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Biodiversity Impact Calculation

Site Name

High Barn, Crays Lane

Client

Jolliff Developments Ltd

Issue Date

12th March 2024

Author

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Project No: P6714

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Document Control

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Original	**Meerabai Kings** MSci (hons), qualifying CIEEM member	**Kate Priestman** MCIEEM, CEnv	12.03.25		

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About the Author

This report has been prepared by Meerabai Kings, an assistant ecologist with 2 years' experience. As a qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM) she is bound by their code of professional conduct.

About the Reviewer

This report has been reviewed by Kate Priestman, who is a Principal Ecologist with over twenty years' experience. Kate has undertaken extensive survey work and reporting, encompassing a breadth of deliverables, and prepared European Protected Species licences for numerous schemes. As a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and a Chartered Environmentalist (CEnv), she is bound by CIEEM's code of professional conduct.

Report Summary

Purpose	The Ecology Co-operation was commissioned by Jolliff Developments Ltd to undertake a Biodiversity Impact Calculation of a proposal to replace an existing barn with three residential dwellings at High Barn, Crays Lane, Goose Green using the Statutory Biodiversity Metric to quantify net change in biodiversity.
Summary of Losses and Gains	The proposed development scheme at this site will result in the loss of: On-site • 0.046ha of modified grassland (poor condition) • 0.086ha of buildings (condition N/A) • 0.058ha of developed land (condition N/A). Post intervention the following habitats will be created: On-site • 0.073ha vegetated garden (condition N/A) • 0.032ha unvegetated garden (condition N/A) • 0.042ha artificial unvegetated, unsealed surface (condition N/A) • 0.044ha buildings (condition N/A).
Final Metric Results	The Biodiversity Impact Calculation has demonstrated that the proposed scheme will result in a likely net gain of 0.05 habitat units (+51.82%). The current scheme does satisfy the trading rules of the Statutory Biodiversity Metric.
Does the scheme meet net gain requirements?	The current scheme does meet the 10% mandatory net gain value set out within the Environment Act 2021 and achieves the no net loss through development goals detailed by Horsham District Council

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1 INTRODUCTION

1.1 Purpose of the Report

There is a movement in planning policy and legislation towards a requirement for all new developments to demonstrate 'net gains' in biodiversity following the release of an updated National Planning Policy Framework[1] by the Department of Housing, Communities and Local Government. A mandatory value of 10% net gain for all developments has now also been outlined within the Environment Act 2021[2.].

This document includes a baseline 'Biodiversity Impact Calculation' (BIC) for the proposed development at High Barn, Cray's Lane. The calculation utilises the Statutory Biodiversity Metric and assigns 'biodiversity units' to the pre-existing habitats contained within a proposed development site and those that are predicted to be lost, restored and/or created once the development has been constructed. This allows an objective comparison to be made between the existing biodiversity value of a given site and the predicted biodiversity value post development, with the net change in biodiversity value subsequently quantified.

The purpose of this document is to present the findings of the BIC based on the most up-to date existing habitat survey information and the most current outline plans for the proposed development of the site. Biodiversity Impact Calculations provide an evidence base for discussions between the ecological consultant, developer and the local planning authority regarding on-site avoidance, on-site mitigation and off-site compensation requirements.

This report will be used in relation to a proposal for the demolition of an agricultural barn and its replacement with three detached residential dwellings. Given the likelihood of proposed changes in the design scheme, some of the recommendations will potentially be subject to change. The results of the BIC are deemed accurate for the most recent layout plan.

This report was commissioned and produced at the request of Jolliff Developments Ltd.

1.2 Background

The site measures 0.19ha in area and comprises a large agricultural barn with a smaller, attached, breezeblock shed. There are no trees or hedgerows within the site. The agricultural buildings are surrounded by hard standing to the north and south, and modified grassland to the east and west

Habitats (UKHAB) within the site and along the site boundaries are shown in Figure 1, these are:

- g4 – modified grassland (poor condition)
- u1b – buildings
- u1b5 – developed land, sealed surface.

