for BNG have been applied with reference to best practice guidance Baker & Butterworth (2019) to the present assessment are presented in Table 9 below.

Table 9: BNG Good Practice Principles for Development

BNG Principle	Justification
Apply the mitigation hierarchy	The ecology of the site has been a key consideration from the outset of the scheme. Habitats at the site have been retained as far as possible. Discussions with the client led to changing the layout to retain more grassland.
Avoid losing biodiversity that cannot be offset by gains elsewhere	The site has mature oak trees and a hedgerow network, which will be retained post-development. The grassland which makes up the majority of the site will be retained and enhanced.
Be inclusive and equitable	All documents are being submitted to planning and will be reviewed as part of the planning process, whereby stakeholders in the community will be given the opportunity to comment.
Address risks	The Biodiversity Metric 3.1 addresses risks via the 'Applied difficulty multiplier', which has been used to inform the present assessment. In addition to this, baseline and target conditions and habitats have been carefully selected so as to be achievable for the site. Recommendations for a Landscape Environmental Management Plan or similar will secure management and monitoring of the habitats for 30 years post development, with interventions if required.
Make a measurable net gain	Baseline and post-development information have been entered into the DEFRA Metric 3.1 following the technical guidance, which shows that the project will make a measurable net gain.
Achieve the best outcomes for biodiversity	The enhancement of the grassland on-site, pond and woodland creation, will contribute to biodiversity objectives locally. The enhancement of the grassland on-site will create higher value habitats for invertebrates and bats known to be present on-site via ecological surveys.
Be additional	All habitat creation and enhancements proposed are as a result of the development proposals and would not happen under the normal management regime of the site.
Create a net gain legacy	Stakeholders including the local planning authority have been consulted since the early stages of the proposed scheme. A LEMP (or similar) is proposed for the site which, subject to the approval of the LPA, and agreed by the client, will ensure proposed habitats will be delivered, and a monitoring plan spanning 30 years put in place which will include adaptive measures in the event of failure.
Optimise sustainability	The creation of new woodland on site will significantly increase the carbon sequestration potential of the site.
Be transparent	All documents related to BNG will be available for public scrutiny on the Planning Portal. The Biodiversity Metric used to inform the present assessment has also been issued for scrutiny.

5. Proposed Design

- 5.1. The proposed habitats and hedgerows at the site including the data entered into the biodiversity metric are given in Tables 9, 10 & 11 below and mapped on Figure 3: Proposed Habitats Plan.

Table 9: On-site Habitat Creation

Data Entered into Metric							Habitat Units Delivered
Broad Habitat	Proposed Habitat	Area (hectares)	Condition	Strategic Significance	Habitat created in advance/years	Delay in starting habitat creation/years	
				Location ecologically desirable but not in local strategy			
Lakes	Ponds (Non-Priority Habitat)	0.2042	Moderate		0	0	1.61
Urban	Built Linear Features	0.0096	N/A - Other		0	0	0.00
Urban	Developed land; sealed surface	0.1203	N/A - Other		0	0	0.00
Urban	Vegetated garden	0.0473	Condition Assessment N/A		0	0	0.10
Woodland and forest	Wet Woodland	1.0917	Moderate		0	0	5.66
Urban	Urban Tree	0.7488 (Not added to total area)	Moderate		0	0	2.52
Total Area		1.28					
Total Units							9.89

*The full details to be provided in a Landscape Ecological Management Plan for the Site.

Table 10: On-site Habitat Enhancement

Data Entered into Metric							Habitat Units Delivered
Broad Habitat	Proposed Habitat	Area (hectares)	Condition	Strategic Significance	Habitat created in advance/years	Delay in starting habitat creation/years	
Grassland	Other neutral grassland	5.2869	Moderate	Location ecologically desirable but not in local strategy	0	0	39.55
Total Area		5.2869					
Total Units							39.55

Table 11: On-site Hedgerow Creation

Data Entered into Metric							Hedge Units Delivered	Outline Habitat Creation and Management Recommendations
New Hedge Number	Hedgerow Type	Length (km)	Condition	Strategic Significance	Habitat created in advance/years	Delay in starting habitat creation/years		
6	Native Species Rich Hedgerow	0.095	Moderate	Location ecologically desirable but not in local strategy	0	0	0.70	
7	Native Species Rich Hedgerow	0.203	Moderate	Location ecologically desirable but not in local strategy	0	0	1.49	
Total Hedge Length Created		0.298	Total Hedge Units Delivered				2.19	

6. Biodiversity Metric Results

- 6.1. The completed biodiversity metric excel spreadsheet has been issued with the present report and should be read in conjunction with it. The 'headline results' output of the Biodiversity Metric 3.1 calculation are presented in Table 12 below.

