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## **BIODIVERSITY NET GAIN ASSESSMENT**

Grange Moor, Denby Lane

December 2023

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Biodiversity Net Gain Assessment: Denby Lane

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<b>Status</b>	<b>Date</b>	<b>Checked by:</b>
Draft	08/12/2023	Alice Brown

## Biodiversity Net Gain Assessment: Denby Lane

**Site:**

Grange Moor,  
Denby Lane,  
Huddersfield

**Dates:**

Most recent site walkover: 05/12/2023

UKHabs baseline survey: 10/08/2022

**Client:**

Yorkshire Country Properties,  
Suite 3  
39 Huddersfield Road  
Holmfirth  
HD9 3JH

**Local Planning Authority:**

Kirklees

**MAB ref:**

2022/1394

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## 1 Summary

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A Biodiversity Net Gain (BNG) metric has been undertaken for a development of 9 houses at Denby Lane, Grange Moor.

The site is a 0.6720 ha parcel of land previously mined and now colonised by self-seeded woodland, with one abandoned garden area. The woodland has been cleared prior to BNG condition assessment stage, so the condition assessment was based on a combination of the 2022 PEA survey, with default “good” condition being applied when the criteria was not assessed.

No irreplaceable habitats will be lost to the development. The development will involve the construction of 9 dwellings with associated structures.

Onsite habitat creation will involve creating 2 small areas of species-rich grassland and planting 12 trees. Opportunities for habitat creation for BNG are limited due to the exclusion of features within domestic gardens in the calculation, therefore a purchase of credits will be required to off-set the area loss. The net area loss is 4.29 habitat units (- 82%); there is a net linear gain of 0.18 units (+ 68%).

## 2 Introduction

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MAB Environment and Ecology Ltd was commissioned by Yorkshire Country Properties to undertake a Biodiversity Net Gain Assessment to accompany a planning application for a small housing development.

The site is located at:

- Easting = 422354  
Northing = 416221
- Grid Ref = SE223162

The objectives of this report are to:

- Establish baseline conditions on-site for area and hedge habitats
- Provide habitat baseline plan, and proposed design plans

## Biodiversity Net Gain Assessment: Denby Lane

- Determine feasibility of the development achieving Biodiversity Net Gain (BNG)
- Provide guidance in habitat creation in the proposed development

A Preliminary Ecological Appraisal of the land has been produced and should be referred to for support of the baseline assessment.

Ecologists from MAB Environment and Ecology Ltd are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct when carrying out ecological work.

