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Biodiversity Net Gain Assessment

Survey site:

Land adjoining Liberty House, Strand Way, Lower Earley, Wokingham RG6 4EA

Client:

Reading Almshouse Charity

Report date:

19th December 2024

Project:

This report is prepared to inform a planning application with Wokingham Borough Council. The proposal is described as:

- The erection of three blocks of housing, each comprising of six apartments with associated ancillary development, hardstanding, landscaping and footpaths.

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 Reading Almshouse Charity to undertake a Biodiversity Net Gain (BNG) Assessment at Land adjoining Liberty House, Wokingham, RG6 4EA (hereafter referred to as "the site"). The assessment was required to inform a planning application for the erection of three blocks of housing, each comprising of six apartments with associated ancillary development, hardstanding, landscaping and footpaths. (hereafter referred to as "the proposed development").

Area-based Habitat

- The baseline habitat value of the site is 0.94 units, comprising 0.34 units of poor condition modified grassland, 0.17 units of moderate condition modified grassland, 0.05 units of bramble scrub, 0.11 units of moderate condition individual trees and 0.27 units of good condition individual trees.
- The post development habitat value of the site is 0.77 units, 0.16 units of poor condition modified grassland, 0.12 units of moderate condition modified grassland, 0.22 units of moderate condition individual trees, 0.27 units of good condition individual trees and developed land; sealed surface (no value).
- The development results in a -18.19% (i.e. a net loss). This does not meet the minimum 10% gain required.
- A recommended plan has been developed and is shown in **Section 4** that achieves +10.42% gain in habitat units and +38.19% gain in hedgerow units. This involves the enhancement of 0.067ha of modified grassland from poor to moderate condition, the creation 0.012ha of modified grassland in moderate condition, the creation of 0.011ha of mixed scrub and by planting of 9 additional trees.

Hedgerow

- The baseline hedgerow value of the site is 0.41 units, comprising 0.36 units of species rich native hedgerow and 0.05 units of no native and ornamental hedgerow.
- The post development hedgerow value of the site is 0.41 units, comprising 0.36 units of species rich native hedgerow and 0.21 units of native hedgerow.

- The development results in a +38.19% (i.e. a net grain). This meets the minimum 10% gain required.

Contents

1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Reading Almshouse Charity to undertake a Biodiversity Net Gain (BNG) Assessment at Land adjoining Liberty House, Wokingham, RG6 4EA (hereafter referred to as "the site"). The assessment was required to inform a planning application for the erection of three blocks of housing, each comprising of six apartments with associated ancillary development, hardstanding, landscaping and footpaths. (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
- Preliminary Ecological Appraisal (PEA) report carried out by Arbtech Ltd on the 10th of December 2024.

1.2 Site Location, Geology and Landscape Context

The site is located at National Grid Reference SU 75137 70182 and has an area of approximately 0.226ha. The site is characterised by a frequently mown grassland field. The site is dominated by modified grassland, along the northeastern boundary lies a species rich, native hedgerow, stretching along with southeastern boundary is a line of trees with a small area of bramble scrub and on the southwestern boundary comprises of a non – native hedgerow. The site is located within a urban context, ~5km southeast of Reading city centre. Aerial imagery shows the local landscape surrounding the site is a mosaic of residential properties and a few recreation grounds and parks to the west, north and east of the site and arable land to the south of the site. Parcels of deciduous woodland and coastal and floodplain grazing marsh are located in close proximity to the site, such features likely enhance the area for a variety of species, including bats, amphibians and reptiles. 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) states biodiversity net gain is mandatory for sites over 0.5ha as of February 2024. 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 (PEA) report carried out by Arbtech Ltd on the 10th of December 2024.
A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The PEA 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 Wokingham Borough Council Local Plan.

2.2 Post Development Biodiversity Value

The post development BNG Calculation was informed 213457-Planning Revised Plans -16112021 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 213457-Planning Revised Plans -16112021.

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 Wokingham Borough Council Local Plan

2.3 Limitations

No known limitations.

