BIODIVERSITY NET GAIN ASSESSMENT (BNGA)

PROJECT NAME: LAND AT HOLBEACH MEADOWS, HOLBEACH, SPALDING, PE12 8QA

PURPOSE: Prepared in order to inform a planning application.

DATE: September 2022

1. Introduction

1.1. Background

1.1.1. Allied Ecology has been appointed to undertake a Biodiversity Net Gain Assessment of Land at Holbeach Meadows, Holbeach, Spalding, PE12 8QA (grid reference TF 35678 24252)

1.1.2. The site is located within the village of Holbeach, to the east of Spalding, and largely comprises arable, with buildings and hardstanding, and small areas of tall ruderal, rough grassland and allotment. The site is located within a semi-rural setting and is bound by existing residential curtilages to the north and east, and agricultural land to the south, and ongoing residential development to the west.

1.2. Ecological Survey Work

1.2.1. This Biodiversity Net Gain Assessment has been informed by ecological survey work undertaken at the site by Allied Ecology in July 2022, in order to inform the coding of the DEFRA 3.1 Biodiversity Metric.

1.3. Basis of Reporting

1.3.1. The following Biodiversity Net Gain Assessment is intended to establish whether the proposals are able to deliver a biodiversity net gain, and what that percentage net gain could be.

2. Methodology

2.1. Habitat Survey

2.1.1. A Phase 1 habitat survey was carried out in July 2022, based on standard JNCC Phase 1 Habitat Survey Methodology[1], whereby habitat types present were noted and mapped, together with an assessment of the general 'ecological value' of each habitat. A detailed species list was compiled for each habitat type, and from this the botanical composition of the site was classified into areas of similar community types. Species identification is based on the Botanical Society for the British Isles (BSBI) Checklist. This methodology provides an initial appraisal of the basic habitat types present and is translated into corresponding UK Habitat classifications detailed within the DEFRA 3.1 biodiversity calculator.

2.2. Condition Assessment Survey

2.2.1. In order to inform the coding of the DEFRA 3.1 biodiversity calculator, each of the identified habitats was assessed on site in July 2022, against the condition criteria set out within the DEFRA technical supplements. This enables an objective assessment of the baseline conditions for each habitat present, and represents the most robust and replicable method to establish the ecological baseline for Biodiversity Net Gain purposes.

2.3. Survey Constraints

2.3.1. The Phase 1 habitat survey and Condition Assessment survey were undertaken within the optimal time of year and as such, it is considered that the condition assessment data underpinning the metric calculations is reliable and suitably robust to inform the assessment.

2.4. Biodiversity Metric Calculation

2.4.1. All identified habitats within the site are measured using QGIS software, in order to accurately establish their extents (see Plan 22035-BNGA1). The identified habitats, and their extents, are coded into the DEFRA 3.1 biodiversity calculator, alongside their condition assessment information and other spatial / locally strategic information. This information generates the baseline number of 'biodiversity units' present within a site. The extents of proposed habitats are measured from the relevant landscape strategy plans / details (see Plan 22035-BNGA2) and input to the DEFRA 3.1 biodiversity calculator, alongside the realistically achievable conditions that are targeted for each habitat type. Additional spatial / locally strategic information is also input, which enables the number of proposed 'biodiversity units' to be established.

2.4.2. In order to understand the 'net' biodiversity gains or losses of a project, the proposed biodiversity units are subtracted from the baseline conditions, from which a percentage change in biodiversity can be calculated.

2.4.3. In calculating the biodiversity net gains that can be delivered under the proposals, the mitigation hierarchy has been followed at all times. This approach aims to ensure that, in the first instance, potential ecological harm is avoided. Where this is not always possible, such harm must be suitably reduced and only then compensated for as a last resort, when other potential design interventions have been exhausted.