[1] HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/media/65819679fc07f3000d8d4495/NPPF_December_2023.pdf

[2] HM Government (2021). Environment Act 2021. Available online at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

The proposed site plan and proposed UKHAB habitats are shown in Figure 2 and Figure 3, respectively.

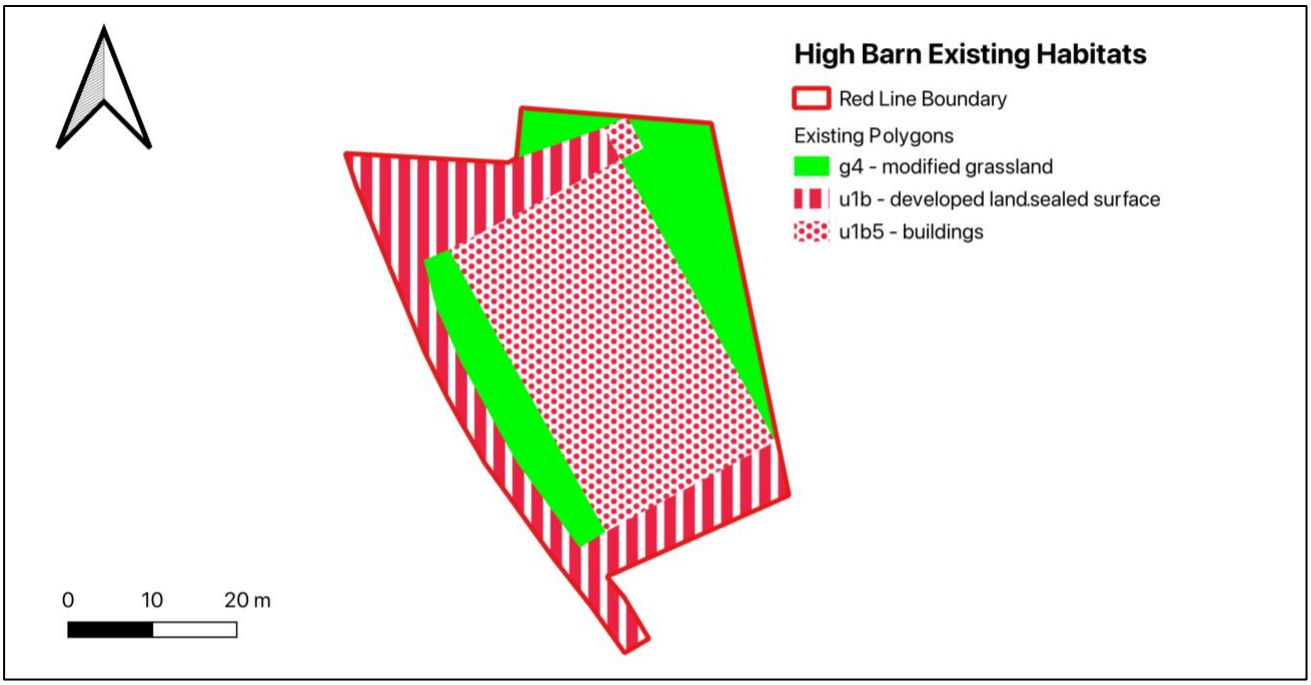

Figure 1 UKHAB map showing existing habitats within the site. The site boundary is indicated with a red line. Produced using QGIS software, version 3.36 Maidenhead.