Biodiversity Net Gain Assessment: Denby Lane

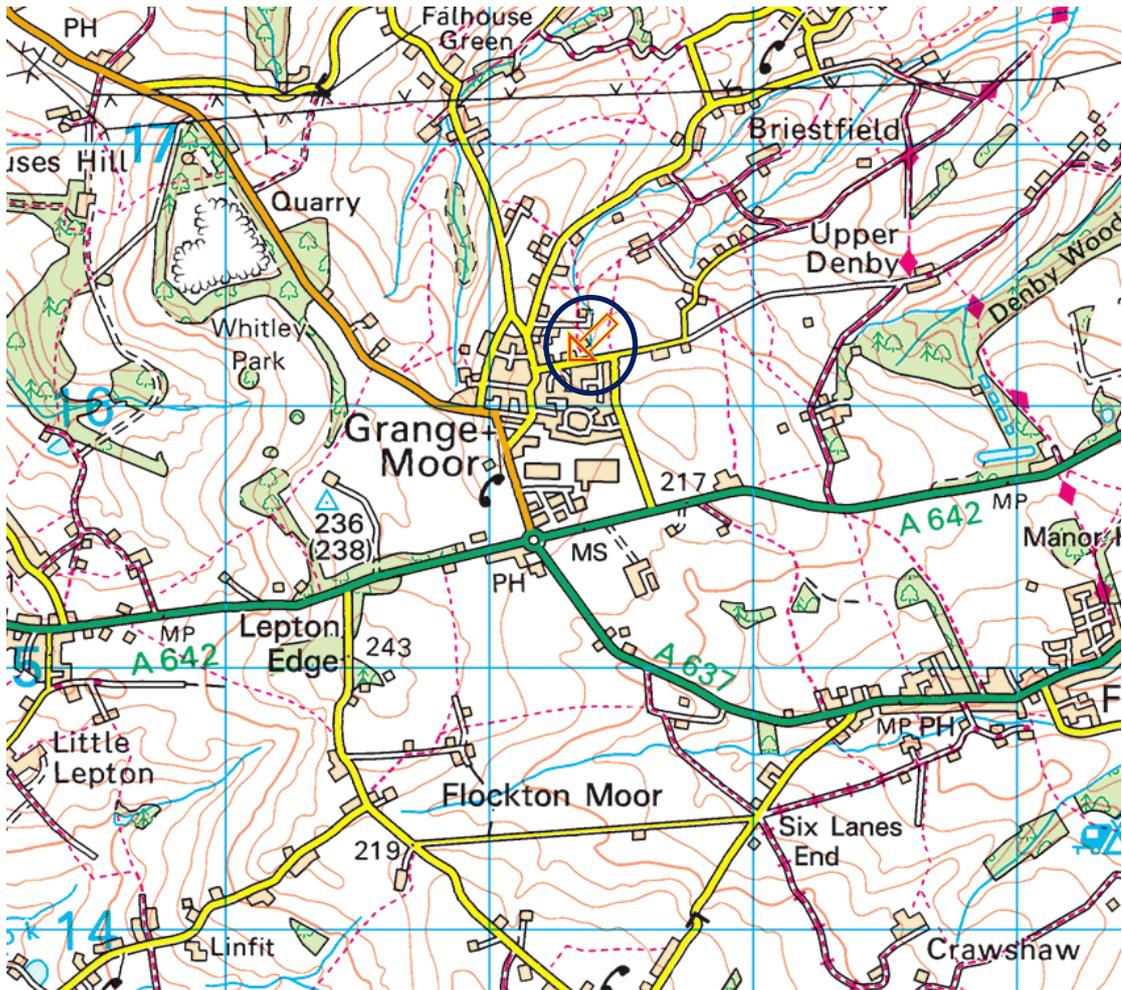


Figure 1. Site location, 1:50,000

### 3 Methodology

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#### 3.1 Field survey, Mapping, and Metric Calculations

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3.1.1 3.2.1 Baseline on-site surveys were undertaken in 2022, and updated in 2023 by Giles Manners CEnv MCIEEM is a director of MAB Environment & Ecology Ltd. Mr Manners has been a professional bat ecologist since 2004 and has a Class Survey Licence WML CL20 (Bat Survey Level 4) registration number 2015-10306-CLS-CLS and also holds a Class Licence WML CL16 (Volunteer Bat Roost Visitor Level 2) – Natural England trainer license 2015-10305-CLS-CLS. Giles is also licensed by NE to survey for GCN's - Class Licence WML-CL08 (Great Crested Newt Class 1) registration number 2014-5604-CLS-CLS. Giles is a registered consultant for the Bat Low Impact Class Licence, registration ref RC037. He is also a zoologist of over 20 years' experience, a full member of the Institute of Ecology and Environmental Management and a Chartered Environmentalist.

3.1.2 UK HABS habitat survey of the site was conducted following standard published guidelines (Butcher et al, 2020). This involved a walkover of the site, mapping all habitats present which fell into the appropriate Minimum Mapping Units (MMU). MMU's were decided upon pre survey. The survey was extended to include records of protected or notable fauna and the habitats were evaluated for their potential to support such fauna. Any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act were also recorded.

3.1.3 Spatially accurate digital baseline and proposed habitat maps were created using QGIS3. UKHAB symbology was used to show habitat types, and linear features within the site.

3.1.4 OS Survey MasterMap Topography layer<sup>®</sup> were used in conjunction with British National Grid OSG:27700 co-ordinate system to accurately map and obtain pre and post development habitat dimensions. OS MasterMaps re the most detailed and accurate view of Great Britain's landscapes, with a Stated accuracy of:

- Urban +/- 1m
- Rural +/- 8m

3.1.5 Qfield was used in conjunction with a Stonex UT56 Rugged Tablet for in field data collection and mapping. Stone UT56 uses Global Navigation Satellite System (GNSS) MT6631, GPS, Galileo, GLONASS, and BeiDou to plot accurate area and linear features in-situ.