Table 12: Summary of Biodiversity Metric Output

	Habitat / Hedgerow	Unit
On-site Baseline Units	Habitat	40.17
	Hedgerow	15.57
On-Site Post-Intervention Units	Habitat	59.87
	Hedgerow	17.77
Total Net Unit Change	Habitat	19.70
	Hedgerow	2.19
On-site net % change	Habitat	49.04%
	Hedgerow	14.09%
Trading rules satisfied?		Yes

- 6.2. Retained habitats should be protected through the implementation of a Construction and Environmental Management Plan (CEMP) during construction which can be controlled via a planning condition. This will set out measures to protect these retained habitats through appropriate fencing and site best practice to avoid pollution from run-off and dust. The retained Trees should be protected with reference to the British Standard "Trees in Relation to Design, Demolition and Construction to Construction - Recommendations" (BS 5837) (2012).
- 6.3. Post-development retained, enhanced and created habitats should be managed and monitored for a minimum of 30 years via the implementation of a Landscape and Ecological Management Plan (LEMP) or similar, controlled by a planning condition. The LEMP will set out the principles to maximise biodiversity potential of the habitats to maintain and achieve the conditions of the BNG metric and includes a programme of monitoring, modifying, if required, and remedial actions in case habitats fail. The main management objectives required to deliver the target conditions are outlined only within the present report, as detailed in Appendix 3: Indicative Habitat Management Required to Achieve Proposed Habitat Conditions.

7. Biodiversity Enhancements

7.1. Species specific biodiversity enhancements are proposed for the scheme. These biodiversity enhancements are not taken into account by the Biodiversity Metric which informs the biodiversity net gain percentage uplift at the site, but will increase the biodiversity value of the site.

7.2. The proposed biodiversity enhancements at the site are:

- A bat roosting loft
- Bird nesting enhancements
- Invertebrate bricks

Bat Roosting Loft

7.3. The bat roosting loft will be designed for both void dwelling species such as brown long-eared bat *Plecotus auritus*, and crevice dwelling species such as common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. These species were recorded during the nocturnal bat survey of the barns at the northwest of the site, and are therefore known to be present at the site.

7.4. The design of the bat roosting loft has taken into account guidance from the bat mitigation guidelines Mitchell-Jones, A.J. (2004), and the more recent Bat Mitigation Guidelines Beta Version 1.0 (CIEEM, 2021). The document '*Reviewing the evidence on mitigation strategies for bats in buildings: informing best-practice for policy makers and practitioners*' from Lintott & Mathews, (2018) has also been taken into account.

7.5. The bat roosting loft will be situated in the southeast extent of the building (Figure 4 Biodiversity Enhancement Plan), which is close to tree cover and the nearby hedgerow network. The roof of the loft will be hipped and have southwest, southeast and northeast facing pitches which will maintain good thermal conditions.

7.6. Bat access will be via four gaps under hip tiles, two gaps under tiles at the east facing pitch, and one gap at each of the south and north facing elevations (Figure 4 Biodiversity Enhancement Plan). This will provide 8 roost entrance choices across two types of roost entrance. The bat access gaps must be sufficiently small so as to prevent draught, light exposure, or bird access into the loft. Access points should be located directly above windows, to avoid issues with droppings and light spill at bat access points. The bat access entrances under tiles should be a width of 30-50mm wide and 15-20mm high. The entrance tile immediately beneath the bat access point should be roughened via scoring the tile to create a landing area for bats.

7.7. Internally, the bitumen roofing felt should be cut with a hole of equal size and location to allow access from the bat access slate through into the roof void. 1F bitumastic felt must be used only. Strictly no breathable roofing membranes will be used where bats may access them, as these are known to cause bat fatality.

7.8. Within the loft void unobstructed flying space must be maintained. Two bat boxes will be fixed to the wall within the loft void to provide opportunities for crevice dwelling bats. The Kent type box of wooden construction is recommended.

7.9. A small loft hatch will be installed in the floor of the void, to enable access for maintenance and monitoring purposes.

7.10. Further details of the proposed bat loft, such as internal beam structure, dimensions, compartments, and volume, can be provided when detailed specifications for the proposed loft and roof construction within the building are available.

Bird Nesting Enhancements

7.11. Swallow nest cups are proposed to be installed beneath the roof overhangs of the building. At least four swallow nest cups will be fitted in a nesting terrace on the exterior of the building at the northeast elevation (Figure 6). The nesting cups will be of a long-lasting material such as woodcrete or similar, suitable models include the '*Nestbox Company Eco Swallow Nest Bowl*' or the '*Vivara Pro Wood Stone Swallow Bowl*'. The nest cups will be located directly below the eaves on the northeast facing aspects to avoid strong sunlight and wet winds. The nest cups should be installed leaving a distance of at least 6cm between the top of the nest cup and the bottom of the overhang/ soffit, with at least 1m apart between cups. The nest cups should not be placed adjacent to clutter, to allow the birds to launch and fly away comfortably.

Invertebrate Bricks

7.12. Three bee bricks are proposed to be installed within the low brick plinth wall to be constructed around the building, which will create habitat for non-swarming solitary bees including red mason and leafcutter bees, and other invertebrates. Bee bricks should be installed in a warm sunny spot which is south facing (Figure 6), with no vegetation in front of the brick.