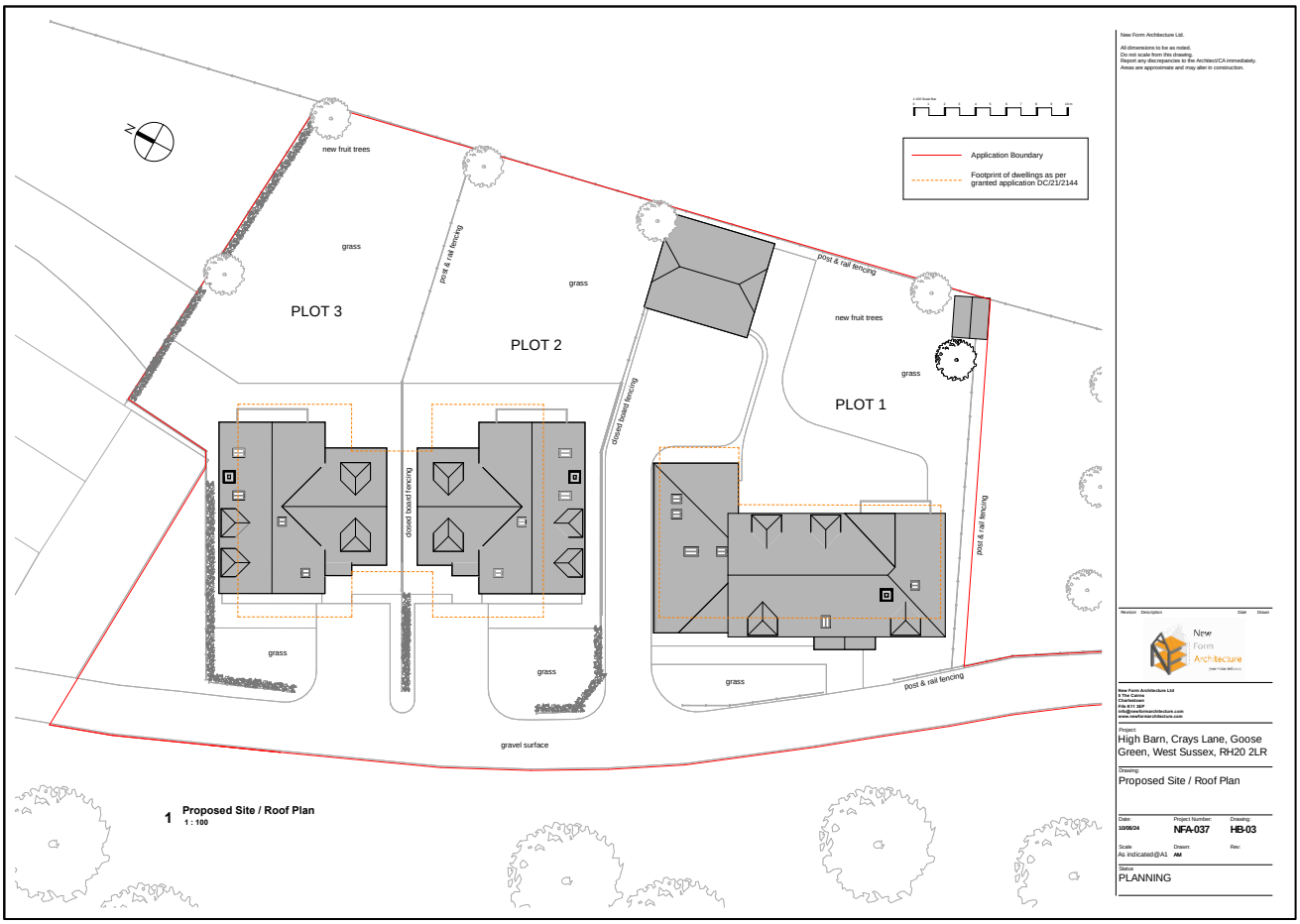

Figure 2 Proposed scheme layout for the development at High Barn, reproduced from New Form Architecture, drawing number HB-03, dated 10/06/2024.

