



Biodiversity Net Gain Assessment

Site: 37 Chapel Hill, Reading, RG31 5BT.

Client: First Home Real Estate Ltd.

Status	Issue	Name	Date
Draft	1	Matthew Game BSc (Hons) MSc REnvP MEnvSc	18/10/2024
Reviewed	1.1	Reid Cowell BSc (Hons) MSc	22/10/2024
Final	2	Matthew Game BSc (Hons) MSc REnvP MEnvSc	25/10/2024

Limitations and Copyright

Matthew Game Consultancy has prepared this report for the sole use of the above-named client or their agents in accordance with our General Terms and Conditions, under which our services are performed. It is expressly stated that no other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by us. This report may not be relied upon by any other party without the prior and express written agreement of Matthew Game Consultancy. The conclusions and recommendations contained in this report are based upon information provided by third parties. Information obtained from third parties has not been independently verified by Matthew Game Consultancy.

© This report is the copyright of Matthew Game Consultancy. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

Acknowledgements

Not applicable for this report.

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.

This approach is enshrined in Government planning guidance, for example, paragraph 174 of the National Planning Policy Framework for England.

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

Matthew Game Consultancy was instructed to undertake a Biodiversity Net Gain (BNG) Assessment at 37 Chapel Hill, Reading, RG31 5BT (hereafter referred to as “the site”). The survey was required to inform a planning application for a new detached house (hereafter referred to as “the proposed development”).

Areas of Habitat

The baseline habitat value of the site is 0.14 units, this comprises of 0.14 units of sparsely vegetated urban land.

The baseline hedgerow habitat value of the site is 0.01 units, this comprises of 0.01 units of non-native and ornamental hedgerow.

The post development habitat value of the site is 0.16 units, comprising 0.01 units of vegetated garden, 0.15 units of urban individual trees, 0.00 units of developed land; sealed surface, and 0.00 units of artificial unvegetated, unsealed surface.

This results in the site achieving a net gain in biodiversity habitat units of 0.2 units, equating to a **14.87%** gain in habitat biodiversity and a **16.08%** gain in hedgerow units.

Contents

1.0 Introduction and Context	6
1.1 Background	6
1.2 Site Context	6
1.3 BNG Informative	7
2.0 Methodology	8
3.0 Results and Evaluation	14
3.2 Post Development Habitats	15
4.0 Recommendations	18
5.0 Bibliography	18
Appendix 1: Proposed Development Plan	20
Appendix 2: Site Location Plan	21
Appendix 3: Habitat Survey Plan	22
Appendix 4: Baseline Habitat Condition Assessments	234

1.0 Introduction and Context

1.1 Background

Matthew Game Consultancy was instructed to undertake a Biodiversity Net Gain (BNG) Assessment at 37 Chapel Hill, Reading, RG31 5BT (hereafter referred to as “the site”). The survey was required to inform a planning application for a new detached house (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:

- Defra Statutory Biodiversity Metric – 23.07.24
- Matthew Game Consultancy – Preliminary Ecological Appraisal – October 2024

1.2 Site Context

The proposed development is located at approximate grid reference SU 66450 73618 and covers an area of approx. 0.1Ha. The site comprises an area of sparsely vegetated land, between number 29 and number 37 Chapel Hill. Access to the site is obtained via a single entrance leading in from Chapel Hill. The front of the plot is mainly laid to tarmac with some ruderal vegetation and ornamental hedging, whilst the rear (western end) of the plot is bare ground with mixed amenity grassland and ruderal vegetation. The plot is surrounded by residential dwellings to all aspects, with Reading centre situated to its east, the M4 motorway to its southwest and small areas of green space and tree lines scattered throughout the wider landscape.

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. The recently 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).

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 a site survey which was completed on the 15th of October 2024, by Lewis Smith BSc (Hons) (NE Bat Class Licence: WML-CL17 & Accredited Agent, NE Bat Class Licence: WML-CL18) who has over 5 years' experience in consultant ecology. A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The site survey classified the habitats on site according to UK Habitat Classification User Manual (UK Habitat Classification Working Group, 2018).

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).