8. References

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- Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). *The UK Habitat Classification User Manual Version 1.1* at <http://www.ukhab.org>.
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- Maddock, A. (ed) (2011). UK Biodiversity Action Plan Priority Habitat Descriptions (updated Dec. 2011). Joint Nature Conservation Committee, Peterborough.
- Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough
- Paul Lintott & Fiona Mathews (2018) *Reviewing the evidence on mitigation strategies for bats in buildings: informing best-practice for policy makers and practitioners*. University Of The West Of England And The University Of Exeter. University Of Sussex And The University Of Exeter.
- Stephen Panks, Nick White, Amanda Newsome, Mungo Nash, Jack Potter, Matt Heydon, Edward Mayhew, Maria Alvarez, Trudy Russell, Clare Cashon, Finn Goddard, Sarah J. Scott, Max Heaven, Sarah H. Scott, Jo Treweek, Bill Butcher and Dave Stone, 2022. *Biodiversity metric 3.1: Auditing and accounting for biodiversity - User Guide*. Natural England Joint Publication JP039.

9. Figures

Figure 1: Site Location Plan (Overleaf)

Figure 2: Baseline Habitats Plan (Overleaf)

Figure 3: Proposed Habitats Plan (Overleaf)

Figure 4: Biodiversity Enhancement Plan (Overleaf)



Legend

 Site Boundary

Project:

Land Southwest of Sutton Lane, Market Bosworth

Drawing:

Figure 1: Site Location Plan

Date: 18-01-2023

Version: FINAL

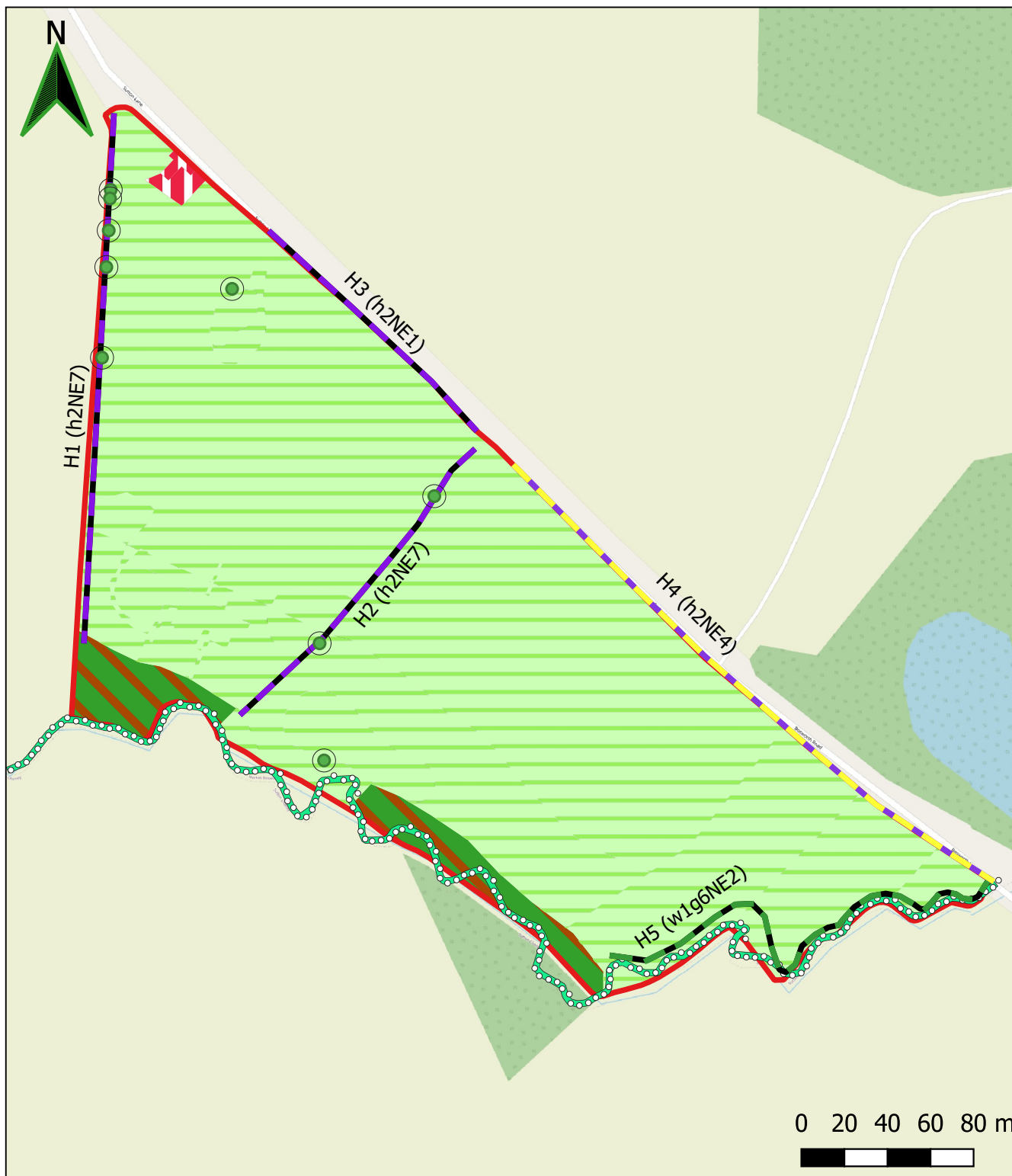
Author: PH

Job No: P2387



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Legend

- Site Boundary
- Developed land; sealed surface
- Other neutral grassland
- Wet woodland
- Line of Trees (w1g6NE2) with reference number
- Native Hedgerow with trees (h2NE4) with reference number
- Native Species Rich Hedgerow - Associated with bank or ditch (h2NE7) with reference number
- Native Species Rich Hedgerow with trees (h2NE1) with reference number
- Other Rivers and Streams
- Existing Medium Tree

