245 Barton Road, Comberton

BNG

Report for NP Architects

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Contents

Summary of Key Findings

Ligna Consultancy Ltd was commissioned by NP Architects in December 2023, to produce a Biodiversity Net Gain (BNG) Assessment to accompany a planning application for the development at 245 Barton Road, Comberton (henceforth referred to as 'the site'). The main findings are as follows:

- The site comprised a garage and garden of the adjacent residential property.
- The site is not subject to any statutory or non-statutory nature conservation designations. No statutory designated sites are located within 500m of the site.
- The current biodiversity value of the site was calculated as 1.7010 habitat area units and 0.1360 watercourse units. No linear habitats were present.
- The current proposals on site comprise the construction of a new residential property on site with associated hardstanding and landscaping. The biodiversity value of the current landscaping proposals, including retained and enhanced habitat is predicted to be 1.8939 habitat area units, 0.2109 linear units and 0.1950 watercourse units.
- Overall, across the planned development there is a net increase of 0.1929 habitat area units, 0.2109 linear units, and 0.0590 watercourse units resulting in a net percentage change of +11.34% for habitat area units and 43.46% for watercourse units. A percentage increase in linear units cannot be calculated as the baseline is 0.
- Recommendations for site management are detailed in Section 5 of this report.

1 Introduction

BACKGROUND TO COMMISSION

1.1 Ligna Consultancy Ltd was commissioned by NP Architects in December 2023 to produce a Biodiversity Net Gain (BNG) Assessment, to demonstrate the change in biodiversity value of the site as a result of the proposed development at 245 Barton Road, Comberton. This assessment provides specialist advice on how the proposed works will impact biodiversity, including identification of opportunities for net gain.

SCOPE OF REPORT

1.2 This report has been written to assess the potential impact of the proposed development on biodiversity, and whether the proposed plans will meet the target of a net gain for biodiversity. In line with current best practice (Natural England, 2023), this is specifically in relation to the habitats present.

1.3 This assessment has been completed in line with the established mitigation hierarchy (as set out in BS42020:2013 and CIEEM, 2019), whereby impacts are first avoided, then mitigated or reduced and, as a last resort, compensated for.

1.4 Recommendations for creating new habitats on site to meet the target for biodiversity net gain are provided where required. Net gains are those that are additional to measures required to mitigate for identified impacts.

SITE CONTEXT AND STATUS

1.5 The proposed development site is approximately 0.10 hectares (ha) in size and is centred on Ordnance Survey National Grid reference TL 39515 56296 and is located in the village of Comberton. The area immediately surrounding the site comprises residential properties.

1.6 The site comprised a garage and garden of the adjacent residential property.

DEVELOPMENT PROPOSALS

1.7 Development proposals include the construction of a new residential property with associated driveway and landscaping.

2 Planning Policy

NATIONAL PLANNING POLICY

2.1 The revised National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021) requires local authorities to contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity. To protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

2.2 The Environment Bill was passed into law in November 2021, becoming the Environment Act 2021 (Environment Act, 2021). The Environment Act 2021 aims to halt the decline of nature by 2030, mandates Biodiversity Net Gain for developments in England only and is likely that it will become law in 2023 upon implementation of secondary legislation.

2.3 This section does not provide further detail on the Environment Act 2021 as secondary legislation, through which it will be implemented, has not been determined and it remains to be seen how and when the various elements will be enacted at a national and local level.

LOCAL PLANNING POLICY

2.4 The following local planning policies from the South Cambridgeshire Local Plan (South Cambridgeshire District Council, 2018) have been considered during the BNG assessment.

Policy NH/4: Biodiversity

2.5 Development proposals where the primary objective is to conserve or enhance biodiversity will be permitted.

2.6 New development must aim to maintain, enhance, restore or add to biodiversity. Opportunities should be taken to achieve positive gain through the form and design of development. Measures may include creating, enhancing and managing wildlife habitats and networks, and natural landscape. The built environment should be viewed as an opportunity to fully integrate biodiversity within new development through innovation. Priority for habitat creation should be given to sites which assist in the achievement of targets in the Biodiversity Action Plans (BAPs) and aid delivery of the Cambridgeshire Green Infrastructure Strategy.

2.7 If significant harm to the population or conservation status of a Protected Species, Priority Species or Priority Habitat resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.

2.8 Where there are grounds to believe that a proposal may affect a Protected Species, Priority Species or Priority Habitat, applicants will be expected to provide an adequate level of survey information and site assessment to establish the extent of a potential impact. This survey information and site assessment shall be provided prior to the determination of an application.

2.9 Previously developed land (brownfield sites) will not be considered to be devoid of biodiversity. The reuse of such sites must be undertaken carefully with regard to existing features of biodiversity interest. Development proposals on such sites will be expected to include measures that maintain and enhance important features and appropriately incorporate them within any development of the site.