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 / Length	Description	Condition Assessment	Strategic Significance
Modified grassland, frequently mown - [g4,108]	0.171 ha	The majority of the grassland onsite comprises perennial ryegrass [D] (*Lolium perenne*), cock's foot [R] (*Dactylis glomerata*), cow parsley [F] (*Anthriscus sylvestris*), yarrow [F] (*Achillea millefolium*) and creeping buttercup [D] (*Ranunculus repens*).The height of the grass was extremely short (5cm-7cm) due to frequent mowing and land management. No scrub or bracken is present within the grassland and there is an absence of invasive species. Physical damage to the grassland is estimated at over 5% due to area of green waste made up of dead leaves and grass cuttings on the southern corner of the site.	Poor – See Appendix 5a: Habitat Condition Assessment Sheets.	Low strategic significance – Area/compensation not in local strategy.
Modified grassland, sward type mosaic - [g4,127]	0.043ha	An area of grassland along the southeastern and northeastern boundary of the site is left unmanaged and features additional species of perennial ryegrass [D] (*Lolium perenne*), cock's foot [R] (*Dactylis glomerata*), cow parsley [F] (*Anthriscus sylvestris*), creeping buttercup [F] (*Ranunculus repens*), common ragwort [R] (*Jacobaea vulgaris*), common dandelion [O] (*Taraxacum officinale),* Spear thistle [O] (*Cirsium vulgare*), Yorkshire fog [A] (Holcus lanatus), common nettle [D] (*Urtica dioica*), cleavers [F] (*Galium aparine*), purple dead nettle [R] (*Lamium purpureum*), bitter dock [O] (*Rumex obtusifolius*). This area features a varied sward height and greater species diversity, also with no invasive species recorded. No bare ground or damage was present within this section of the grassland.	Moderate - See Appendix 5a: Habitat Condition Assessment Sheets.	Low strategic significance – Area/compensation not in local strategy.

<table>
<tr><td>Bramble scrub – [h3d]</td><td>0.012 ha</td><td>In the understory of the line of trees on site, lies a small parcel of bramble scrub (Rubus fruticosus), located in the centre on the southeastern boundary of the site. It is predominantly surrounded by modified grassland towards the northwest and a public footpath on the southeast. The other woody species are listed below (line of trees) that are in and adjacent to this area of bramble, the scrub is mixed with a low number of grass species, including perennial ryegrass [D] (Lolium perenne), cock's foot [R] (Dactylis glomerata), cow parsley [F] (Anthriscus sylvestris) and yarrow [F] (Achillea millefolium).</td><td>Poor (No assessment required; condition fixed at poor)</td><td>Low strategic significance – Area/compensation not in local strategy.</td></tr>
<tr><td>Spices-rich, native hedgerow – [h2a5]</td><td>0.027 km</td><td>A species-rich hedgerow is present on the northeastern boundary of the site. Species comprise European beech [D] (Fagus sylvatica), common hawthorn [F] (Crataegus monogyna), blackthorn [O] (Prunus spinosa), European horse-chestnut [R] (Aesculus hippocastanum), common hazel [F] (Corylus avellana), bramble [R] (Rubus fruticosus) and field maple [R] (Acer campestre).</td><td>Good - See Appendix 5a: Habitat Condition Assessment Sheets.</td><td>Medium strategic significance – Location ecologically desirable but not in local strategy.</td></tr>
<tr><td>Non-native and ornamental hedgerow – [h2b]</td><td>0.051 km</td><td>A hedgerow is present on the modified grassland on the southwestern boundary of the site. The hedgerow comprises entirely of laurel [D] (Laurus nobilis).</td><td>Poor (No assessment required; condition fixed at poor)</td><td>Low strategic significance – Area/compensation not in local strategy.</td></tr>
<tr><td>Scattered Trees – [32]</td><td>Moderate area - 0.0122 ha