Project:

Land Southwest of Sutton Lane, Market Bosworth

Drawing:

Figure 2: Baseline Habitat Plan

Date: 17-02-2023

Version: FINAL

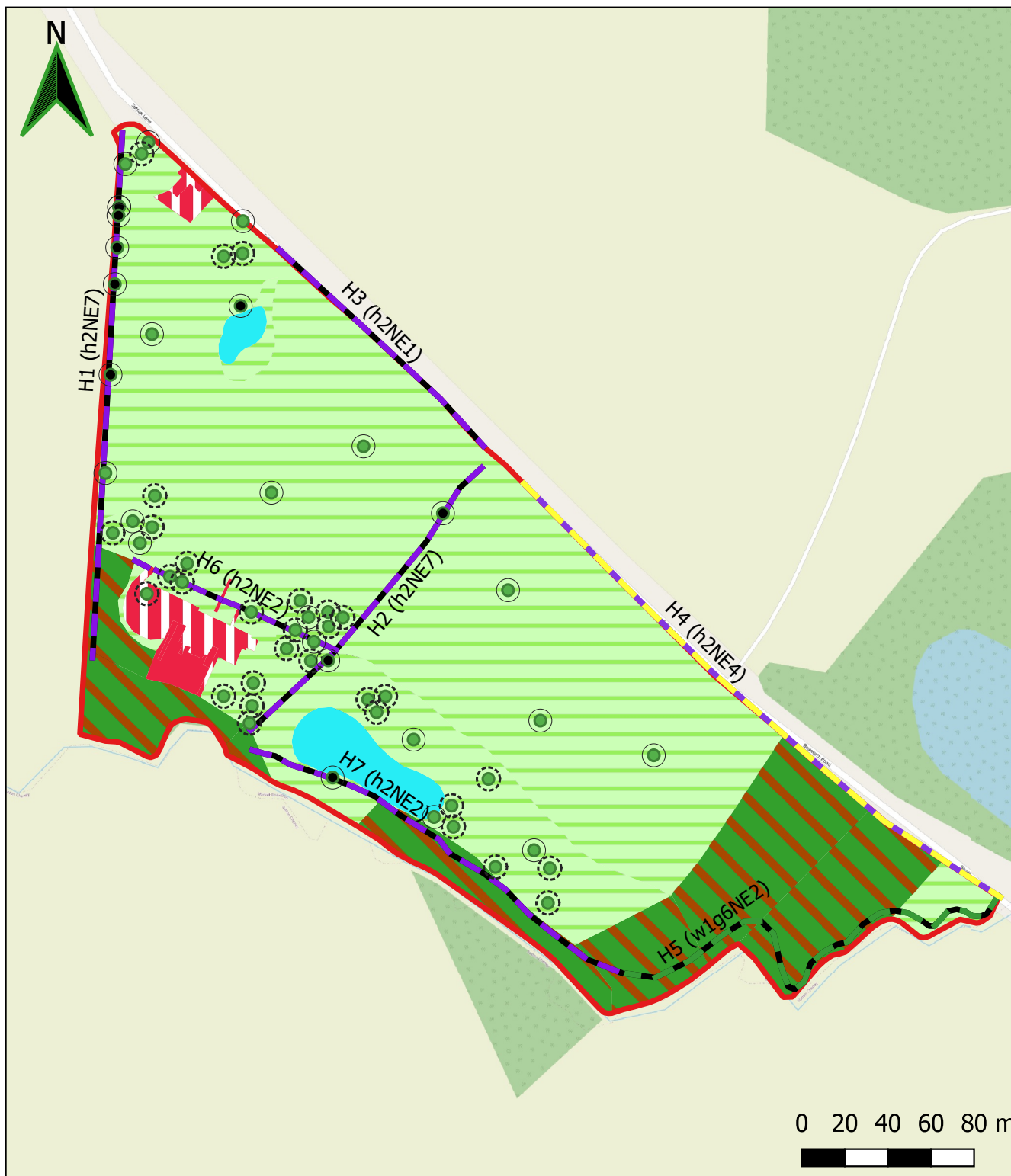
Author: PH

Job No: P2387



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Legend

- Site Boundary
- Built linear features
- Developed land; sealed surface
- Other neutral grassland
- Ponds (Non- Priority Habitat)
- Vegetated garden
- Wet woodland
- Line of Trees (w1g6NE2) with reference number
- Native Hedgerow with trees (h2NE4) with reference number
- Native Species Rich Hedgerow (h2NE2) with reference number
- Native Species Rich Hedgerow - Associated with bank or ditch (h2NE7) with reference number
- Native Species Rich Hedgerow with trees (h2NE1) with reference number
- Retained Medium Tree
- Proposed Medium Tree
- Proposed Small Tree

Project:

Land Southwest of Sutton Lane, Market Bosworth

Drawing:

