Biodiversity Net Gain Assessment

Land on Northwest side of Barnsley Road, Barnsley Road, Brierley, Barnsley, S72 9LJ

Paddy Connors

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Industry Guidelines and Standards

This report has been written with due consideration to:

- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management, Construction Industry Research and Information Association & Institute of Environmental Management and Assessment (2019). Biodiversity Net Gain – Good Practice Principles for Development.

Proportionality

> The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.
>
> The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.
>
> (BS 42020, 2013)

Executive Summary

Arbtech Consulting Limited was instructed by Paddy Connors to undertake a Biodiversity Net Gain (BNG) Assessment at Land on Northwest side of Barnsley Road, Barnsley Road, Brierley, Barnsley, S72 9LJ (hereafter referred to as “the site”). The assessment was required to inform a planning application and enforcement notice for the removal of hard surfaces and a building, with the retention of 4no. buildings in situ for residential purposes.

The site comprises other neutral grassland, artificial unvegetated unsealed surfaces, buildings, and a seasonal pond, all bounded by a palisade fence that is in good condition. Offsite trees and hedges are located immediately adjacent to the north, east and south boundary, with offsite scattered mature trees are along the west boundary. Also present on the western boundary is a recently planted nonnative and ornamental hedge and a section of bramble scrub.
The proposals include the construction of 4no. buildings (already in situ) with associated hard standing.

It is recommended that the scrub present are retained.
Furthermore, the development will need to include improvement of 0.166ha of other neutral grassland through native species planting and sectioning off so as to remove the poaching and grazing limitation currently present.

Following the enhancement of Other Neutral Grassland, the proposal will generate a gain in biodiversity.

Contents

1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Paddy Connors to undertake a Biodiversity Net Gain (BNG) Assessment at Land on Northwest side of Barnsley Road, Barnsley Road, Brierley, Barnsley, S72 9LJ (hereafter referred to as "the site"). The assessment was required to inform a planning application and enforcement notice for the removal of hard surfaces and a building, with the retention of 3no. buildings in situ for residential purposes. Retrospective impacts have been identified through the use of historical aerial images (hereafter referred to as "the proposed development"). A plan showing the proposed development is provided in Appendix 1.

This report should be read in conjunction with the following documents:

- Statutory Biodiversity Metric Calculation Tool: BNG Metric – Barnsley Road S72 9LJ – 27-6-24
- Preliminary Ecological Appraisal Report: PEAPRA – Land Northwest of Barnsley Road – FINAL – 9-5-24

1.2 Site Location, Geology and Landscape Context

The survey site is centred on National Grid Reference SE413118 and has an area of approximately 1.3ha. The site consists of a large grassland field, located on the north-west side of Barnsley Road, west from Brierley roundabout and north-west outside of the built-up area of the village Brierley, in the Metropolitan Borough of Barnsley. A site location plan is provided in Appendix 2.

1.3 BNG Informative

BNG is a specific, measurable outcome of project activities that deliver demonstrable and quantifiable benefits to biodiversity compared to the baseline situation. In order to achieve BNG, a project must be able to demonstrate that it has followed all 10 of the Principles of Biodiversity Net Gain (as outlined in the *British Standard 8683:2021 Process for Designing and Implementing Biodiversity Net Gain*).

The legalised Environment Act (2021) requires developments in England to demonstrate a measurable net gain in biodiversity and sets a target of a minimum of 10% BNG for all developments. It also stipulates that a management plan with a minimum 30-year term, should be adopted to ensure biodiversity net gain can be delivered. The requirement for biodiversity net gain is also enshrined within the National Planning Policy Framework (NPPF, 2021).

The DEFRA Statutory Biodiversity Metric is the widely accepted tool used to calculate BNG. It enables the calculation of habitat value pre- and post-development in order to determine the overall change in biodiversity value as a result of the proposed development. The Biodiversity Metric has separate BNG assessments for areas of habitat, hedgerows and watercourses.