Good area – 0.0204</td><td>Present on the southeastern boundary of the site are seven scattered trees, these consist of;
<table>
<tr><th colspan="6">Table 2 – Trees within the redline boundary</th></tr>
<tr><th>Tree Reference</th><th>Species</th><th>Height</th><th>DBH (Diameter at breast hight)</th><th>BNG Size</th><th>Condition Assessment</th></tr>
<tr><td>T1</td><td>European ash (Fraxinus</td><td>5m</td><td>250mm in</td><td>Small</td><td>Moderate</td></tr>
</table></td><td>Condition assessments in table 2 and see Appendix 5a: Habitat Condition Assessment Sheets.</td><td>Medium strategic significance – Location ecologically desirable but not in local strategy.</td></tr>
</table>

				excelsior)		diameter			
			T2	European ash (*Fraxinus excelsior)*	6m	150mm in diameter	Small	Moderate	
			T3	Silver Birch (Betula pendula)	4m	7mm in diameter	Small	Moderate	
			T4	Field maple (*Acer campestre*)	9m	270cm in diameter	Small	Good	
			T5	Field maple (*Acer campestre*)	9m	200mm in diameter	Small	Good	
			T6	Field maple (*Acer campestre*)	9m	250mm in diameter	Small	Good	
			T7	Field maple (*Acer campestre*)	9m	150mm in diameter	Small	Good	

			T8	Field maple (*Acer campestre*)	6m	150mm in diameter	Small	Good		

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.

Table 3: Post Development Biodiversity Value

Habitat	Area / Length	Description	Target Condition	Strategic Significance
Buildings – [u1b5]	0.059ha	As shown on the proposed plan.	N/A - Other	Low strategic significance – Area/compensation not in local strategy.
Developed land; sealed surface – [u1b]	0.050ha	As shown on the proposed plan.	N/A - Other	Low strategic significance – Area/compensation not in local strategy.
Modified grassland, frequently mown - [g4,108] - Retained	0.078ha	*As described in Table 1: Baseline Biodiversity Value and PEA.*	Poor – See Appendix 5a: Habitat Condition Assessment Sheets.	Low strategic significance – Area/compensation not in local strategy.
Modified grassland, sward type mosaic - [g4,127] - Retained	0.031ha	*As described in Table 1: Baseline Biodiversity Value and PEA.*	Moderate - See Appendix 5a: Habitat Condition Assessment Sheets.	Low strategic significance – Area/compensation not in local strategy.

<table>
<tr>
<td>Retained Spices-rich, native hedgerow – [h2a5]</td>
<td>0.027 km</td>
<td>As described in Table 1: Baseline Biodiversity Value and PEA.</td>
<td>Good - See Appendix 5a: Habitat Condition Assessment Sheets.</td>
<td>Medium strategic significance – Location ecologically desirable but not in local strategy.</td>
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<tr>
<td>Retained Scattered Trees – [32] - Urban trees.</td>
<td>Moderate area - 0.0122 ha

Good area – 0.0204 ha</td>
<td>Present on the southeastern boundary of the site are seven scattered trees, these consist of;
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<tr><td>T1</td><td>European ash (Fraxinus excelsior)</td><td>5m</td><td>250mm in diameter</td><td>Small</td><td>Moderate</td></tr>
<tr><td>T2</td><td>European ash (Fraxinus excelsior)</td><td>6m</td><td>150mm in diameter</td><td>Small</td><td>Moderate</td></tr>
<tr><td>T3</td><td>Silver Birch (Betula pendula)</td><td>4m</td><td>7mm in diameter</td><td>Small</td><td>Moderate</td></tr>
<tr><td>T4</td><td>Field maple (Acer campestre)</td><td>9m</td><td>270cm in diameter</td><td>Small</td><td>Good</td></tr>
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<td>Condition assessments in table 2 and see Appendix 5a: Habitat Condition Assessment Sheets.</td>
<td>Medium strategic significance – Location ecologically desirable but not in local strategy.</td>
</tr>
</table>

		T5	Field maple (*Acer campestre*)	9m	200mm in diameter	Small	Good		
		T6	Field maple (*Acer campestre*)	9m	250mm in diameter	Small	Good		
		T7	Field maple (*Acer campestre*)	9m	150mm in diameter	Small	Good		
		T8	Field maple (*Acer campestre*)	6m	150mm in diameter	Small	Good		
Urban Tree	0.0326	8 small trees to be planted, as shown in the proposed plan.						Moderate	Medium strategic significance – Location ecologically desirable but not in local strategy.
Native Hedgerow	0.048 km	A length of native hedgerow consisting of species such as hawthorn, blackthorn, hazel elder, dog rose, and travellers joy could be planted.						Good	Medium strategic significance – Location ecologically desirable but not in local strategy.