Figure 3: Proposed Habitat Plan

Date: 31-03-2023

Version: FINAL

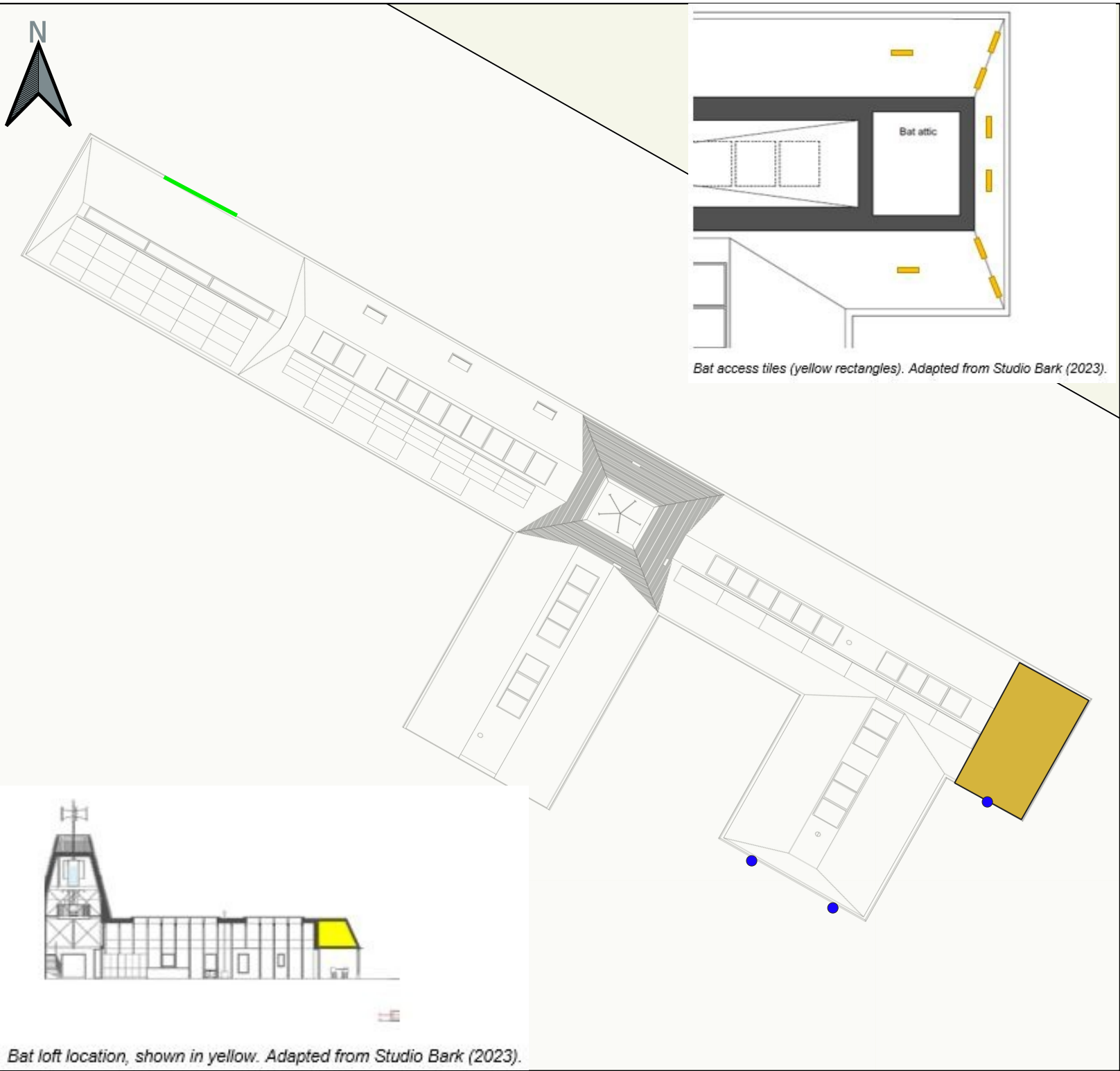
Author: PH

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- Bat Loft
- Bee Brick
- Swallow Nest Cups

Project: P2387 Land South West Of Sutton Lane, Market Bosworth
Drawing: Figure 4: Biodiversity Enhancement Plan

Date: 31-03-2023 Drawn: TE
Version: Final Drawing No. P2387_04

Habitat measurements given are approximate.
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Appendix 1: Planning Policy & Legislation Summary

This appendix serves as a summary of relevant policy and legislation. It is not intended to supersede the policy or legislation documents to which it refers, and the relevant full documents should always be consulted prior to decision making.

National Planning Policy Framework 2021

Biodiversity is a material consideration under the National Planning Policy Framework (2021). Relevant text to biodiversity from the NPPF is described below.

“174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

[...]

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;”

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

[...]

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. “

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

[...]

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.”

The Environment Act 2021

Schedule 14 makes provision for biodiversity gain to be a condition of planning permission in England. The biodiversity net gain relevant percentage is currently set to 10% by the Act, which is projected to become mandatory in November 2023.

Appendix 2: Photographs



Photo 1: Other neutral grassland present on site



Photo 2: Sealed surface and building on site.



Photo 3: Wet woodland at the southwest of the site.



Photo 4: Hedgerow 1.



Photo 5: Hedgerow 2.



Photo 6: Hedgerow 3.



Photo 7: Hedgerow 4.