3.1.6 GPS accuracy was checked prior to on-site mapping using GNSS Status app.

3.1.7 Biodiversity Metric 4.1 (Statutory Metric) was used to determine baseline metric calculations and biodiversity scores post-development. UKHAB version 2.0 was used to determine habitats present.

#### **4 Limitations**

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The baseline survey was undertaken prior to site clearance and prior to the issue of BNG condition assessment criteria guidance; therefore, woodland condition assessment is partly based on site survey, when the information gathered in 2022 was suitable for the assessment, and partly using default good condition when the data was not sufficient.

## **5 Baseline ecological conditions**

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### 5.1 Previous Site conditions

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5.1.1 See 2022 PEA Report.

## 5.2 On-site baseline metric calculations

See BNG workbook.



Figure 2 On-site baseline: UK Habs areas

Biodiversity Net Gain Assessment: Denby Lane

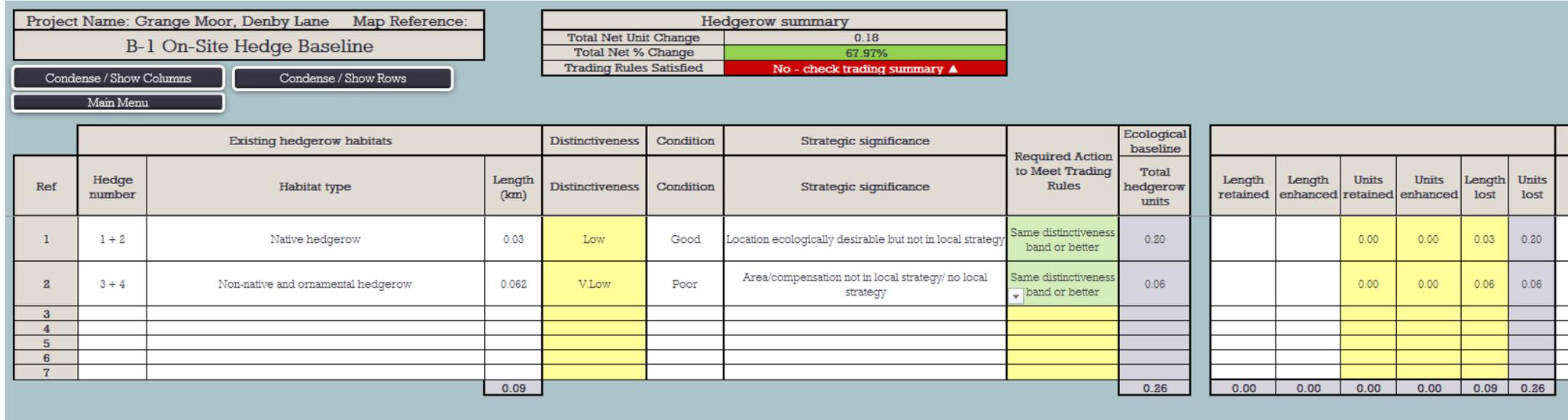
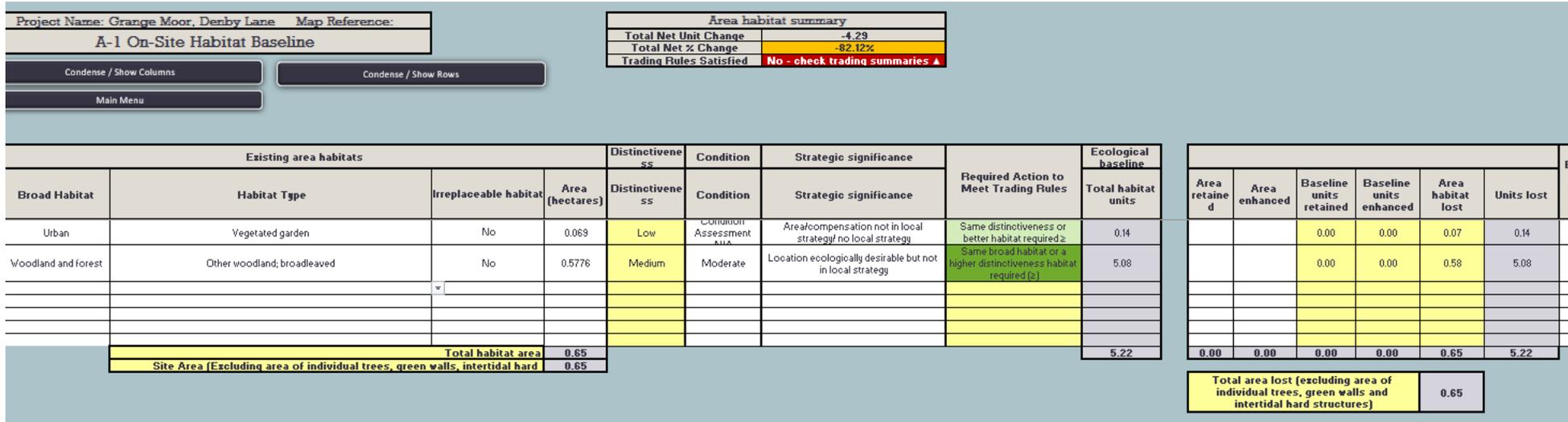


