



Biodiversity Net Gain Assessment

Great Brighams Mead, Vastern Road, Reading, Berkshire RG1 8DJ

Kings Oak Miami LLP

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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 Kings Oak Miami LLP to undertake a Biodiversity Net Gain (BNG) Assessment at Great Brighams Mead, Vastern Road, Reading, Berkshire RG1 8DJ (hereafter referred to as “the site”). The assessment was required to inform a planning application for ‘*Construction of a two-storey roof (third and fourth floor) extension to accommodate 100 aparthotel rooms (Use Class C1) with associated parking, cycle stores and bin stores*’ (hereafter referred to as “the proposed development”).

The current proposed plan results in a 3.64% net gain in habitat units. This is compliant with the Reading Borough Council Local Plan (adopted in 2019), specifically policy EN12:

- b. On all sites, development should not result in a net loss of biodiversity and geodiversity and **should provide a net gain for biodiversity** wherever possible.

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 to ensure that biodiversity net gain is delivered.

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1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Kings Oak Miami LLP to undertake a Biodiversity Net Gain (BNG) Assessment at Great Brighams Mead, Vastern Road, Reading, Berkshire RG1 8DJ (hereafter referred to as “the site”). The assessment was required to inform a planning application for ‘*Construction of a two-storey roof (third and fourth floor) extension to accommodate 100 aparthotel rooms (Use Class C1) with associated parking, cycle stores and bin stores*’ (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 Biodiversity Metric 4.0.
- Preliminary Ecological Appraisal and Preliminary Roost Assessment (“PEA/PRA”; Arbtech Consulting Ltd, July 2023)

1.2 Site Location and Landscape Context

The site is located at National Grid Reference SU 71370 74217 and has an area of approximately 1ha comprising buildings, hard standing, broadleaf trees and shrubs. It is surrounded by residential and commercial areas and associated infrastructure with the River Thames located approximately 50 m to the north of the site. 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 Environment Act (2021) is still in a transitional phase and is not expected to become mandatory until November 2023. However, the requirement for biodiversity net gain is also enshrined within the National Planning Policy Framework (NPPF, 2021).

The DEFRA Biodiversity Metric 4.0 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 Biodiversity Metric 4.0 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 the PEA/PRA (Arbtech, July 2023) and the Tree Survey Report (Arbtech, July 2023). A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The PEA/PRA (Arbtech, July 2023) 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).

Areas of scattered trees were calculated using the Tree Helper tool within the Biodiversity Metric 4.0. Class sizes for urban trees are set out in Table 8-1 of the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Habitat Condition

Habitat condition was assessed using the relevant condition assessment sheets found in the Biodiversity Metric 4.0 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 Local Plan

2.2 Post Development Biodiversity Value

The post development BNG Calculation was informed by the proposed development plan which is included in Appendix 1.

Habitat Classification

Proposed habitats were translated to their equivalents in the UK Habitat Classification using The UK Habitat Classification Habitat Definitions Version 1.0 (The UK Habitat Classification Working Group, May 2018) and the information provided within the proposed development plan.

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 Biodiversity Metric 4.0. Class sizes for urban trees are set out in Table 8-1 of the Biodiversity Metric 4.0 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 Biodiversity Metric 4.0 spreadsheet as well as the relevant condition assessment sheets found in the Biodiversity Metric 4.0 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 Local Plan

2.3 Limitations

There were no specific limitations to the assessment.

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.

Table 1: Baseline Biodiversity Value

Habitat	Area / Length	Description	Condition Assessment	Strategic Significance
Developed land, sealed surface (including buildings)	0.9868 ha	As described in the PEA/PRA (Arbtech, July 2023).	N/A.	No strategic significance and not known to be included in any local plans.
Introduced shrubs	0.0565 ha	As described in the PEA/PRA (Arbtech, July 2023).	N/A.	No strategic significance and not known to be included in any local plans.
Line of trees	0.137 km	As described in the PEA/PRA (Arbtech, July 2023).	- At least 70% of trees are native species. PASS - Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide. FAIL - One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark. FAIL - There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice2. FAIL - At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity. PASS Passes two of five criteria and therefore assigned poor condition.	No strategic significance and not known to be included in any local plans.