Photo 8: Line of trees at east site boundary.



Photo 9: Scattered 'Urban' Tree

Appendix 3: Indicative Habitat Management Required to Achieve Proposed Habitat Conditions

Post-development retained, enhanced and created habitats should be managed and monitored for a minimum of 30 years via the implementation of a detailed Landscape and Ecological Management Plan (LEMP) or similar, controlled by a planning condition. The LEMP will set out the principles to maximise biodiversity potential of the habitats to maintain and achieve the conditions of the BNG metric and includes a programme of monitoring, modifying, if required, and remedial actions in case habitats fail. The main management objectives required to deliver the target conditions are outlined only within the present report, as detailed in the table below.

Habitat Type	Habitat Definition	Target Condition/ Time Frame	Target Condition Criteria*	Outline Habitat Requirements to Meet Target Condition
Ponds (Non-Priority Habitat)	Standing water including the open water zone (which may contain submerged free-floating or floating-leaved vegetation) and water fringe vegetation (Butcher et al, 2020). Ponds which do not meet the criteria for priority habitat (Maddock, 2011) and are not or ornamental ponds.	Moderate condition in 3 years	To achieve moderate condition, non-woodland ponds must meet at least 6 of the 9 following criteria: • The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock. • There is semi-natural habitat (i.e. moderate distinctiveness or above) for at least 10 m from the pond edge. • Less than 10% of the pond is covered with duckweed or filamentous algae. • The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework. • Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework. • There is an absence of non-native plant and animal species. • The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities. • In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds), should cover at least 50% of the pond area that is less than 3 m deep. • The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	The ponds will be designed and managed for wildlife to ensure the ponds meet the criteria of moderate condition, observing the following points: • The ponds will be sited away from man-made structures and will not form part of a drainage system or be fed by any other pipework, ditch or streams, maintaining clear water quality. The surrounding land will not be densely stocked with livestock, to ensure water quality is maintained. • The surrounding habitats within 10m of the ponds will be semi-natural habitats including other neutral grassland and hedgerows. • The ponds will be managed and kept clear of invasive non-native species, and non-desirable species such as duckweed controlled. The ponds will be cleared of leaf litter and other debris between the winter months of November – February. • The topography of the pond will be excavated to have both permanent and seasonal pools of varying depth and have broad, undulating drawdown zones, with shallow slopes. • The pond will never be stocked with fish, or any fish introduced into the pond. • Marginal and submerged planting will be undertaken, stocking with native species of local provenance of value to native pond fauna. The banksides of the ponds will be planted with a wetland meadow mix with annual weds controlled. • The pond will be managed for native pond fauna including amphibians such as great crested newt (GCN). • The tree and hedgerow planting scheme for the site will ensure that the ponds are not more than 50% shaded.
Wet Woodland	Woodland is defined as land with more than 25% cover of trees which are more than 5m in height. Taken from Butcher et al, (2020), wet woodland occurs on poorly drained or seasonally wet soils, usually with Alder <i>Alnus glutinosa</i>, birch <i>Betula spp.</i>, and willows <i>Salix spp.</i> as the predominant tree species, but sometimes including ash <i>Fraxinus excelsior</i>, oak <i>Quercus spp.</i>,	Moderate condition in 15 years	To achieve moderate condition, the woodland must score at least 26 points with ref to the following, whereby up to 3 points are scored for each indicator: • Age distribution of trees: ○ 1 point: One age class present ○ 2 points: Two age classes present ○ 3 points: Three age classes present • Wild, domestic and feral herbivore damage:	The design of the woodland planting and management objectives will ensure that a moderate condition for the woodland is reached. Native tree species only will be planted, with suggested species including Alder <i>Alnus glutinosa</i>, birch <i>Betula spp.</i>, willows <i>Salix spp.</i> oak <i>Quercus spp.</i>, Scots pine <i>Pinus sylvestris</i>, and beech <i>Fagus sylvatica</i>, subject to confirming suitable ground conditions. All nursery stock and tree planting should comply with BS 8545:2014 Trees: from nursery to independence in the landscape. The management plan for the woodland will be optimised to meet the target condition, including: Measures for excluding herbivores to prevent damage Inspect tree health and replace dead or missing trees annually.