Figure 3 On-site baseline Metric

## **6 Proposed design**

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6.1.1 The development will involve the construction of 9 dwellings.

6.1.2 Habitat creation will involve 2 areas: one area of public open space and one area above the attenuation tank. On both of these areas, neutral grassland mix will be sown and meadow management undertaken,



Biodiversity Net Gain Assessment: Denby Lane

6.2 On-site proposed metric calculations

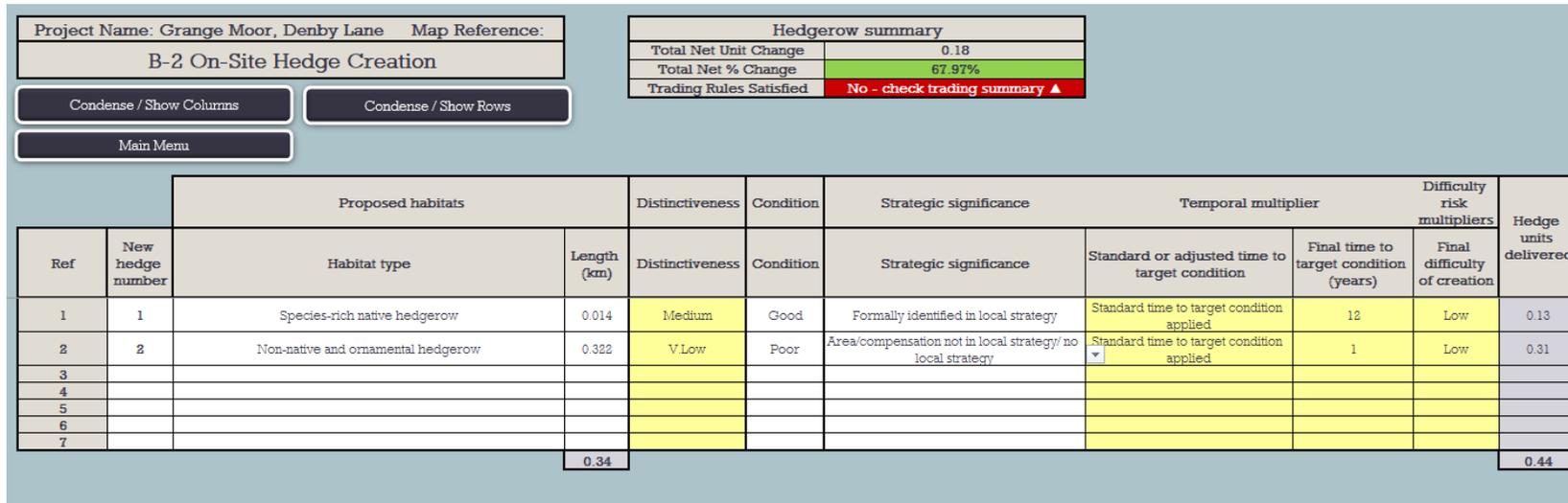
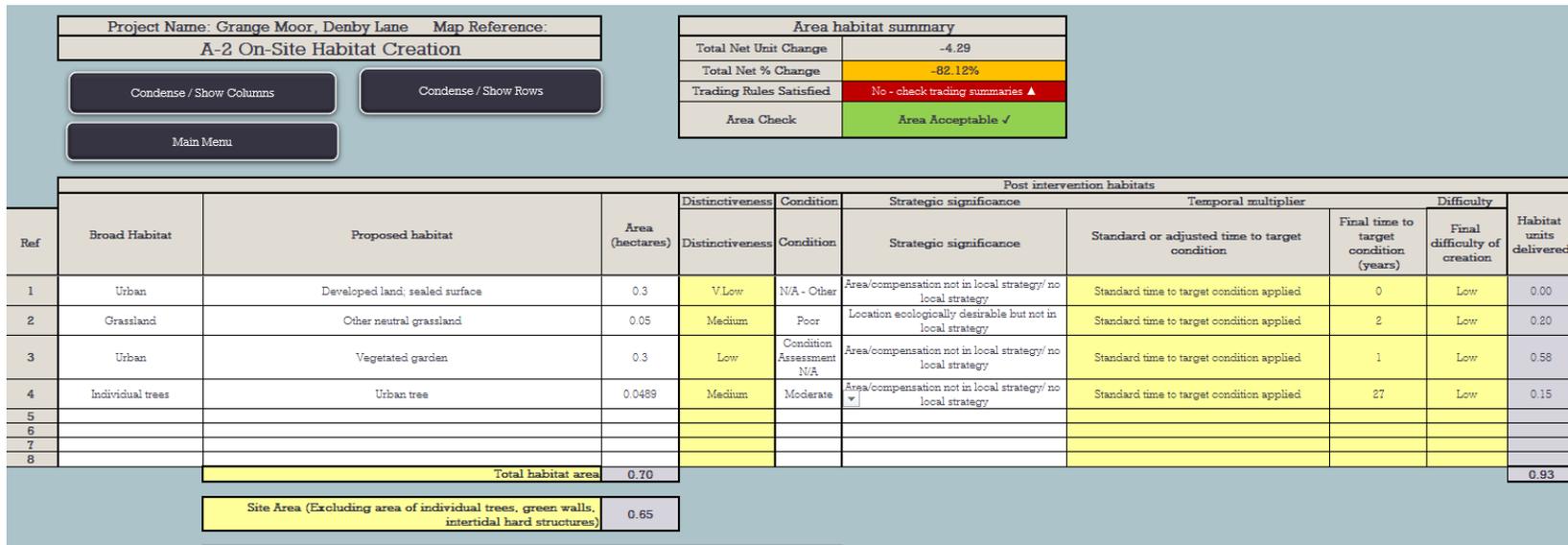