Habitat Condition

Habitat condition was assessed using the relevant condition assessment sheets found in the Biodiversity Metric Technical Supplement (Panks et al., 2024). The habitat condition assessments were based on the information provided within the PEA, including the habitat descriptions, species list and site photos.

Strategic Significance

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

- Ecological value (based on the site survey)
- Function within the landscape (based on a review of Google and OS imagery)
- Any site or habitat allocations under the Local Biodiversity Action Plan

Each habitat in the UK Habitat Classification is automatically assigned a score for distinctiveness within the metric. Distinctiveness recognises the different characteristics of habitats in relation to their capacity for supporting species richness, their tendency to support species found rarely in other habitats, and the rarity of the habitat itself. Table 1 shows the categories for distinctiveness.

Table 1: Area habitat distinctiveness categories and multiplier scores (excluding intertidal habitats)

Category	Score	Definition
Very high	8	• Priority Habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action, e.g., blanket bog. • Small amount of remaining habitat with a high proportion unprotected by designation. • Endangered or Critical European red list habitats
High	6	• Priority Habitats as defined in Section 41 of the NERC Act requiring conservation action, e.g., lowland fens. • Remaining Priority Habitats not in very high distinctiveness band & other red list habitats.
Medium	4	• Semi-natural habitats not classed as a Priority Habitat but with significant wildlife benefit, e.g., mixed scrub. • One Priority Habitat (arable field margins).
Low	2	• Habitat of low biodiversity value e.g., temporary grass and clover ley.
		• Agricultural and Urban land of lower biodiversity value.
Very low	0	• Little or no biodiversity value e.g., hard standing or sealed surface. • Urban – artificial structures which are un-vegetated, sealed surfaces or built linear features of very low biodiversity value.

BNG Good Practice Principles and Indicators for Audit Reporting

BNG Principle	Indicators
Principle 1. Apply the Mitigation Hierarchy	Measures to avoid and minimise biodiversity loss and to rehabilitate/restore biodiversity affected by the project are: 1) defined and documented, 2) implemented and monitored; and 3) managed for the duration of the project's impacts. For example, maintain records of the consideration of alternatives as evidence of avoidance measures implemented.
Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere	Project documents describe any impacts to irreplaceable and vulnerable biodiversity resources, e.g., permanent loss or damage to semi-natural ancient woodland, ancient climax vegetation communities, veteran trees, endemic and internationally rare species that cannot be replaced within reasonable timeframes. Projects with impacts on irreplaceable habitats cannot achieve BNG. These projects should demonstrate where biodiversity compensation has been provided but cannot claim project-wide achievement of BNG. These projects should transparently and comprehensively refer to the impacts on irreplaceable habitats in communications and reports.
Principle 3. Be inclusive and equitable	Evidence of input from and consultation with nature conservation bodies, the local community, the local planning authority and other relevant stakeholders. (NB: For smaller scale projects, this may be part of the planning consultation process). Terms of Reference for any Stakeholder Partnerships are agreed and published, with the roles and responsibilities of members clearly defined.

Principle 4. Address risks	Evidence that BNG has been achieved within the project. Sources of risk and uncertainty in design and implementation of mitigation are documented. Identify risks that may present themselves during the 30-year management period and how these should be dealt with.
Principle 5. Make a measurable Net Gain	Suitable metric is used for all habitat impacts quantified relative to the 'pre-project' condition of each habitat. Gains anticipated from habitat creation, enhancement and positive management are quantified relative to the predicted condition in the absence of BNG activities.
Principle 6. Achieve the best outcomes for biodiversity	Evidence is provided that BNG commitments contribute (now or in the future) to regional and national conservation goals, e.g., Local Nature Recovery Strategies. Provide evidence that the BNG design has considered where it is possible to contribute to supporting priority species populations. Provide evidence to show where additionality has been proven within the built environment and what gains are achieved.