Habitat Type	Habitat Definition	Target Condition/ Time Frame	Target Condition Criteria*	Outline Habitat Requirements to Meet Target Condition
	Scots pine <i>Pinus sylvestris</i> , and beech <i>Fagus sylvatica</i> on the drier riparian areas.		○ 1 point: Evidence of significant browsing pressure is present in 40% or more of whole woodland ○ 2 points: Evidence of significant browsing pressure is present in 40% or less of whole woodland ○ 3 points: No significant browsing damage evident in woodland • Invasive plant species: ○ 1 point: Rhododendron or laurel present, or other invasive species > 10% cover ○ 2 points: Rhododendron or laurel not present, other invasive species < 10% cover ○ 3 points: No invasive species present in woodland • Number of native tree species: ○ 1 point: None to two native tree or shrub species across woodland parcel ○ 2 points: Three to four native tree or shrub species found across woodland parcel ○ 3 points: Five or more native tree or shrub species found across woodland parcel • Cover of native tree and shrub species: ○ 1 point: < 50% of canopy trees and <50% of understory shrubs are native ○ 2 points: 50-80% of canopy trees and 50-80% of understory shrubs are native ○ 3 points: > 80% of canopy trees and >80% of understory shrubs are native • Open space within woodland: ○ 1 point: More than 40% of woodland has areas of temporary open space ○ 2 points: 21- 40% of woodland has areas of temporary open space ○ 3 points: 10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply • Woodland regeneration: ○ 1 point: No classes or coppice regrowth present in woodland	The woodland should be monitored for controlled and/or invasive species annually and appropriate action taken to remove if found. The woodland areas will be sown with a shade tolerant wildflower and hedgerow/ woodland edge mix which will tolerate shading. Maintain open space within the woodland and ensure sufficient light reaches the woodland floor so as to encourage ground flora. Ensure a three storey woodland complex of canopy, understory and shrub layer. Where the felling of trees is required at the site, the deadwood should be utilised to form standing dead wood or log piles within the woodland. Tree guards is used will be removed at 5-year mark as they can start to hamper growth or pollute the environment. Dispose of the plastics responsibly by recycling or reusing. Inspect tree guards regularly for damage, ensuring they are upright and in sound condition annually.

Habitat Type	Habitat Definition	Target Condition/ Time Frame	Target Condition Criteria*	Outline Habitat Requirements to Meet Target Condition
			○ 2 points: One or two classes only present in woodland ○ 3 points: All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth. • Tree health: ○ 1 point: Greater than 25% tree mortality and or any high-risk pest or disease present ○ 2 points: 11% to 25% mortality and/or crown dieback or low risk pest or disease present ○ 3 points: Tree mortality less than 10%, no pests or diseases and no crown dieback • Vegetation and ground flora: ○ 1 point: No recognisable NVC community ○ 2 points: Recognisable NVC plant community present ○ 3 points: Ancient woodland flora indicators present • Woodland vertical structure: ○ 1 point: One or less storey across all survey plots ○ 2 points: Two storeys across all survey plots ○ 3 points: Three or more storeys across all survey plots or a complex woodland • Veteran trees: ○ 1 point: No veteran trees present in woodland ○ 2 points: One veteran tree per hectare ○ 3 points: Two or more veteran trees per hectare • Amount of deadwood: ○ 1 point: Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps ○ 2 points: Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps ○ 3 points: 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps • Woodland disturbance:	

Habitat Type	Habitat Definition	Target Condition/ Time Frame	Target Condition Criteria*	Outline Habitat Requirements to Meet Target Condition
			1 point: More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground 2 points: Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground 3 points: No nutrient enrichment or damaged ground evident	
Urban Tree	For the purposes of metric calculations, rural trees are also included as urban trees. As defined in the Biodiversity Metric 3.1 urban tree condition sheet, urban trees are: Individual Trees: Young trees over 75mm in diameter measured at 1.5m from ground level and individual semi-mature and mature trees of significant stature and size that dominate their surroundings whose canopies are not touching but that are in close proximity to other trees. Perimeter Blocks: Groups or stands of trees within and around boundaries of land, former field boundary trees incorporated into developments, individual trees in gardens whose canopies overlap continuously Linear Blocks: Lines of trees along streets, highways, railways and canals whose canopies may or may not overlap continuously.	Moderate condition in 27 years	To achieve moderate condition, each tree must pass at least 3 of the following 6 criteria: 1) The tree is a native species (or more than 70% within the block are native species). 2) 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). 3) The tree is mature or veteran (or more than 50% within the block are mature or veteran). 4) There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height. 5) Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark 6) More than 20% of the tree canopy area is oversailing vegetation beneath.	To meet the target condition of moderate, the following points will be observed: Only native species planting will be undertaken. Suggested trees of value to wildlife include field maple <i>Acer campestre</i>, silver birch <i>Betula pendula</i>, common beech <i>Fagus sylvatica</i>, oak <i>Quercus robur</i>, rowan <i>Sorbus aucuparia</i>, crab apple <i>Malus sylvestris</i>. Trees planted will be native species that can achieve small and medium size. Excessive planting will be avoided to prevent shading on the grassland. The establishment of the new tree will occur between November and March, and the tree will not be planted in waterlogged or frozen ground, compacted ground, or areas at risk of pollution or browsing by livestock. A tree guard will be installed around the tree to provide protection from pathogens, support stable growth, and limit the risk of damage from trampling. During the first year of management, no compaction of surrounding soils will be permitted within a 5m radius, and pernicious weeds around the base of the tree will be removed. Pruning will be minimal in the first year, and a guide pole may be necessary to ensure healthy upward growth. In subsequent years, pruning may be necessary to ensure the tree continues to grow upwards and create a diverse canopy structure. Lower limbs will be targeted for removal to encourage the tree to take a more traditional growth form. Any new trees within a 5m radius that have established will be removed to reduce competition for resources. In management years 10 and beyond, branch thinning will be undertaken to remove limbs with unnatural growth forms or that may compromise the overall tree health. If the tree fails or dies at any point during its life cycle, it will be replaced or replanted.
Other neutral grassland (enhanced from poor condition)	Taken from Butcher et al, (2020), other natural grassland means neutral grassland which does not meet the definition of either g3a lowland hay meadows or g3b upland hay meadows. Perennial rye grass is likely to be present at <30% with between 9 and 15 further	Moderate condition in 10 years	To achieve moderate condition, 5 of the following 6 criteria must be passed, with criteria 1 and 6 essential to reach good condition: 1) The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type. Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate or good condition (non-acid grassland types only).	The grassland currently passes 2 of 6 criteria, achieving poor condition score. The two criteria currently passed are: 4 and 5. To achieve moderate condition, the grassland must achieve at least 3 of the 6 criteria and must pass criteria 1. The habitat enhancements at the site will target criteria 1 and 6. This will require increasing species diversity within the sward to 9 – 15 m², and increasing the abundance ratio of wildflowers to grassland, whereby wildflowers should account for at least 30% of the sward. Additionally, enhancement will aim to reduce the abundance of undesirable species within the sward such as creeping thistle and broadleaved dock by reducing nutrient