The biodiversity value of a site should be maximised. However, it may not always be possible to achieve a 10% biodiversity net gain within a site and therefore the Statutory Biodiversity Metric can also account for offsite habitat creation, where land is available. Alternatively, developers can seek to provide an agreed financial contribution to an appropriate third party (such as the Local Authority, the UK Government or another landowner) to deliver the required biodiversity net gain elsewhere on their behalf.

2.0 Methodology

2.1 Baseline Biodiversity Value

- The baseline BNG Calculation was informed by Preliminary Ecological Appraisal & Preliminary Roost Assessment Land Northwest of Barnsley Road (Arbtech, 2024). A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The Preliminary Ecological Appraisal Report for Land Northwest of Barnsley Road classified the habitats on site according to The UK Habitat Classification Habitat Definitions Version 2.0 (The UK Habitat Classification Working Group, July 2023).

Habitat Area/Length

The area or length of each habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of a similar composition and condition. Distinctions were made between habitats to be retained (i.e. left as found in baseline), enhanced (i.e. improved condition) or lost (i.e. destroyed by proposed development).

Areas of scattered trees were calculated using the Tree Helper tool within the Statutory Biodiversity Metric. Class sizes for urban trees are set out in Table 8-1 of the Statutory Biodiversity Metric User Guide (Natural England, 2023).

Habitat Condition

Habitat condition was assessed using the relevant condition assessment sheets found in the Statutory Biodiversity Metric User Guide (Natural England, 2023).

Strategic Significance

Strategic significance was assigned for each habitat based upon a review of the following:

- Ecological value
- Function within the landscape

- Any site or habitat allocations under the Sheffield Council Biodiversity Action Plan

2.2 Post Development Biodiversity Value

The post development BNG Calculation was informed by Proposed Site Plan (Drawing No. 23_1301-003) which is included in Appendix 1. A post development habitat plan is provided in Appendix 4.

Habitat Classification

Proposed habitats were translated to their equivalents in the UK Habitat Classification using The UK Habitat Classification Habitat Definitions Version 2.0 (The UK Habitat Classification Working Group, July 2023) and the information provided within the proposal plans.

Habitat Area/Length

The area or length of each proposed habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of similar composition and condition. Distinctions were made between habitats to be retained (i.e. left as found in baseline), enhanced (i.e. improved condition) or newly created.

Areas of scattered trees were calculated using the Tree Helper tool within the Statutory Biodiversity Metric. Class sizes for urban trees are set out in Table 8-1 of the Statutory Biodiversity Metric User Guide (Natural England, 2023).

Habitat Condition

Target habitat condition for each proposed habitat was determined assessed using the Temporal Multipliers Tool and the Enhancement Temporal Multipliers Tool included in the Statutory Biodiversity Metric spreadsheet as well as the relevant condition assessment sheets found in the Statutory Biodiversity Metric User Guide (Natural England, 2023). This is based on the assumption that a 30-year management plan will be adopted for the site.

Strategic Significance

Strategic significance was assigned for each proposed habitat based upon a review of the following:

- Likely ecological value
- Function within the landscape
- Any site or habitat allocations under the Sheffield Council Biodiversity Action Plan

2.3 Limitations

None.

3.0 Results

3.1 Baseline Habitats

Table 1 details the baseline habitats present within the site along with their area/length, condition and strategic significance. A full condition assessment for each habitat (where relevant) is provided in Appendix 5a.

Table 1: Baseline Biodiversity Value

Habitat	Area (ha) / Length (km)	Description	Condition Assessment	Strategic Significance
Other Neutral Grassland	1.55	Dominating the site, and likely persisting through previous development of the site is a large area of neutral grassland. Currently, it is being grazed by horses, and thus has a relatively short sward height approximately between 20cm and ground level. There are areas present around the extremities of site that are not as heavily grazed, which present a larger sward height of around 50cm, largely dominated with nettles. Species include meadowgrass (d), clover, creeping buttercup (f), dandelion, cow parsley, dock (o), nettle and willowherb (r). **To be retained, with new areas to be planted to replace the artificial unvegetated unsealed surface.**	Poor Intensively managed by grazing from horses results in a low sward height and poaching damage	Low strategic significance and not known to be included on the Local Plan
Bramble Scrub	0.016	A section of unmanaged area that has evolved into bramble scrub. **To be retained.**	N/A	Low strategic significance and not known to be included on the Local Plan

3.2 Post Development Habitats

Table 2 details the post development habitats present within the site along with their area/length, condition and strategic significance. The proposed development will result in the loss of buildings, artificial unvegetated unsealed surface and modified grassland.