Ornamental hedgerow	0.288- km	Portuguese laurel hedgerow. As described in the PEA/PRA (Arbtech, July 2023).	N/A – fixed at poor condition.	No strategic significance and not known to be included in any local plans.
Scattered tree → urban tree	0.6026 ha	40 small and 17 large trees. As described in the PEA/PRA (Arbtech, July 2023) and the Tree Survey Report (Arbtech, July 2023).	1. The tree is a native species (or at least 70% within the block are native species). FAIL 2. The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion). FAIL 3. The tree is mature (or more than 50% within the block are mature). FAIL 4. There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height. PASS 5. Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark. FAIL 6. More than 20% of the tree canopy area is oversailing vegetation beneath. PASS Passes two of six criteria and therefore assigned poor condition.	No strategic significance and not known to be included in any local plans.

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. An assessment of the anticipated condition for each habitat (where relevant) is provided, which is based on the assumption that a 30 year management plan will be implemented for the site.

Table 2: Post Development Biodiversity Value

Habitat	Area / Length	Description	Target Condition	Strategic Significance
Developed land, sealed surface	0.9621 ha	New and retained buildings and hard standing.	N/A.	No strategic significance and not known to be included in any local plans.
Introduced shrub	0.0790 ha	New and retained introduced shrubs.	N/A.	No strategic significance and not known to be included in any local plans.

Green roof	0.0022 ha	New green roof.	Moderate.	No strategic significance and not known to be included in any local plans.
Urban trees	0.6067 ha	34 small and 17 medium trees retained and 7 new small trees planted.	Poor.	No strategic significance and not known to be included in any local plans.
Ornamental hedgerow	0.2880 km	Retained Portuguese laurel hedgerow. As described in the PEA/PRA (Arbtech, July 2023).	N/A – fixed at poor condition.	No strategic significance and not known to be included in any local plans.

3.3 Change in Biodiversity Value of the Site

Full details are provided in the Defra Biodiversity Metric 4.0. The headline results are presented in Appendix 6.

Areas of Habitat

The baseline habitat value of the site is 2.52 units, comprising 0.11 units of introduced shrub and 2.41 units of urban trees.

The post development habitat value of the site is 1.88 units, comprising the retention of introduced shrub (0.09 units) and urban trees (2.31 units) and the creation of introduced shrub (0.07 units), green roof (0.01 units) and urban trees (0.14 units).

This results in a net change in biodiversity of 3.64% (i.e. a net gain).

Hedgerows

The baseline hedgerow value of the site is 0.29 units, comprising 0.29 units ornamental non-native hedgerow.

The post development habitat value of the site is 0.29 units, comprising the retention of 0.29 units ornamental non-native hedgerow.

This results in no net change in biodiversity.

4.0 Recommendations to Deliver BNG

4.1 Discussion

The current proposed plan results in a 3.64% net gain in habitat units. This is compliant with the Reading Borough Council Local Plan (adopted in 2019), specifically policy EN12:

- b. On all sites, development should not result in a net loss of biodiversity and geodiversity and **should provide a net gain for biodiversity** wherever possible.

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 to ensure that biodiversity net gain is delivered.

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 Biodiversity Metric 4.0 (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 User Guide (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 Technical Annex 1 - Condition Assessment Sheets and Methodology (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 Technical Annex 2 – Technical Information (JP039).
- UK Habitat Classification Working Group (2018). UK Habitat Classification – Habitat Definitions V1.0.

Appendix 1: Proposed Development Plan

To be added once available.

Appendix 2: Site Location Plan



Appendix 3: Baseline Habitat Plan



Appendix 4: Proposed Habitat Plan

To be added once the proposed development plan is available.