Figure 5 Proposed metric calculations

Biodiversity Net Gain Assessment: Denby Lane



Figure 6 Proposed metric calculations plan

## 7 Biodiversity Net Gain Metric

8.1.1 The proposed development will result in an 82% net loss in habitat units and a 67% gain in hedgerow units.

Grange Moor, Denby Lane					
Headline Results					
Scroll down for final results ▲					
On-site baseline	Habitat units	5.22			
	Hedgerow units	0.26			
	Intercourse units	0.00			
On-site post-intervention <small>(Including habitat retention, creation &amp; enhancement)</small>	Habitat units	0.93			
	Hedgerow units	0.44			
	Intercourse units	0.00			
On-site net change <small>(units &amp; percentage)</small>	Habitat units	-4.29	-82.12%	On-site net gain is less than target ▲	
	Hedgerow units	0.18	67.97%		
	Intercourse units	0.00	0.00%		
Off-site baseline	Habitat units	0.00			
	Hedgerow units	0.00			
	Intercourse units	0.00			
Off-site post-intervention <small>(Including habitat retention, creation &amp; enhancement)</small>	Habitat units	0.00			
	Hedgerow units	0.00			
	Intercourse units	0.00			
Off-site net change <small>(units &amp; percentage)</small>	Habitat units	0.00	0.00%		
	Hedgerow units	0.00	0.00%		
	Intercourse units	0.00	0.00%		
Combined net unit change <small>(Including all on-site &amp; off-site habitat retention, creation &amp; enhancement)</small>	Habitat units	-4.29			
	Hedgerow units	0.18			
	Intercourse units	0.00			
Spatial risk multiplier (SRM) deductions	Habitat units	0.00			
	Hedgerow units	0.00			
	Intercourse units	0.00			
<b>FINAL RESULTS</b>					
Total net unit change <small>(Including all on-site &amp; off-site habitat retention, creation &amp; enhancement)</small>	Habitat units	-4.29			
	Hedgerow units	0.18			
	Intercourse units	0.00			
Total net % change <small>(Including all on-site &amp; off-site habitat retention, creation &amp; enhancement)</small>	Habitat units	-82.12%		Total net gain achieved is less than target net ▲	
	Hedgerow units	67.97%			
	Intercourse units	0.00%			
Trading rules satisfied?	No - Check Trading Summaries ▲				
<b>Unit Type</b>	<b>Target</b>	<b>Baseline Units</b>	<b>Units Provided</b>	<b>Unit Deficit</b>	
Habitat units	10.00%	5.22	5.74	4.81	No additional hedgerow units required to meet target ✓
Hedgerow units	10.00%	0.26	0.29	0.00	No additional intercourse units required to meet target ✓
Intercourse units	10.00%	0.00	0.00	0.00	
<b>Input errors/rule breaks present in metric ▲</b>					