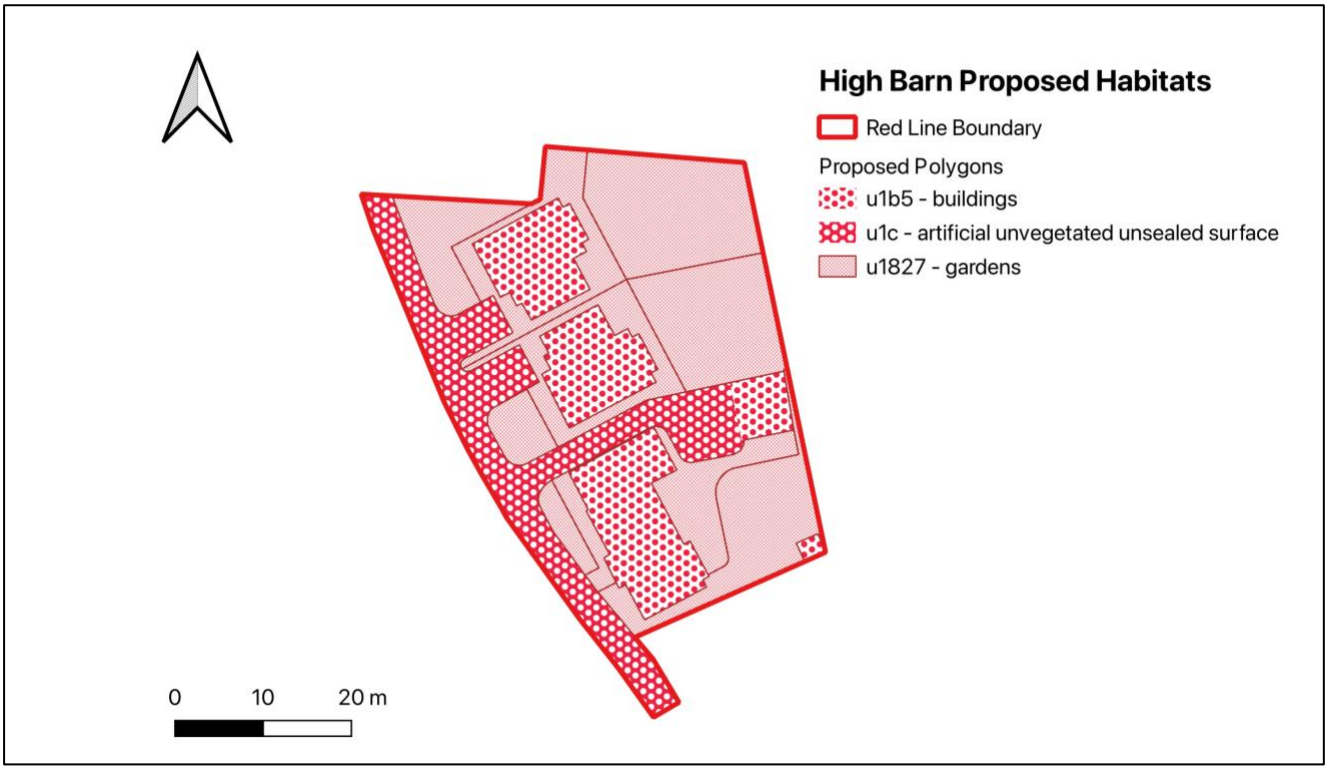

Figure 3 UKHAB map showing proposed habitats within the site. The site boundary is indicated with a red line. Produced using QGIS software, version 3.36 Maidenhead.

1.3 Summary of Previous Survey Work

A walkover survey was completed by The Ecology Co-op on the 4th December 2024[3], in order to prescribe appropriate biodiversity enhancements for the proposed development and identify ecological constraints to the development. No ecological constraints were identified and no Phase 2 surveys were recommended.

A Biodiversity Enhancement Strategy (BES)[4] is provided separately to this report. The green assets proposed in the BES (native hedgerows and native trees) are not included in this BIC or proposed UKHab maps as such features within gardens cannot contribute to biodiversity net gain (BNG). The hedgerows and trees proposed in the BES are therefore additional recommended enhancements outside of this BIC.

1.4 Policy and Legislation

NPPF (2024)

The NPPF sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regards to the operation of the planning system.

Paragraph 180d, states that planning policies and decisions should contribute to and enhance the local environment by:

[3] The Ecology Co-op (2024). High Barn, Crays Lane Biodiversity Enhancement Strategy.

[4] The Ecology Co-op (2024) High Barn, Crays Lane Biodiversity Enhancement Strategy.

- "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*."

Paragraph 185b, states that to protect and enhance biodiversity and geodiversity, plans should;

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

Paragraph 186d, states that when determining planning applications, authorities should apply the following principle:

- *"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.*

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

Local Policy

Policy 25 (Strategic Policy: The Natural Environment and Landscape Character) of the current District Planning Policy Framework from Horsham District Council[5] notes that it will support development proposals which:

"Maintains and enhances the existing network of geological sites and biodiversity, including safeguarding existing designated sites and species, and ensures no net loss of wider biodiversity and provides net gains in biodiversity where possible".