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	species m ² also present. Many of the more species rich swards that were previously described as “semi-neutral grassland” are included in the definition, together with rank and unmanaged swards on neutral soils.		2) Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. 3) Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. 4) Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%. 5) There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. 6) There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	levels in the sward. This will be achieved by removing grass cutting arisings, or a low intensity grazing regime. Scarification and overseeding will be used to rapidly bolster the species assemblage of herbaceous flowering plants within the sward. This can be achieved via scarification to a depth of 25mm and overseeding with either a purchased species rich wildflower meadow mixture, or via seed translocation from a donor meadow. Yellow rattle <i>Rhinanthus minor</i> will be sown which has a secondary benefit in that it is semi-parasitic towards grasses and can reduce the quantity of grass growth by up to 80%.
Native Species Rich Hedgerow (priority habitat)	Adapted from Butcher et al, (2020), a hedgerow is a boundary line of shrubs less than 5m wide, provided that at one time the shrubs were stock proof and more or less continuous. This includes any bank, wall, ditch, tree or herbaceous vegetation within <2m from the hedgerow centre. Gaps between trees and shrubs must be <20m. Priority habitat native species rich hedgerows consist of 80% or more cover of at least one woody native UK species. With reference to the Hedgerow Survey Handbook (DEFRA, 2007), where the structural species making up the 30m section of hedgerow include at least five woody species that are either native somewhere in the UK, or which are archaeophytes, the hedgerow is defined as species-rich.	Moderate condition in 5 years	To achieve moderate condition, the hedgerows must pass at least 4 of the following 8 criteria, and must not fail two attributes within one function group (e.g cannot fail both of the A's, B's, C's or D's) A1. Height is >1.5m average along length A2. Width is >1.5m average along length B1. Gap at the hedge base between the ground and canopy is <0.5m for >90% of the hedgerow length B2. Gaps in the hedgerow make up <10% of the total length and there are no canopy gaps >5m C1. There is >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of the hedgerow length as measured from the outer edge of the hedgerow and present on at least one side of the hedge. C2. Undesirable plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground D1. >90% of the hedgerow or undisturbed ground is free of invasive non-native and neophyte species. D2. >90% of the hedgerow or undisturbed ground is free of current damage caused by human activities including evidence of pollution, manure or rubble, and excessive hedgerow cutting.	To meet the target condition of moderate, the following points will be observed. - The planting will take place between October and March, avoiding frozen or waterlogged ground. - The ground will be prepared with a 1.5m strip to provide optimal soil conditions and limit competition from other species. - Distances between specimen planting will vary between 30-60cm. To ensure the hedge is wider than 1.5m at maturity, whips will be planted as a staggered double row with a distance of 50cm between rows. The shrubby component of the hedgerow must be less than 5m wide at the base. - The base of the hedgerow will be kept weed-free until established, and a specific hedgerow base seed mix will be sown such as the EH1 Hedgerow mix or similar. Undesirable species will be removed, and any suspected presence of invasive species will be investigated and treated. - The newly planted hedgerows will be managed to ensure they do not develop gaps of >0.5m between the ground and canopy. - Any gaps formed in the hedgerow by failed specimens will be infill planted with native woody species. - Once established, the native species-rich hedgerows will be managed to encourage tall, wide, and bushy features by cutting only one side each year to prevent excessive hedgerow cutting. - Failed specimens will be replaced during establishment, and fertiliser use will be prohibited within adjacent grasslands to reduce nutrient enrichment. - A minimum of 1m adjacent to the hedgerows will be managed as ‘undisturbed’ ground.

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				- Suggested native species for hedgerow planting include Blackthorn <i>Prunus spinosa</i>, Hawthorn <i>Crataegus monogyna</i>, Elder <i>Sambucus nigra</i>, Dog rose <i>Rosa canina</i>, Hazel <i>Corylus avellana</i>, Holly <i>Ilex aquifolium</i>, Beech <i>Fagus sylvatica</i>, Wild privet <i>Ligustrum vulgare</i>, Bird Cherry <i>Prunus padus</i>, Field Maple <i>Acer campestre</i>. - Either hazel, blackthorn, or hawthorn should comprise at least 70% of the mix.

*Adapted from Biodiversity Metric 3.1 Condition Assessment Sheets spreadsheet. See the spreadsheet for further details and notes.