Table 2: Post Development Biodiversity Value

Habitat	Area (ha) / Length (km)	Description	Target Condition	Strategic Significance
Buildings	0.014	4no buildings (in situ)	N/A	Low strategic significance and not known to be included on the Local Plan
Artificial unvegetated unsealed surface	0.022	Created gravel hard standing	N/A	Low strategic significance and not known to be included on the Local Plan
Other neutral grassland	1.346	Retained baseline habitat.	Poor The area is still likely to be grazed by horses	Low strategic significance and not known to be included on the Local Plan
Other neutral grassland	0.167	Improved baseline habitat – to be improved with native species planting and fencing off to protect from grazing.	Good	Low strategic significance and not known to be included on the Local Plan
Mixed Scrub	0.016	Retained baseline habitat.	N/A	Low strategic significance and not known to be included on the Local Plan
Native Hedgerow	0.181	Planted along the western extent of the site.	Poor – as it is newly planted. Other areas of site are likely to include additional planting, and it is recommended that these areas include native species of hedgerow plants, including blackthorn, hawthorn, hazel and field maple.	Low strategic significance and not known to be included on the Local Plan

3.3 Change in Biodiversity Value of the Site

Full details are provided in the Defra Statutory Biodiversity Metric. The headline results are presented in Appendix 6.

Areas of Habitat

The baseline habitat value of the site is 6.26 units, comprising 6.20 units of other neutral grassland and 0.06 units of bramble scrub.

The post development habitat value of the site is 6.90 units, comprising the improvement of other neutral grassland, and the retention of bramble scrub.

This results in a net change in biodiversity of +10.14% (i.e. a net gain).

Hedgerows

The baseline does not have hedgerows present. As such has no value for BNG.

The post development habitat value of the site is 0.12 units, comprising the replacement of the non-invasive ornamental hedgerow with native species of hedgerow plants

This results in a net gain.

4.0 Recommendations to Deliver BNG

4.1 Discussion

The current proposed plan results in a +10.14% increase in baseline habitats. This is more than the 10% target of biodiversity net gain.