Figure 11. Headline results.

## 8 Habitat creation guidance

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### 8.1 Tree planting

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- Planting of any new trees should be undertaken between November-March. Planting should be avoided during very cold or windy weather – not in frozen or waterlogged soils.
- Bare-root and rootballed trees and shrubs should be planted immediately, but if this is not possible then they can be heeled in (temporary planting in the soil to prevent the roots drying out) until planting is possible.
- Prior to planting, all grass and weeds should be removed in a 1 m diameter circle around each tree. This should be done by either by physical stripping or spraying with a suitable non-residual herbicide. Ideally, this 1m circle should be retained for 3 years to improve survival and growth rates for the newly planted trees.
- To ensure that the trees are protected from damage, tree guards/cages should be installed around the newly planted trees. Constructed timber basket guards will provide long-term protection until the tree reaches maturity, when they will then be removed.

### 8.2 Native hedgerow

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- Planting of new hedgerows should be undertaken between November-March. Planting should be avoided during very cold or windy weather – not in frozen or waterlogged soils.
- Plants should be planted in staggered rows, with densities of a minimum 6 plants per linear metre.
- Shrubs should be planted in groups of 5 of the same species.
- Hedgerows should be planted with native species which are beneficial to UK wildlife –suitable shrub species include hazel (*Corylus avellana*), dogwood (*Cornus sanguinea*), and guelder rose (*Viburnum opulis*), hawthorn (*Crataegus monogyna*).

### 8.3 Other neutral grassland

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8.3.1 Where other neutral grassland is to be created, areas are to be sown with species of local provenance, and species which are listed in the UKHab definition for the habitat (see Appendix 1). The pollen and nectar of flowering plants will attract pollinating bees, butterflies and beetles. Longer grass will provide shelter and foraging habitat for animals such as frogs, newts, hedgehogs and lizards to forage.

8.3.2 Enhancement of the grassland should follow practiced guidelines in meadow creation/restoration. Enhancement will likely involve the following methods:

#### *Preparation*

- Current sward should be kept short during autumn and spring
- Create at least 50% bare ground in June-mid-July by mechanical management (scarify ground)

#### *Sowing*

- Seed mixtures spread between August- late September OR in March – April
- Seeds should be spread using the recommended rate (i.e., 4g/m<sup>2</sup>)
- Seed should be scattered on surface - replicating natural processes.
- Scattered seeds will need to be in contact with bare soil – rolling of recipient field straight after seed has been spread will achieve this.
- Vegetation growth should be restricted in the autumn of first year to reduce competition – this can be managed by an additional cut in the late autumn.

## 9 Habitat management

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### 9.1 Other neutral grassland

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- Management should be undertaken using a heavy-duty mower (e.g., sickle-bar mowers and motor scythes or a two-wheel strimmer) – these will create a sward of differing heights, creating microclimates for invertebrates.
- Spring cut undertaken no later than end of April.
- ‘Shut up’ grass (no management) between April-July, allowing wildflowers to bloom.
- From mid-July/August take a hay cut. Leaving wide margins around edge: cut should be across the area or from the centre, allowing insects and animals to escape.
- Cuttings should be left in-situ for a few days (2-3) to allow seeds to drop. Cuttings should be later removed to reduce excess soil nutrients. Cuttings can be piled on-site, creating additional habitat for a range of faunal species.
- If needed (heavy grass growth after initial hay cut) then an additional cut can be undertaken in late autumn.