2 METHODOLOGY

This Biodiversity Impact Calculation uses the Statutory Biodiversity Metric calculation tool published by Natural England[6]. This is used to calculate 'habitat units' and 'hedgerow units' by multiplying the area (ha) or lengths (km), 'distinctiveness' (habitat type), 'condition' (quality), and strategic significance (location in relation to the authority's local strategy) of each habitat parcel.

The calculation provides a negative value to the biodiversity units where habitat is being directly lost to development. Where habitats are enhanced or created on-site, or off-site, the calculation gives a positive value but adds risk factors that account for uncertainty - difficulty in creating new habitats and time delays while they

[5] Horsham District Council (2015) Horsham District Planning Framework (excluding South Downs National Park). Available online at: https://www.horsham.gov.uk/__data/assets/pdf_file/0016/60190/Horsham-District-Planning-Framework-November-2015.pdf

[6] Natural England (2023) *The Statutory Biodiversity Metric – Calculation Tool*. Available online at: *https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides*

establish; habitats that are more difficult to restore or that will take a long time to reach a set target condition will score lower and therefore make a smaller positive contribution.

Where on-site gains are equal to or larger than the losses, the project is deemed to have neutral biodiversity impact or biodiversity 'net gain' respectively.

Where on-site gains do not outweigh on-site losses and a biodiversity 'net loss' is calculated, this becomes an 'offset requirement'. Offsets can be provided by further habitat creation or enhancement in-situ or elsewhere and are assessed using the same metric to balance the predicted gains against the losses to ensure no net loss will be achieved. It follows that a biodiversity net gain can still be achieved by providing higher biodiversity gains through the offset than the net loss resulting from the development.

Note that the metric does not allow for 'trading down'; one of the key principles in measuring biodiversity net losses or gains is that habitats of high ecological importance cannot be offset by the creation of larger areas of habitats with lower value. The Statutory Biodiversity Metric calculation tool includes a 'trading down correction' that deducts the number of biodiversity units that are not accounted for through the creation of equivalent high distinctive habitats than that lost. For example, the loss of a small area of lowland meadow priority habitat (high distinctiveness) will not be offset by a larger area of modified grassland (medium distinctiveness) and will only be offset by an equivalent area of habitat of the same distinctiveness or higher.

2.1 Data Sources

This calculation uses the most up to date survey information, using botanical data and specific condition assessments gathered during the site visit in December 2024.The areas of each habitat category were measured using GIS mapping tools (QGIS). Condition assessments were made in accordance with the Statutory Biodiversity Metric condition assessments document[7] and the Statutory Biodiversity Metric: draft user guide[8]. Applying the precautionary principle, a presumption for the higher condition was used where there was any uncertainty in the condition of existing habitats.

To predict habitat/hedgerow units supported after by the site after completion of the development, the aerial imagery was overlaid by the proposed scheme layout (see Figure 2). This allowed direct losses of habitats to be measured where the built environment overlaps with pre-existing habitat, with gardens and amenity areas treated separately. The habitats that are 'created' after development are assumed to achieve the highest level of condition as appropriate. A separate biodiversity enhancement plan[9] has also been produced.

The Statutory Biodiversity Metric calculation tool uses a separate calculator spreadsheet for linear features. This works under the same principles as above but replaces areas of habitat with linear length of a feature. It should be noted that because linear features often have higher ecological importance, linear habitats are assigned higher distinctiveness and must be offset with other linear features. The hedgerow units generated for linear features are not equivalent or interchangeable with biodiversity calculations for areas of habitat.

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[7] Natural England (2023) *Statutory Biodiversity Metric Condition Assessments* Available online at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

[8] Natural England (2023). *Statutory Biodiversity Metric draft user guide.* Available online at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

[9] The Ecology Co-op (2024) High Barn, Crays Lane Biodiversity Enhancement Strategy

3 RESULTS

3.1 Existing Habitats Assessment

A summary of habitats and condition assessments is provided in Table 1. Full results of condition assessments for habitats which require it (using the Statutory Biodiversity Metric condition assessment document) are provided in Appendix 1.