[1] Joint Nature Conservation Committee (2010, as amended) *'Handbook for Phase 1 habitat survey: A technique for environmental audit.'*

3. Results

3.1. Baseline – Site Habitat Baseline

3.1.1. The status of existing habitat areas, and a summary of their current conditions, are detailed at Table 3.1 below.

Table 3.1 Baseline habitat conditions

Ref	Habitat	Condition	Condition Assessment	Description
1	Cropland: Cereal crops	Condition Assessment N/A	The DEFRA 3.1 Metric automatically assigns the condition data.	Located across the site.
2	Urban: Developed land; sealed surface	NA/ Other	The DEFRA 3.1 Metric automatically assigns the condition data.	Comprising existing buildings and hardstanding.
3	Sparsely vegetated land: Ruderal/Ephemeral	Poor	**Criteria Passed** 3, **Criteria Failed** 1, 2	Associated with the on-site drainage ditch and field margins, and partially retained under the proposals.
4	Grassland: Modified grassland	Poor	**Criteria Passed** 3, 4, 6 **Criteria Failed** 1, 2, 5, 7	Largely located adjacent to access track and around hardstanding areas.
5	Urban: Allotments	Poor	**Criteria Passed** 3 **Criteria Failed** 1, 2, 4, 5	Managed on an ad-hoc basis.
6	Urban: Artificial, unvegetated, unsealed surface	NA/ Other	The DEFRA 3.1 Metric automatically assigns the condition data.	A mound of bare earth.

3.1.2. Based on the extent of habitats within the site, and their current condition, existing habitats are assessed to provide **5.08** biodiversity units.

3.2. Baseline – Site Hedge Baseline

3.2.1. The status of existing hedgerows within the site, and a summary of their current conditions, are detailed at Table 3.2 below.

Table 3.2 Baseline hedgerow conditions

Ref	Habitat	Condition	Condition Assessment	Description
1	Hedge Ornamental Non Native	Poor	The DEFRA 3.1 Metric automatically assigns the condition data.	Located at the eastern site boundary.

3.2.2. Based on the extent of hedgerows within the site, and their current condition, existing hedgerows are assessed to provide **0.05** biodiversity units.

3.3. Baseline – Site River Baseline

3.3.1. The status of existing watercourses within the site, and a summary of their current conditions, are detailed at Table 3.3 below.

Table 3.3 Baseline hedgerow conditions

Ref	Habitat	Condition	Condition Assessment	Description
1	Ditches	Moderate	**Criteria Passed** 1, 3, 4, 5, 6, 7, 8 **Criteria Failed** 2	Located centrally.

3.3.2. Based on the extent of ditches within the site, and their current condition, existing ditches are assessed to provide **0.14** biodiversity units.

3.4. Proposed – Site Habitat Creation

3.4.1. Details of proposed habitat areas, and a summary of their targeted conditions, are detailed at Table 3.4 below.

Table 3.4 Proposed habitat details

Ref	Habitat	Condition	Condition Assessment	Description
1	Urban: Developed Land / Sealed Surface	N/A – Other	The DEFRA 3.1 Metric automatically assigns the condition data.	Buildings / structures.
2	Urban: Developed Land / Sealed Surface	N/A – Other	The DEFRA 3.1 Metric automatically assigns the condition data.	Includes areas of hardstanding, such as roads and pavements etc.
3	Urban: Vegetated Garden	Condition Assessment N/A	The DEFRA 3.1 Metric automatically assigns the condition data.	Includes rear gardens / lawns.
4	Urban: Sustainable urban drainage feature	Moderate	**Criteria Targeted** 2, 3	Planted with a diverse range of flowering plant species (Emorsgate EM8).
5	Grassland: Modified grassland	Moderate	**Criteria Targeted** 1, 4 ,6, 7	Comprising Emorsgate EL1.
6	Grassland: Modified grassland	Moderate	**Criteria Targeted** 1, 4 ,6, 7	Comprising Emorsgate EM8.
7	Heathland and shrub: Mixed Scrub	Moderate	**Criteria Targeted** 1, 3, 4	Shrub planting with native edge mix (Emorsgate EH1) sown below.
8	Urban: Introduced shrub	Condition Assessment N/A	The DEFRA 3.1 Metric automatically assigns the condition data.	Ornamental planting associated with new properties.

9	Urban: Urban tree	Poor	**Criteria Targeted** 1,2	A total of 23 small and 5 medium trees are proposed throughout the site.

3.4.2. Based on the extent of proposed habitats within the site, and their targeted conditions, proposed habitat areas are assessed to provide **5.20** biodiversity units.