### 9.2 Trees

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- Newly planted areas will be inspected 3 months after planting and again at the end of the first year after planting with additional checks being carried out following high wind events. Inspections will continue biannually for the first 5 years. Any losses or damaged plants will be replaced as appropriate and, where necessary, plants will be firmed into the ground or stakes/ties tightened.
- Trees/shrubs will be replaced like-for-like replacements in event of failure.

### 9.1 Native hedgerows

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- Newly planted hedgerows should be allowed to establish and mature; approximately 10 years. Once mature hedgerows should be managed under regular hedgerow management.
- In year two of planting, hedgerows should be assessed to determine if any areas require “gapping up”. This should be repeated in the following year if plants fail to establish.

- Once established hedgerows should be managed sympathetically for wildlife. Hedge maintenance should include bi-annual cutting/flailing.
- Monitoring for the presence of invasive non-native plant species and recently introduced species should be undertaken, removing the species if present.

## **10 Monitoring**

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It is recommended that the habitat creation/enhancement are subjected to an appropriate monitoring scheme throughout the required duration for biodiversity net gain (30 years). Monitoring should focus on determining if the habitats are representative and achieve target conditions. Habitat assessment should be undertaken by suitably qualified ecologists.

## 11 References

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BS42020. *Biodiversity - Code of Practice for planning and development*. British Standards Institution 2013.

*Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System*.

<http://www.communities.gov.uk/publications/planningandbuilding/circularbiodiversity>

Magnificentmeadows.org.uk. n.d. [online] Available at:

[http://www.magnificentmeadows.org.uk/assets/pdfs/Restoration\\_using\\_a\\_seed\\_mixture.pdf](http://www.magnificentmeadows.org.uk/assets/pdfs/Restoration_using_a_seed_mixture.pdf)

National Planning Policy Framework 2023:

<https://www.gov.uk/government/publications/national-planning-policy-framework-2>

Natural England Joint Publication JP039 (March 2023). *The Biodiversity Metric 4.0 User Guide*. Defra Group.

*The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 UK Biodiversity Action Plan Priority Species and Habitats List*.

<http://jncc.defra.gov.uk>

UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

## Appendix 1: Other Neutral Grassland Species

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### Species

Grasses may include Common Bent *Agrostis capillaris*, False Oat-grass *Arrhenatherum elatius*, Yorkshire-fog *Holcus lanatus*, Perennial Rye-grass *Lolium perenne*, Common Bent *Agrostis capillaris*, Crested Dog's-tail *Cynosurus cristatus*, Rough Meadow-grass *Poa trivialis* and Cock's-foot *Dactylis glomerata*. On wetter sites, Velvet Bent *Agrostis canina*, Creeping Bent *Agrostis stolonifera* and Marsh Foxtail *Alopecurus geniculatus* may be frequent, and rushes such as Soft Rush *Juncus effusus* and Hard Rush *Juncus inflexus* are likely to be present.

Herbs commonly found include Yarrow *Achillea millefolium*, Ribwort Plantain *Plantago lanceolata*, Creeping Thistle *Cirsium arvense*, White Clover *Trifolium repens*, Red Clover *Trifolium pratense*, Meadow Buttercup *Ranunculus acris*, Creeping Buttercup *Ranunculus repens*, Common Nettle *Urtica dioica*, Hogweed *Heracleum sphondylium* and Daisy *Bellis perennis*. On wetter sites, herbs commonly found including Silverweed *Potentilla anserina*, Wild Angelica *Angelica sylvestris* and Fleabane *Pulicaria dysenterica*.

Figure 12. Species list from UKHAB g3c other neutral grassland. UKHAB 2023.