Overall, the on-site calculated baseline is 0.09 habitat units.

Table 1 Existing habitat conditions for High Barn.

Habitats		Condition Assessments
UK Habitat (UKHAB) Classification System	**Location/Reference (habitat parcels split if multiple areas with different condition assessments)**	**Condition**
Modified grassland	G1 – grassland northeast of barn	Poor
Modified grassland	G2 – grassland east of barn	Poor
Modified grassland	G3 – grassland west of barn	Poor
Developed land, sealed surface	B1 – barn and attached shed	N/A
Developed land, sealed surface	U1 – hard standing and track throughout site	N/A

3.2 Habitat Losses and Gains

The proposed development scheme at this site will result in the loss of:

On-site

- 0.046ha of modified grassland (poor condition)
- 0.086ha of buildings (condition N/A)
- 0.058ha of developed land (condition N/A).

Post intervention the following habitats will be created:

On-site

- 0.073ha vegetated garden (condition N/A)
- 0.032ha unvegetated garden (condition N/A)
- 0.042ha artificial unvegetated, unsealed surface (condition N/A)
- 0.044ha buildings (condition N/A).

The overall results of the calculations are presented in Table 2. Please refer to the Statutory Biodiversity Metric calculation tool supplied with this document (submitted separately) for full details of the calculation.

Table 2 Headline results of the Biodiversity Impact Calculation for the proposed development at High Barn

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.05
	Hedgerow units	0.00
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	51.82%
	Hedgerow units	0.00%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	0.09	0.10	0.00	No additional area habitat units required to meet target ✓
Hedgerow units	10.00%	0.00	0.00	0.00	No additional hedgerow units required to meet target ✓
Watercourse units	10.00%	0.00	0.00	0.00	No additional watercourse units required to meet target ✓

Table 3 Trading summary results of the Biodiversity Impact Calculation for the proposed development at High Barn

Low Distinctiveness

Habitat group	Group	On-site unit change	Off-site unit change	Project wide unit change	
Cropland - Cereal crops	Cropland	0.00	0.00	0.00	
Cropland - Horticulture	Cropland	0.00	0.00	0.00	
Cropland - Intensive orchards	Cropland	0.00	0.00	0.00	
Cropland - Non-cereal crops	Cropland	0.00	0.00	0.00	
Cropland - Temporary grass and clover leys	Cropland	0.00	0.00	0.00	
Cropland - Winter stubble	Cropland	0.00	0.00	0.00	
Grassland - Modified grassland	Grassland	-0.09	0.00	-0.09	‼
Grassland - Bracken	Grassland	0.00	0.00	0.00	
Heathland and shrub - Rhododendron scrub	Heathland and shrub	0.00	0.00	0.00	
Lakes - Ornamental lake or pond	Lakes	0.00	0.00	0.00	
Sparsely vegetated land - Ruderal/ephemeral	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Tall forbs	Sparsely vegetated land	0.00	0.00	0.00	
Urban - Bioswale	Urban	0.00	0.00	0.00	
Urban - Bare ground	Urban	0.00	0.00	0.00	
Urban - Allotments	Urban	0.00	0.00	0.00	
Urban - Facade-bound green wall	Urban	0.00	0.00	0.00	
Urban - Ground based green wall	Urban	0.00	0.00	0.00	
Urban - Ground level planters	Urban	0.00	0.00	0.00	
Urban - Other green roof	Urban	0.00	0.00	0.00	
Urban - Intensive green roof	Urban	0.00	0.00	0.00	
Urban - Introduced shrub	Urban	0.00	0.00	0.00	
Urban - Rain garden	Urban	0.00	0.00	0.00	
Urban - Actively worked sand pit quarry or open cast mine	Urban	0.00	0.00	0.00	
Urban - Sustainable drainage system	Urban	0.00	0.00	0.00	
Urban - Vacant or derelict land	Urban	0.00	0.00	0.00	
Urban - Vegetated garden	Urban	0.14	0.00	0.14	✓
Woodland and forest - Other coniferous woodland	Woodland and forest	0.00	0.00	0.00	
Coastal saltmarsh - Artificial saltmarshes and saline reedbeds	Coastal saltmarsh	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral mud	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral sand	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral muddy sand	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral seagrass	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Artificial littoral biogenic reefs	Intertidal sediment	0.00	0.00	0.00	
Intertidal hard structures - Artificial hard structures	Intertidal hard structures	0.00	0.00	0.00	
Intertidal hard structures - Artificial features of hard structures	Intertidal hard structures	0.00	0.00	0.00	
Heathland and shrub - Other sea buckthorn scrub	Heathland and shrub	0.00	0.00	0.00	
		0.05	0.00	0.05	