4.1 Post Development

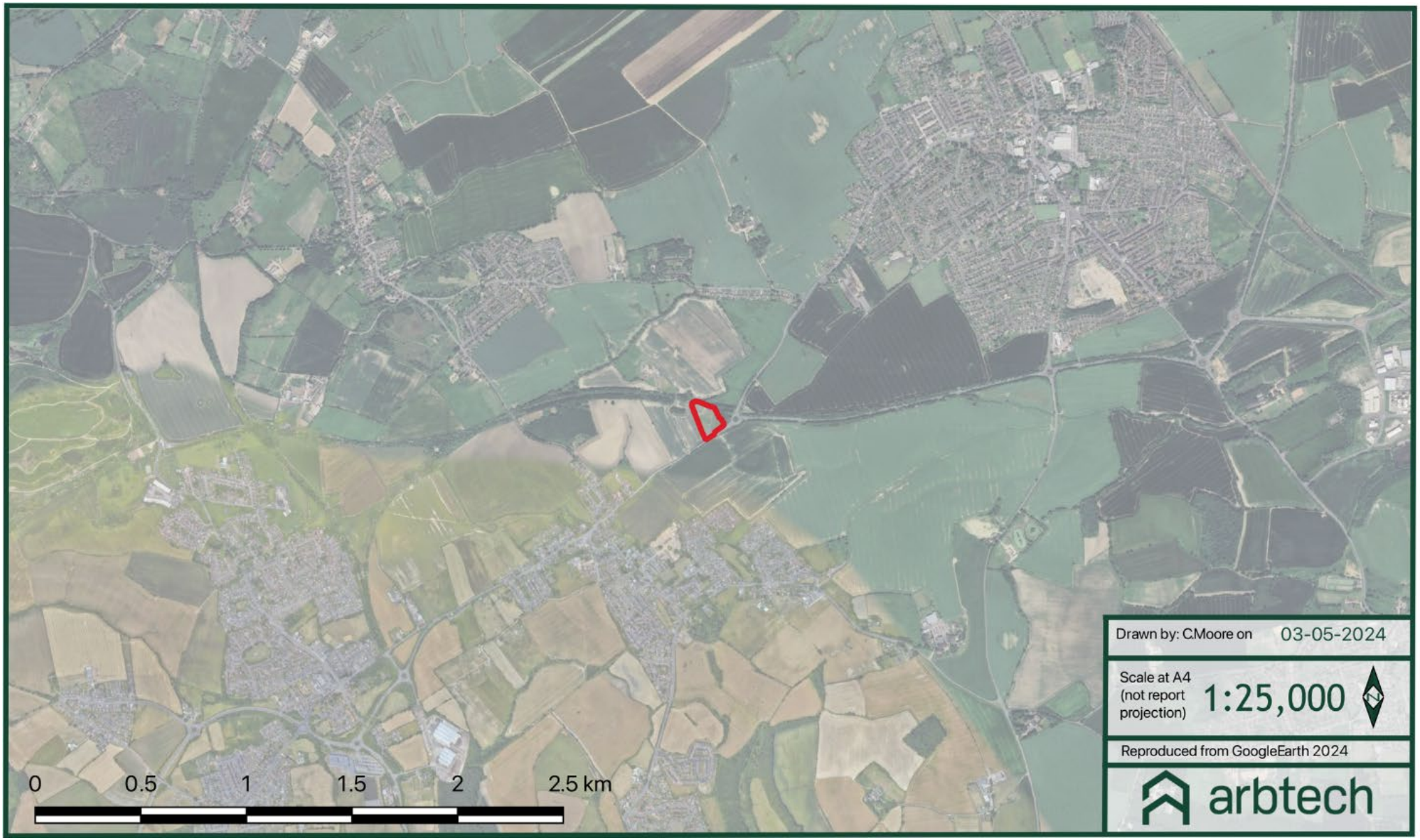
A Biodiversity Net Gain (BNG) Management Plan must be produced for the site. This should include recommendations for the implementation, management and monitoring of the site for at least 30 years.