BNG Principle	Indicators
Principle 7. Be additional	Evidence is provided that the conservation gains were caused by project activities and would not have occurred in other circumstances.
Principle 8. Create a Net Gain legacy	Evidence is provided that those responsible for implementing project biodiversity management have the requisite management and technical capacity for their specified roles. Key Performance Indicators are set for biodiversity features affected by the project and specific, measurable and time-bounded targets for indicating conservation success are clearly stated. Evidence is provided that any reasonably foreseeable future developments that might affect long-term commitments to biodiversity, including developments by third parties, have been considered. Evidence that legal and financial mechanisms are in place to guarantee the financial and institutional viability of all biodiversity management for a minimum 30 years or at least the duration of the project's impacts. Evidence is provided that management is adapted, where necessary, throughout implementation to deliver the agreed conservation outcomes and monitoring is in place to identify risks to achieving specified outcomes. Evidence that the design has considered where it is possible to create features for species, in particular, priority species.
Principle 9. Optimise sustainability	Evidence provided that the project prioritises BNG targets, but then seeks opportunities for gains for the wider environment, the community and the economy.
Principle 10. Be transparent	The commitment to BNG is stated by the project developer in a publicly available document. Results of project audits are publicly available where claims of BNG are made at relevant project stages, including project closure and any deviations from original design specifications are clearly stated. Evidence that the best available scientific knowledge and methods have been used in BNG design and implementation and knowledge is transferred back to the scientific community.

2.2 Post Development Biodiversity Value

The post development BNG Calculation was informed by the SK Design Consultants Landscape Drawings (DRG. NO – P1567-03).

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, May 2018).

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.

Habitat Condition

Target habitat condition for each proposed habitat was determined assessed using the G-4 Temporal Multipliers Tab included in the Statutory Biodiversity Metric spreadsheet.

Strategic Significance

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

- Likely ecological value (based on the landscaping plan and professional judgement)
- Function within the landscape (based on the location of the proposed and a review of Google and OS imagery)
- Any site or habitat allocations under the Local Biodiversity Action Plan.

No limitations to the calculations.

3.0 Results and Evaluation

3.1 Baseline Habitats

Table 2 details the baseline habitats present within the site (as identified in October 2024 when the site survey was undertaken) along with their area/length, condition and strategic significance.

A full condition assessment for each habitat (if applicable) is provided in Appendix 4.

Table 2: Baseline Biodiversity Value

Habitat	Area / Length	Description	Condition Assessment	Strategic Significance
Non-native and ornamental hedgerow (h2b)	12 Linear metres	At the front of the dwelling, adjacent to the roadway is a short area of ornamental hedgerow. This comprises of Conifer species and has limited value for nesting birds and invertebrates. It could also provide refuge for reptile species and small mammals such as hedgehog. There is a short length of conifer dominant ornamental hedgerow which runs along the southern boundary.	Poor	Area/Compensation not in local strategy / no local strategy
Bramble scrub (h3d)	6 sqm	A small area of bramble dominant scrub is situated centrally in the plot. This also has some meadow grass species present, as well as ivy.	N/A	Area/Compensation not in local strategy / no local strategy
Sparsely vegetated urban land (u1f)	233 sqm	The majority of the site is sparsely vegetated urban land, this consists of some tarmac surface, some grassland and ruderal vegetation. There is also debris across the site, as pictured right.	Good	Area/Compensation not in local strategy / no local strategy

3.2 Post Development Habitats

Table 3 details the post development habitats present within the site along with their area/length, condition and strategic significance. Other biodiversity enhancements are incorporated into the proposed development which aren't accounted for in the Biodiversity Metric.

Table 3: Post Development Biodiversity Value

Habitat	Area / Length	Description	Target Condition	Strategic Significance
Vegetated garden	77 sqm	New garden area	N/A	Area/Compensation not in local strategy / no local strategy
Developed land; sealed surface	122 sqm	New dwelling	N/A	Area/Compensation not in local strategy / no local strategy
Artificial unvegetated, unsealed surface	40 sqm	New driveway area with permeable surface	N/A	Area/Compensation not in local strategy / no local strategy
Individual trees	2 no	New small sized individual trees located at the rear of the new dwelling	Moderate	Area/Compensation not in local strategy / no local strategy
Individual trees	2 no	New medium sized individual trees located in the new garden area	Good	Area/Compensation not in local strategy / no local strategy
Native hedgerow	10 Linear metres	New planting of native hedgerow around the boundaries of the site.	Poor	Area/Compensation not in local strategy / no local strategy

3.3 Baseline Biodiversity Value of the Site

Full details are provided in the Statutory Biodiversity Metric.