Low Distinctiveness Summary

Low Distinctiveness net change in units	0.05	✓
Cumulative surplus of units	0.05	✓

4 CONCLUSIONS

The Statutory Biodiversity Metric calculation has demonstrated that the proposed scheme will result in a likely net gain of **0.05 habitat units (+51.82%)**. The current scheme **does satisfy the trading rules** within the Statutory Biodiversity Metric.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.

APPENDIX 1 – Habitat Condition Assessment Sheets

G1- modified grassland

Grassland
Metric Broad Habitat

Metric Habitat
Modified grassland

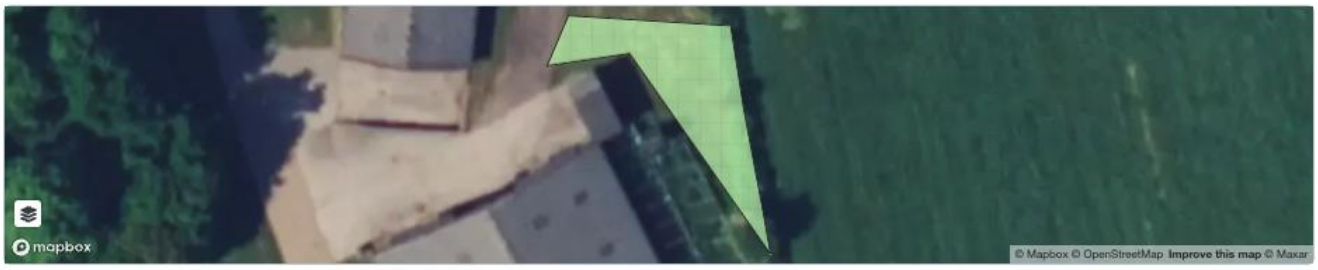
17	0	0.0	0
Total Species	Quadrats recorded	Mean species per quadrat	Total native woody species

UKHab Primary Name
Modified grassland

g4
Primary Code

UKHab Combined Code
g4

1	Poor	2
Condition Assessment Score	Condition Assessment Results	Distinctiveness



Score: 1 Result: Poor

Condition Criteria Assessment for Grasslandlow

A. There are 6-8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in Footnote 1).	FALSE
B. 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 vertebrates and invertebrates to live and breed.	FALSE
C. Scrub accounts for less than 20% of total grassland area.	TRUE
D. Physical damage evident in less than 5% of total grassland area.	TRUE
E. Cover of bare ground between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	TRUE
F. Cover of bracken is <20%.	TRUE
G. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981)	TRUE

18 species recorded
Select species to see more information

Search for a Species

- Lolium perenne (Perennial Rye-grass)
- Holcus lanatus (Yorkshire-fog)
- Ranunculus repens (Creeping Buttercup)
- Hypochaeris radicata (Cat's-ear)
- Rumex acetosa ()
- Trifolium pratense (Red Clover)
- Cirsium vulgare (Spear Thistle)
- Helminthotheca echioides ()
- Origanum vulgare (Wild Marjoram)
- Bellis perennis (Daisy)
- Potentilla reptans (Creeping Cinquefoil)
- Urtica dioica (Common Nettle)
- Rubus fruticosus agg. (Bramble)
- Chamaenerion angustifolium (Rosebay Willowherb)+B112)
- Rumex obtusifolius (Broad-leaved Dock)
- Arrhenatherum elatius (False Oat-grass)
- Urtica dioica (Common Nettle)
- Galium aparine (Cleavers)