## Appendix 2: Condition assessment

Condition Assessment Criteria		Reference			Score (each as qualified)
Indicator	Good [3 points]	Moderate [2 pt]	Poor [1 point]	Score per indicator	
<b>A</b> Age distribution of trees	Three age classes <sup>1</sup> present.	Two age classes <sup>1</sup> present.	One age class <sup>1</sup> present.	2	woodland less than 10 years old
<b>B</b> MSH, Jamulin and loss of treeiness Damage	No significant browsing damage evident in woodland <sup>1</sup> .	Evidence of significant browsing pressure is present in less than 40% of whole stands <sup>1</sup> .	Evidence of significant browsing pressure is present in 40% or more of whole stands <sup>1</sup> .	3	not assessed until
<b>C</b> Invasive plant species	No invasive species <sup>1</sup> present in woodland.	Rhododendron <i>Rhododendron ponticum</i> or other listed species <sup>1</sup> present, and other invasive species <sup>1</sup> <10% cover.	Rhododendron or other listed species <sup>1</sup> present, or other invasive species <sup>1</sup> >10% cover.	3	assessed until
<b>D</b> Number of native tree species	Five or more native tree or shrub species <sup>1</sup> found across woodland parcel.	Three to four native tree or shrub species <sup>1</sup> found across woodland parcel.	Two or less native tree or shrub species <sup>1</sup> across woodland parcel.	3	assessed until
<b>E</b> Cover of native tree and shrub species	>80% of canopy trees and >80% of underlying shrubs are native <sup>1</sup> .	50-80% of canopy trees and 50-80% of underlying shrubs are native <sup>1</sup> .	<50% of canopy trees and <50% of underlying shrubs are native <sup>1</sup> .	3	assessed until
<b>F</b> Open space within woodland	10-20% of woodland has areas of temporary open space <sup>1</sup> . Unless woodland is <10ha, in which case 0-20% temporary open space is permitted <sup>1</sup> .	20-40% of woodland has areas of temporary open space <sup>1</sup> .	<10% or >40% of woodland has areas of temporary open space <sup>1</sup> . But if woodland <10ha has <10% temporary open space, please see Good reference <sup>1</sup> .	4	assessed from aerial
<b>G</b> Woodland regeneration	60% tree classes present in woodland <sup>1</sup> ; trees 6-7 m Diameter at Breast Height (DBH), saplings and seedlings or advanced sapling present <sup>1</sup> .	One or two classes only present in woodland <sup>1</sup> .	No classes or sapling/seedling present in woodland <sup>1</sup> .	2	woodland less than 10 years old
<b>H</b> Tree health	Tree mortality 10% or less, no pruned diameters and no crown dieback <sup>1</sup> .	10% to 25% tree mortality and/or crown dieback or laurel wilt present <sup>1</sup> .	Greater than 25% tree mortality and/or any high risk pruned diameter present <sup>1</sup> .	3	not assessed until
<b>I</b> Vegetation and ground flora	Recognisable HVC plant community <sup>1</sup> at ground layer present, strongly characterised by several woodland flora specialists.	Recognisable woodland HVC plant community <sup>1</sup> at ground layer present.	No recognisable woodland HVC plant community <sup>1</sup> at ground layer present.	2	assessed until
<b>J</b> Woodland structural elements	Three or more elements across all survey plots <sup>1</sup> , or a complex woodland <sup>1</sup> .	Two elements across all survey plots <sup>1</sup> .	One or less elements across all survey plots <sup>1</sup> .	3	not assessed until
<b>K</b> Veteran trees	Two or more veteran trees <sup>1</sup> per hectare.	One veteran tree <sup>1</sup> per hectare.	No veteran trees <sup>1</sup> present in woodland.	4	
<b>L</b> 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 ulks and slumps, or an abundance of small snags <sup>1</sup> .	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, ulks and slumps, or an abundance of small snags <sup>1</sup> .	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, ulks and slumps, or an abundance of small snags <sup>1</sup> .	3	not assessed
<b>M</b> Woodland disturbance	No aerial enrichment or damaged ground visible <sup>1</sup> .	Less than 10% area in total of aerial enrichment across woodland area, and or less than 20% of woodland area has damaged ground <sup>1</sup> .	10% or more of aerial enrichment, and or 20% or more of woodland area has damaged ground <sup>1</sup> .	3	not assessed
<b>Total Score (out of a possible 32)</b> 32					
<b>Condition Assessment Result</b>		<b>Condition Assessment Score</b>			<b>Result Achieved</b>
Total score >32 (33 to 35)		Good [3]			
Total score 26 to 32		Moderate [2]			
Total score <26 (19 to 25)		Poor [1]			
Required enhancement interventions to improve condition score					