5.0 Bibliography

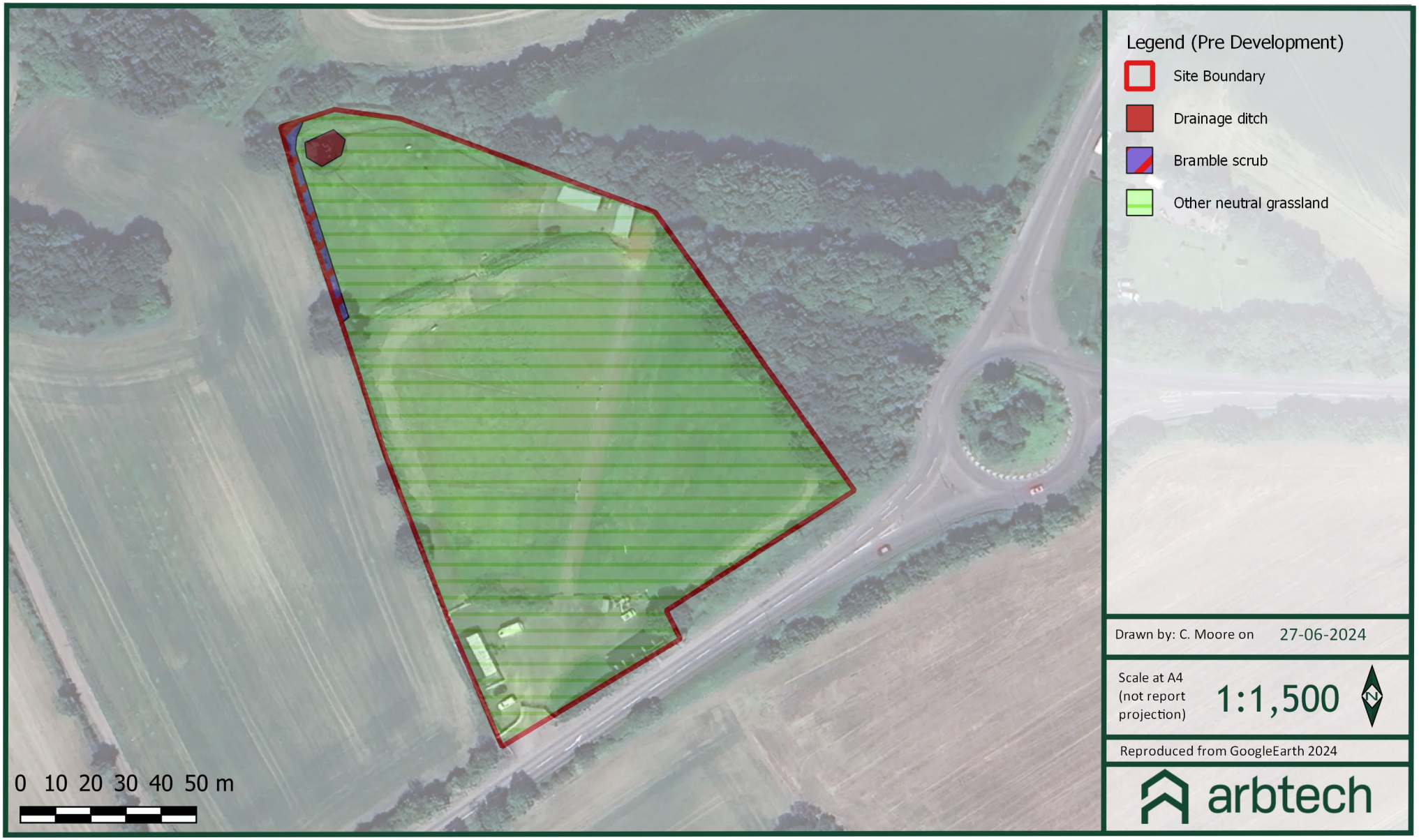
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- CIEEM-CIRIA-IEMA (2019) Biodiversity Net Gain – Good Practice Principles for Development.
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey a technique for environmental audit. http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf
- Natural England (2023). The Statutory Biodiversity Metric (JP039).
- Natural England (2023). The Statutory Biodiversity Metric User Guide (JP039).
- Natural England (2023). The Statutory Biodiversity Metric Technical Annex 1 - Condition Assessment Sheets and Methodology (JP039).
- Natural England (2023). The Statutory Biodiversity Metric Technical Annex 2 – Technical Information (JP039).
- The UK Habitat Classification Habitat Definitions Version 2.0 (The UK Habitat Classification Working Group, July 2023)