G2 – modified grassland

1	Poor	2
Condition Assessment Score	Condition Assessment Results	Distinctiveness

Grassland	Metric Habitat: Modified grassland
Metric Broad Habitat	

12	0	0.0	0
Total Species	Quadrats recorded	Mean species per quadrat	Total native woody species

UKHab Primary Name: **Modified grassland** — g4 (Primary Code)

UKHab Combined Code: g4

Score: 1 | Result: Poor

Condition Criteria Assessment for Grasslandlow

A. There are 6-8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in Footnote 1).	FALSE
B. 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 vertebrates and invertebrates to live and breed.	FALSE
C. Scrub accounts for less than 20% of total grassland area.	TRUE
D. Physical damage evident in less than 5% of total grassland area,	TRUE
E. Cover of bare ground between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	TRUE
F. Cover of bracken is <20%.	TRUE
G. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981)	TRUE

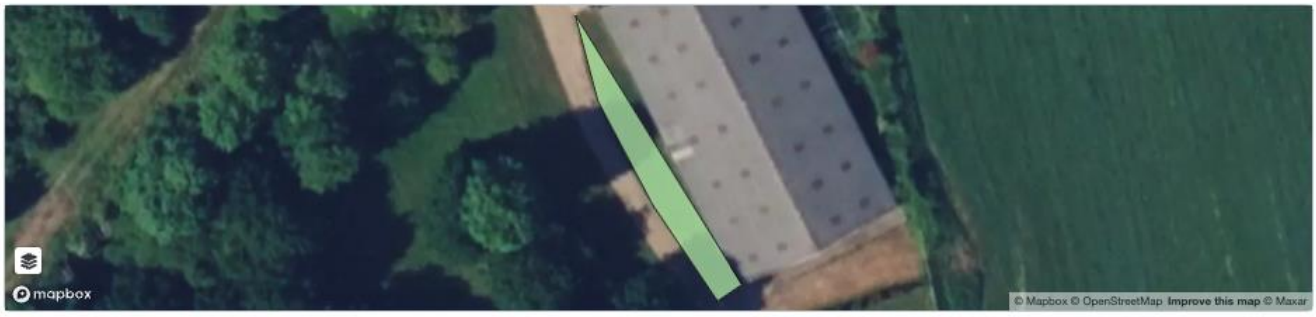
12 species recorded
Select species to see more information

Search for a Species

- Urtica dioica (Common Nettle)
- Chamaenerion angustifolium (Rosebay Willowherb)+B112)
- Rumex obtusifolius (Broad-leaved Dock)
- Rubus fruticosus agg. (Bramble)
- Holcus lanatus (Yorkshire-fog)
- Lolium perenne (Perennial Rye-grass)
- Helminthotheca echioides ()
- Ranunculus acris (Meadow Buttercup)
- Geranium molle (Dove's-foot Crane's-bill)
- Origanum vulgare (Wild Marjoram)
- Festuca rubra (Red Fescue)
- Rumex acetosa ()

G3- modified grassland

1	Poor	2
Condition Assessment Score	Condition Assessment Results	Distinctiveness



Grassland

Metric Broad Habitat

Metric Habitat
Modified grassland

Habitat Notes
G3

6	0	0.0	0
Total Species	Quadrats recorded	Mean species per quadrat	Total native woody species

UKHab Primary Name
Modified grassland

g4
Primary Code

UKHab Combined Code
g4

Score: 1 Result: **Poor**

Condition Criteria Assessment for Grasslandlow

A. There are 6-8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in Footnote 1).	FALSE
B. 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 vertebrates and invertebrates to live and breed.	FALSE
C. Scrub accounts for less than 20% of total grassland area.	TRUE
D. Physical damage evident in less than 5% of total grassland area.	TRUE
E. Cover of bare ground between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	FALSE
F. Cover of bracken is <20%.	TRUE
G. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981)	TRUE

6 species recorded
Select species to see more information

Search for a Species

Lolium perenne (Perennial Rye-grass)

Urtica dioica (Common Nettle)

Taraxacum spp. (Dandelions)

Ranunculus repens (Creeping Buttercup)

Lapsana communis (Nipplewort)

Bellis perennis (Daisy)