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.

Area-based Habitat

- The baseline habitat value of the site is 0.94 units, comprising 0.34 units of poor condition modified grassland, 0.17 units of moderate condition modified grassland, 0.05 units of bramble scrub, 0.11 units of moderate condition individual trees and 0.27 units of good condition individual trees.
- The post development habitat value of the site is 0.77 units, 0.16 units of poor condition modified grassland, 0.12 units of moderate condition modified grassland, 0.22 units of moderate condition individual trees, 0.27 units of good condition individual trees and developed land; sealed surface (no value).
- The development results in a -18.19% (i.e. a net loss). This does not meet the minimum 10% gain required.
- A recommended plan has been developed and is shown in **Section 4** that achieves +10.42% gain in habitat units and +38.19% gain in hedgerow units. This involves the enhancement of 0.067ha of modified grassland from poor to moderate condition, the creation 0.012ha of modified grassland in moderate condition, the creation of 0.011ha of mixed scrub and by planting of 9 additional trees.

Hedgerow

- The baseline hedgerow value of the site is 0.41 units, comprising 0.36 units of species rich native hedgerow and 0.05 units of no native and ornamental hedgerow.
- The post development hedgerow value of the site is 0.41 units, comprising 0.36 units of species rich native hedgerow and 0.21 units of native hedgerow.
- The development results in a +38.19% (i.e. a net grain). This meets the minimum 10% gain required.

4.0 Recommendations to Deliver BNG

4.1 Discussion

The current proposed plan results in a -18.19% net loss in habitat units. This is less than the 10% target of biodiversity net gain.

The scenario laid out below will ensure the proposed development meets a minimum of 10% biodiversity net gain. A recommended habitat plan is provided in **Appendix 4b.** An assessment of the anticipated condition for each habitat (where relevant) is provided in **Appendix 5c** (where necessary).

Scenario B - This will achieve +10.42% gain in habitat units and +38.19% gain in hedgerow units. This involves the enhancement of 0.067ha of modified grassland from poor to moderate condition, the creation 0.012ha of modified grassland in moderate condition, the creation of 0.011ha of mixed scrub and by planting of 9 additional trees (table 3: *Post Development Biodiversity Recommendations*)

Table 3: Post Development Biodiversity Recommendations

Habitat	Area / Length	Description	Target Condition	Strategic Significance
Buildings – [u1b5]	0.059ha	As shown on the proposed plan.	N/A - Other	Low strategic significance – Area/compensation not in local strategy.
Developed land; sealed surface – [u1b]	0.050ha	As shown on the proposed plan.	N/A - Other	Low strategic significance – Area/compensation not in local strategy.
Modified grassland, frequently mown - [g4,108] – Retained/enhanced	0.067ha	Enhanced grassland from poor to moderate.	Moderate	Low strategic significance – Area/compensation not in local strategy.
Modified grassland, sward type mosaic - [g4,127] - Retained	0.031ha	*As described in Table 1: Baseline Biodiversity Value and PEA.*	Moderate - See Appendix 5a: Habitat	Low strategic significance –

<table>
<tr><td></td><td></td><td></td><td>Condition Assessment Sheets.</td><td>Area/compensation not in local strategy.</td></tr>
<tr><td>Retained Species-rich, native hedgerow – [h2a5]</td><td>0.027 km</td><td>As described in Table 1: Baseline Biodiversity Value and PEA.</td><td>Good - See Appendix 5a: Habitat Condition Assessment Sheets.</td><td>Medium strategic significance – Location ecologically desirable but not in local strategy.</td></tr>
<tr><td>Retained Scattered Trees – [32] - Urban trees.</td><td>Moderate area - 0.0122 ha