3.5. Proposed – Site Hedge Creation

3.5.1. Details of proposed hedgerows, and a summary of their targeted conditions, are detailed at Table 3.5 below.

Table 3.5 Proposed hedgerow details

Ref	Habitat	Condition	Condition Assessment	Description
1	Native Hedgerow	Good	**Criteria Targeted** A1, A2, B1, B2, C1, C2, D1, D2	Located across the site

3.5.2. Based on the extent of proposed hedgerows within the site, and their targeted conditions, proposed hedgerows are assessed to provide **0.72** biodiversity units.

3.6. Baseline – Site River Enhancement

3.6.1. The status of existing watercourses within the site, and a summary of their current conditions, are detailed at Table 3.6 below.

Table 3.6 Baseline hedgerow conditions

Ref	Habitat	Condition	Condition Assessment	Description
1	Ditches	Fairly Good	**Additional Criteria Targeted** 2	Proposals to increase the amount of emergent, submerged, and floating leaved plants.

3.6.2. The proposed ditch enhancements are assessed to provide an additional **0.16** biodiversity units.

3.7. Evaluation

3.7.1. A summary of the net biodiversity gains or losses resulting from the proposals is detailed at Table 3.7 below.

Table 3.7 Summary of Biodiversity Net Gains or Losses

	Biodiversity Unit Change	Percentage Change
Habitats	+0.14	+2.76%
Hedgerows	+0.68	+1508.56%
Rivers (ditches)	+0.02	+15.60%

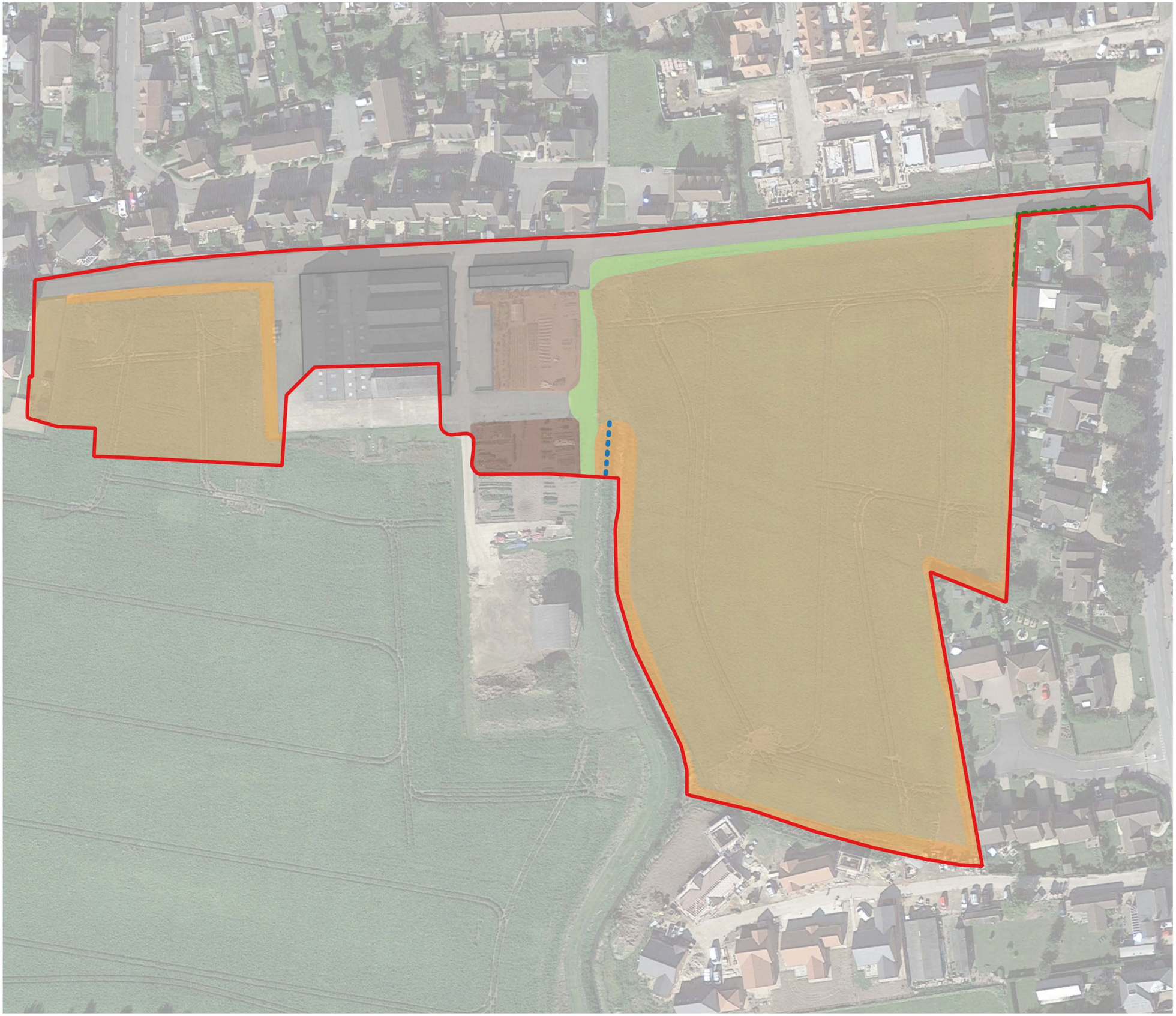
3.7.2. Additional measures proposed under the scheme including faunal enhancements such as bat roost boxes, bird nest boxes, log piles, insect towers, and new refuge features for hedgehogs will bring forward considerable additional biodiversity net gains that are unable to be reflected within the DEFRA 3.1 biodiversity calculator.