Appendix 1: Proposed Development Plan

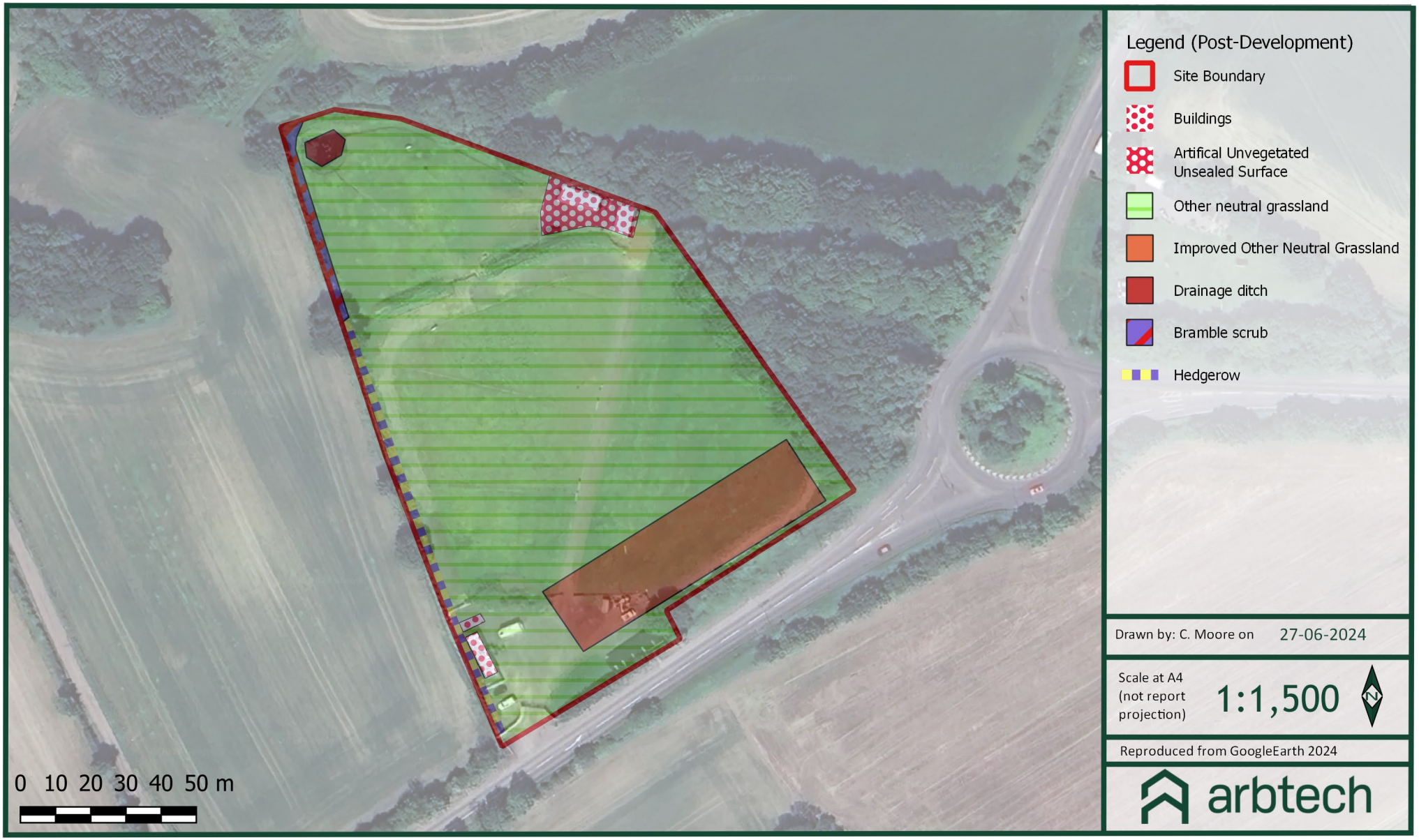
Appendix 2: Site Location Plan



Appendix 3: Baseline Habitat Plan



Appendix 4: Post Development Habitat Plan



Appendix 5: Post Development Habitat Condition Assessment Sheet

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code - see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

On-site or off-site, site name and location	Land Northwest of Barnsley Road, Barnsley Road, Brierley, Barnsley, S72 9LJ	**Survey date and Surveyor name**	7-5-24 Charlie Moore
Limitations (if applicable)	n/a	**Survey reference (if relating to a wider survey)**	Baseline
Grid reference	SE413118	**Habitat parcel reference**	ONG

Habitat Description

ukhab - UK Habitat Classification

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justificat
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description).[1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	yes	suboptimal sp present
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	yes	areas not grazed have taller sward heights
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[2].	yes	
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	yes	
E	Combined cover of species indicative of suboptimal condition[3] 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. If any invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) are present, this criterion is automatically failed.	no	

Additional Criterion - must be assessed for all non-acid grassland types			
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	yes	
	Essential criterion for Good condition achieved (for non-acid grassland)	no	
	Number of criteria passed	5	

Condition Assessment Res	**Condition Assessment Score**	**Score Achieved =1/**
Acid grassland types (Result out of 5 criteria)		
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	
Non-acid grassland types (Result out of 6 criteria)		
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)	X
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	

Appendix 6: Headline BNG Results

The Defra Statutory Biodiversity Metric is provided as a separate excel spreadsheet.

FINAL RESULTS			
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.63	
	Hedgerow units	0.12	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	10.14%	
	Hedgerow units	N/A	0 baseline units - % cannot be calculated
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	6.26	6.89	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 ✓