Good area – 0.0204 ha</td><td>Present on the southeastern boundary of the site are seven scattered trees, these consist of;
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<tr><td>T4</td><td>Field maple (Acer campestre)</td><td>9m</td><td>270cm in diameter</td><td>Small</td><td>Good</td></tr>
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		T5	Field maple (*Acer campestre*)	9m	200mm in diameter	Small	Good		
		T6	Field maple (*Acer campestre*)	9m	250mm in diameter	Small	Good		
		T7	Field maple (*Acer campestre*)	9m	150mm in diameter	Small	Good		
		T8	Field maple (*Acer campestre*)	6m	150mm in diameter	Small	Good		
Native Hedgerow	0.048 km	A length of native hedgerow consisting of species such as hawthorn, blackthorn, hazel elder, dog rose, and travellers joy could be planted. As shown on the proposed plan.						Good	Medium strategic significance – Location ecologically desirable but not in local strategy.
Created Modified Grassland	0.012ha	To replace the area of bramble being removed.						Moderate	Low strategic significance – Area/compensation not in local strategy.
Urban Tree	0.0692	8 small trees to be planted, as shown in the proposed plan and to make a net gain, 9 additional trees could be incorporated into the landscape.						Moderate	Medium strategic significance – Location ecologically desirable but not in local strategy.
Created Bramble Scrub	0.011ha	A small area of mixed bramble scrub is needed to make a net gain on the site.						Moderate	Low strategic significance – Area/compensation not in local strategy.

In order to achieve the required minimum 10% net gain in biodiversity as a result of the proposed development, the provision of additional or alternative landscaping should be explored and the proposed plans amended accordingly to either achieve a 10% net gain on site or to reduce off-site compensation requirements that may be required to achieve a 10% net gain.

4.2 Landscaping

To maximise the biodiversity value of the site itself, the following alterations to the current landscaping proposals could be considered:

Modified grassland Enhancement

0.067ha of grassland could be set aside and appropriately managed in order to elevate its condition to **Moderate**. To achieve moderate condition, the grassland must meet the following criteria:

- A high level of characteristic indicator species will be implemented.
- Sward height will be allowed to vary above and below 7cm. This can be achieved with rotational mowing.
- Bare ground will be reseeded.
- Scrub coverage kept below 20%.
- Invasive species are to remain absent
- Target species count per m^2 will be 10 or above.

Additional tree planting

9 additional tree will be planted within the retained and enhanced areas of modified grassland. Species recommended include: Ash (*Fraxinus excelsior*), Birch (*Betula pendula*), Hazel (*Corylus avellana*), Rowan (Sorbus aucuparia), Cherry (Prunus avium) and Elder (Sambucus nigra).

Should these alterations be incorporated this BNG Assessment will need to be updated to accurately reflect the change in biodiversity value of the site pre- and post-development.

Native hedgerow

To obtain moderate condition, a hedgerow must have no more than 4 failures in total and does not fail both attributes in more than one functional group of the hedgerow condition assessment. The species used must be native, and can include species such as hazel, hawthorn, blackthorn, elder and field maple.

4.3 Biodiversity Offsetting

If the landscaping plans are not altered or if the above alterations still do not deliver a 10% net gain, the deficit will need to be delivered in a suitable offsite location i.e. biodiversity offsetting.

According to the Defra Statutory Biodiversity Metric there is a unit deficit of 0.26 habitat units and this will need to be provided to offset the loss in biodiversity and achieve a 10% biodiversity net gain.

The mechanism for securing this off-setting will need to be proposed to, and confirmed by the LPA e.g., purchasing conservation credits though a registered provider, habitat creation directly through the client owned or LPA offered land or a financial contribution towards another provider such as a local nature reserve or park. As well as the creation of new habitats, this should also secure the management of the proposed habitats to help achieve the desired condition for at least 30 years. This would be linked to the application through a planning obligation Section 106 (S106) agreement. The proposed habitat compensation should be of an appropriate distinctiveness to meet the trading rules of BNG. An ecology survey of the baseline habitat of any off-site land will be required to inform the baseline conditions of any land subject to off-site compensation measures.