4. Conclusions

4.1 Allied Ecology has undertaken a Biodiversity Net Gain Assessment of the proposals utilising the DEFRA 3.1 biodiversity calculator. This assessment has established that Biodiversity Net Gain will be achieved under the proposals, as demonstrated for both habitat areas and hedgerows.

Enclosed

Plan 22035-BNGA1 – Baseline Habitats
Plan 22035-BNGA2 – Proposed Habitats
Appendix 22035-1 – DEFRA 3.1 Biodiversity Metric Headline Results Extract
DEFRA 3.1 Biodiversity Metric Excel File – **Available Upon Request**



Key:

- Site Boundary
- Cropland: Cereal Crops (2.1875ha)
- Urban: Developed land; sealed surface (0.1569ha)
- Urban: Developed land; sealed surface (0.3676ha)
- Sparsely vegetated land; Ruderal/ Ephemeral (0.1908ha)
- Grassland: Modified grassland (0.0772ha)
- Urban: Allotments (0.0851ha)
- Urban: Artificial unvegetated, unsealed surface (0.0543ha)
- Hedge Ornamental Non Native (0.045km)
- Ditches (0.017km)

Holbeach Meadows, Holbeach, Spalding, PE12 8QA

Baseline Habitats

22035-BNGA1

September 2022

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Key:

- Site Boundary
- Urban: Developed land; sealed surface (0.4448ha)
- Urban: Developed land; sealed surface (1.1528ha)
- Urban: Vegetated garden (0.6987ha)
- Urban: Sustainable urban drainage feature (0.1124ha)
- Grassland: Modified grassland (0.46ha)
- Grassland: Modified grassland (0.0627ha)
- Heathland and shrub: Mixed scrub (0.1387ha)
- Urban: Introduced shrub (0.031ha)
- Sparsely vegetated land: Ruderal/ Ephemeral (0.0129ha)
- Ditches (0.017km)
- Native Hedgerow (0.185km)
- Urban: Urban tree (23 small and 5 medium trees, 0.2767ha)

Holbeach Meadows, Holbeach, Spalding, PE12 8QA

Proposed Habitats

22035-BNGA2

September 2022

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Headline Results

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On-site baseline	*Habitat units*	5.08
	Hedgerow units	0.05
	River units	0.14
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	5.22
	Hedgerow units	0.72
	River units	0.16
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	2.76%
	Hedgerow units	1508.56%
	River units	15.60%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.14
	Hedgerow units	0.68
	River units	0.02
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	2.76%
	Hedgerow units	1508.56%
	River units	15.60%
Trading rules Satisfied?		Yes ✓

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