Areas of Habitat

The baseline habitat value of the site is 0.14 units, this comprises of 0.14 units of sparsely vegetated urban land.

The baseline hedgerow habitat value of the site is 0.01 units, this comprises of 0.01 units of non-native and ornamental hedgerow.

The post development habitat value of the site is 0.16 units, comprising 0.01 units of vegetated garden, 0.15 units of urban individual trees, 0.00 units of developed land; sealed surface, and 0.00 units of artificial unvegetated, unsealed surface.

This results in the site achieving a net gain in biodiversity habitat units of 0.2 units, equating to a **14.87%** gain in habitat biodiversity and a **16.08%** gain in hedgerow units.

37 Chapel Hill, Reading, RG31 5BT

Headline Results

Scroll down for final results ⚠

Return to results menu

On-site baseline	Habitat units	0.14	
	Hedgerow units	0.01	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.16	
	Hedgerow units	0.01	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	0.02	14.87%
	Hedgerow units	0.00	16.08%
	Watercourse units	0.00	0.00%
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.02
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Spatial risk multiplier (SRM) deductions	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.02
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	14.87%
	<i>Hedgerow units</i>	16.08%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
<i>Habitat units</i>	10.00%	0.14	0.16	0.00
<i>Hedgerow units</i>	10.00%	0.01	0.01	0.00
<i>Watercourse units</i>	10.00%	0.00	0.00	0.00

No additional area habitat units required to meet target ✓

No additional hedgerow units required to meet target ✓

No additional watercourse units required to meet target ✓

4.0 Recommendations

No further recommendations, as the site is achieving a 14.87% net gain in habitat units.

5.0 Bibliography

- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- CIEEM-CIRIA-IEMA (2024) Biodiversity Net Gain – Good Practice Principles for Development.
- Google Earth (2024) accessed on 18/10/2024.
- 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
- Magic database (2024) <http://www.magic.gov.uk/MagicMap.aspx> accessed on 18/10/2024.
- The Statutory Biodiversity Metric (JP039: July 2024). <http://publications.naturalengland.org.uk/publication/6049804846366720>
- UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>)

Appendix 1: Proposed Development Plan



Appendix 2: Site Location Plan



LOCATION PLAN

SCALE 1 : 1250

Appendix 3: Habitat Survey Plan



Appendix 4: Baseline Habitat Condition Assessments

Condition Sheet: URBAN Habitat Type			
Habitat Types			
Sparsely vegetated land - Ruderal/Ephemeral Sparsely vegetated land - Tall forbs Urban - Allotments Urban - Biodiverse green roof Urban - Bioswale Urban - Cemeteries and churchyards Urban - Facade-bound green wall Urban - Ground based green wall Urban - Intensive green roof Urban - Open mosaic habitats on previously developed land Urban - Rain garden Urban - Sustainable drainage system (SuDS) Urban - Vacant or derelict land Urban - Bare ground			
Habitat Description			
The majority of the site is sparsely vegetated urban land, this consists of some tarmac surface, some grassland and ruderal vegetation. There is also debris across the site, as pictured right.			
See the Statutory Biodiversity Metric User Guide for green roofs and UK Habitat Classification (UKHab) for other habitats:			UKHab – UK Habitat Classification
On-site or off-site, site name and location	On Site - 37 Chapel Hill, Reading	Survey date and Surveyor name	15/10/2024 - Lewis Smith
Limitations (if applicable)	None	Survey reference (if relating to a wider survey)	N/A
Grid reference	SU 66450 73618	Habitat parcel reference	N/A

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
Core Criteria - must be assessed for all urban habitat types :			
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	YES	
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	YES	
C	Invasive non-native plant species (listed on Schedule 9 of WCA¹) and others which are to the detriment of native wildlife (using professional judgement)² cover less than 5% of the total vegetated area³. Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	YES	

Essential criteria relevant for habitat type achieved (Yes or No)		
Number of criteria passed		
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓
Results for habitats requiring assessment of 3 core criteria only (all listed urban habitats except Open mosaic habitat on previously developed land, Bioswale, SuDS and Green roofs):		
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C.	Good (3)	GOOD
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)	
• Passes 0 or 1 of 3 core criteria.	Poor (1)	