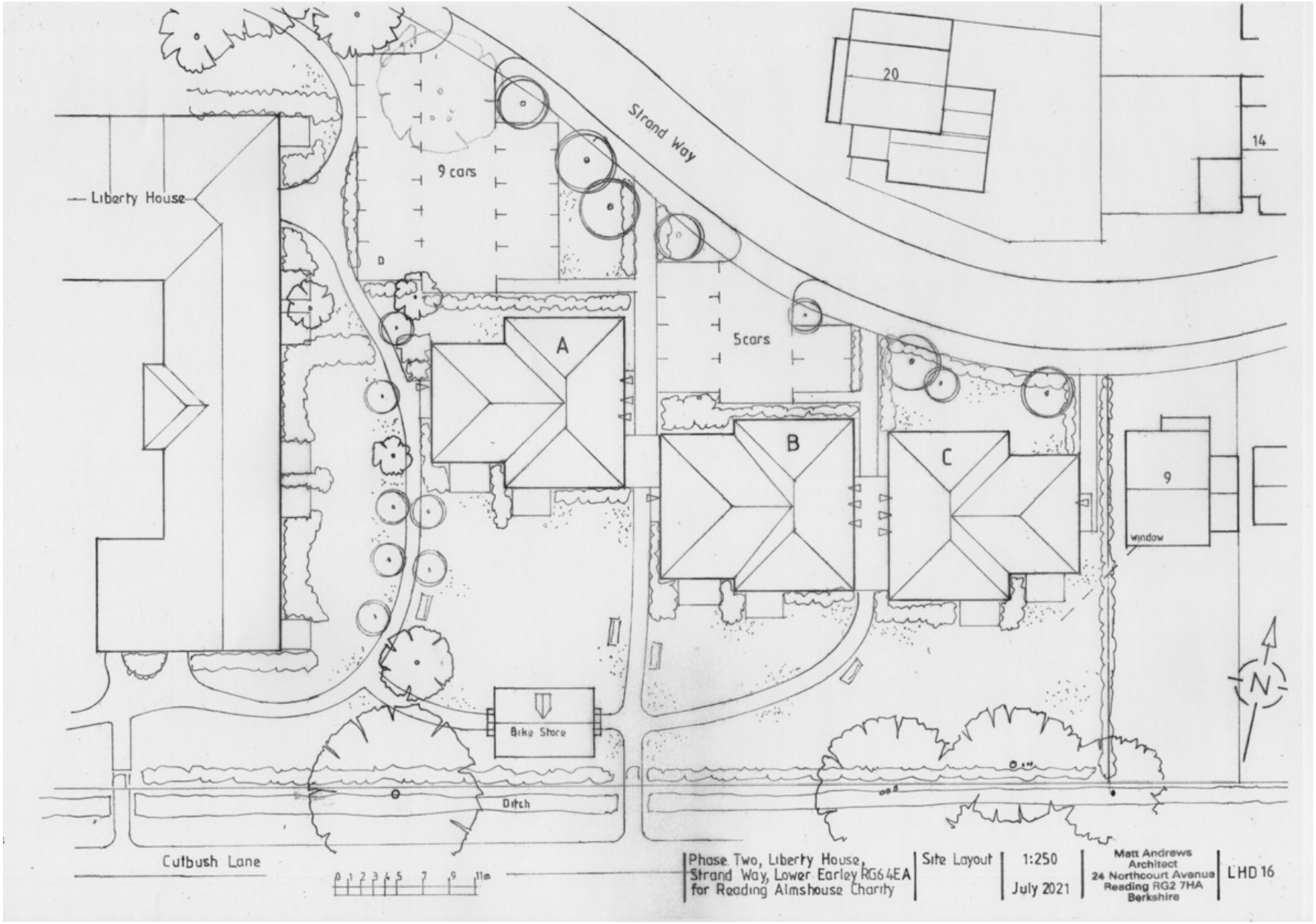
4.4 Post Development

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 4b: Recommended Post Development Plan

Appendix 5a: Habitat Condition Assessment Sheets - Baseline

Modified grassland, frequently mown - [g4,108]					
Condition Assessment Criteria		**Criterion passed (Yes or No)**	**Condition Assessment Result**	**Metric Score**	**Score Achieved ×/✓**
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.**	N	**Good** Passes 6 or 7 criteria including passing essential criterion A	3	
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 vertebrates and invertebrates to live and breed.	N	**Moderate** Passes 4 or 5 criteria including passing essential criterion A	2	
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present).	Y	**Poor** Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	1	✓
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y	**Score achieved:**		POOR
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Y			
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y			
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Y			

Modified grassland, sward type mosaic - [g4,127]					
Condition Assessment Criteria		**Criterion passed (Yes or No)**	**Condition Assessment Result**	**Metric Score**	**Score Achieved ×/✓**
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.**	Y	**Good** Passes 6 or 7 criteria including passing essential criterion A	3	
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 vertebrates and invertebrates to live and breed.	Y	**Moderate** Passes 4 or 5 criteria including passing essential criterion A	2	✓
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present).	N	**Poor** Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	1	
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	N	**Score achieved:**		MODERATE
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Y			
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y			
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Y			

Attributes and functional groupings (A, B, C, D and E)		Spices-rich, native hedgerow – [h2a5] Criteria - the minimum requirements for 'favourable condition'	Criterion passed (Yes or No)	Condition Assessment Result	Metric Score	Score Achieved ×/✓
Core groups - applicable to all hedgerow types						
A1.	Height	>1.5 m average along length	Y	Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	✓
A2.	Width	>1.5 m average along length	N	Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	Y	Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	N	Score Achieved:		**GOOD**
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	Y			
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	Y			
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Y			
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	Y			

Condition Assessment Criteria – Individual Trees						Condition Assessment Result	Metric Score	Score Achieved ×/✓
		T1	**T2**	**T3**	**T4-T8**	Good Passes 5 or 6 criteria	3	✓
A	The tree is a native species (or at least 70% within the block are native species).	Y	Y	Y	Y			
B	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).	N	N	N	Y	Moderate Passes 3 or 4 criteria	2	✓
						Poor Passes 2 or fewer criteria	1	✓
C	The tree is mature (or more than 50% within the block are mature)[1].	Y	Y	N	Y	**Score achieved:**		
D	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.	N	Y	Y	Y			
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N	N	N	N			
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	Y	Y	Y			
Number of criteria passed		3 - Mod	4 - Mod	3 - Mod	5 - Good			

Appendix 5a: Habitat Condition Assessment Sheets – Post Development

Condition Assessment Criteria – All new individual trees.			Condition Assessment Result	Metric Score	Score Achieved ×/✓
			Good Passes 5 or 6 criteria	3	
A	The tree is a native species (or at least 70% within the block are native species).	Y			
B	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).	N	Moderate Passes 3 or 4 criteria	2	✓
			Poor Passes 2 or fewer criteria	1	
C	The tree is mature (or more than 50% within the block are mature)[1].	N	**Score achieved:**	**Moderate**	
D	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.	Y			
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N			
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y			
Number of criteria passed		3 - Mod			

Attributes and functional groupings (A, B, C, D and E)		Spices-rich, native hedgerow – [h2a5] Criteria - the minimum requirements for 'favourable condition'	Criterion passed (Yes or No)	Condition Assessment Result	Metric Score	Score Achieved ×/✓
Core groups - applicable to all hedgerow types						
A1.	Height	>1.5 m average along length	Y	Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	✓
A2.	Width	>1.5 m average along length	N	Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	Y	Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	N	Score Achieved:		**GOOD**
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	Y			
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	Y			
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Y			
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	Y			

Enhanced modified grassland – From poor to Moderate					
Condition Assessment Criteria		**Criterion passed (Yes or No)**	**Condition Assessment Result**	**Metric Score**	**Score Achieved ×/✓**
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.**	Y	**Good** Passes 6 or 7 criteria including passing essential criterion A	3	
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 vertebrates and invertebrates to live and breed.	Y	**Moderate** Passes 4 or 5 criteria including passing essential criterion A	2	✓
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present).	N	**Poor** Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	1	
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	N	**Score achieved:**		MODERATE
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Y			
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y			
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Y			

Appendix 6: Headline BNG Results without Recommendations

FINAL RESULTS			
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	-0.17	
	Hedgerow units	0.16	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	-18.19%	Total net gain achieved is less than target set ▲
	Hedgerow units	38.19%	
	Watercourse units	0.00%	
Trading rules satisfied?	No - Check Trading Summaries ▲		

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	0.94	1.03	0.26	
Hedgerow units	10.00%	0.41	0.45	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 ✓

Appendix 6b: Headline BNG Results of Recommended Plan

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.10
	Hedgerow units	0.16
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	10.42%
	Hedgerow units	38.19%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	0.94	1.03	0.00	No additional area habitat units required to meet target ✓
Hedgerow units	10.00%	0.41	0.45	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 ✓

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

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