2.10 Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, such as ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.

2.11 Climate change poses a serious threat to biodiversity and initiatives to reduce its impact need to be considered.

3 Methodology

BIODIVERSITY NET GAIN CALCULATION

3.1 The Biodiversity Net Gain Assessment has been based on the Biodiversity Net Gain Good Practice Principals for development (Baker *et al*., 2019), and The Small Sites Metric Statutory Biodiversity Metric - Draft User Guide (Natural England, 2023b), and calculated using the Small Sites Metric Statutory Biodiversity Metric Calculation Tool (Natural England, 2023a). Using this approach, the value of a site is quantified in Biodiversity Units, calculated based on extent and quality of the habitats present.

3.2 Habitat biodiversity unit scores are influenced by:

- distinctiveness - the rarity and importance of the habitat to biodiversity at a national scale;
- condition - the quality of a habitat at a point in time based on management, disturbance and other environmental factors; and
- strategic significance - whether the location of the development has been identified locally as significant for nature.

3.3 The distinctiveness, condition, and connectivity are automatically scored within the Small Sites Metric Statutory Biodiversity Metric Calculation Tool (Natural England, 2023a). Information on strategic significance is obtained through strategic documents for biodiversity such as supplementary planning documents, green infrastructure plans, nature recovery strategies, biodiversity opportunity areas, biodiversity action plans and local wildlife sites.

3.4 The factors listed above are attributed numerical scores and multiplied by the extent of the habitat in square metres (m^2) (with the area obtained from mapping software QGIS) to calculate the Biodiversity Unit score for each habitat parcel.

3.5 Linear habitats, including hedgerows, are assessed separately to those that represent areas. Instead of area measures, these habitats are measured in length (metres). Measurements are obtained from QGIS. The number of units are calculated in the same way to habitats areas, multiplying the length by weighted scores for distinctiveness, condition, connectivity and strategic importance.

3.6 When calculating Biodiversity Units for proposed habitats, negative multipliers are also implemented to account for difficulty factors associated with habitat establishment, temporal

delays and off-site risk. These are automatically scored within the Small Sites Statutory Metric Calculation Tool (Natural England, 2023a).

3.7 The information provided by a site walkover on 9th January 2024 has been used to inform the assessment for habitats present prior to the development, and information provided by the design team and client has been used to inform the assessment of habitats proposed.

ASSUMPTIONS AND LIMITATIONS

3.8 Habitats to be created on site are accounted for in the UK Habitat Classification System (UKHab Ltd, 2023). Professional opinion has informed this process to ensure that the calculator presents a realistic picture pre and post development.

3.9 This assessment is based upon the latest soft landscaping scheme (Ligna Consultancy, 2023c) which may be subject to change prior to the planning process. Should changes occur, the Biodiversity Net Gain calculation and report would need to be updated.

4 Baseline conditions and on-site compensation

EXISTING SITE

On-site habitats

4.1 The site was assessed as having a no strategic significance as the site was not located within a strategic area as per South Cambridgeshire Local Plan 2018 Policies Map.

4.2 The site comprised buildings (UKHab code u1b5), hard standing (UKHab code u1b), vegetated garden (UKHab code u1, secondary code 231) and trees (secondary code 32). As per The Small Sites Metric Statutory Biodiversity Metric - Draft User Guide (2023) any small trees within the vegetated garden have not been included within the baseline calculations. These habitats are shown in Appendix 1, Figure 1. Baseline habitat values have been calculated for the same area as the proposals shown in the soft landscaping scheme (Ligna Consultancy, 2024c).

Baseline Calculation

4.3 The biodiversity value of the habitats on site prior to construction (baseline) is shown in Table 4.1 and 4.2 below. As per the Small Sites Metric Statutory Biodiversity Metric User Guide (Natural England, 2023a) the small trees (diameter at breast height of less than 30cm) have not been included in the calculations. Full details of the calculations can be found within the Small Sites Metric Statutory Biodiversity Metric Calculation Tool spreadsheet (Ligna Consultancy Ltd, 2023b).

4.4 Accordingly, the biodiversity value of the site prior to development has been calculated as 1.7012 total habitat units and 0.1360 watercourse units.

Table 4.1. Biodiversity unit score prior to development - area

Habitat	Strategic Significance	Area (m^2)	Biodiversity Unit
Urban – developed land; sealed surface including buildings	Area not in local strategy	142	0.0000
Urban – vegetated garden	Area not in local strategy	830	0.1660
Trees	Area not in local strategy	1668	1.5350
		Total	1.7010

Table 4.1. Biodiversity unit score prior to development - length

Habitat	Length (m)	Targeted condition	Strategic Significance	Biodiversity Unit
Ditch	17	Poor	Area not in local strategy	0.1360
			Total	0.1360

ENSURING BIODIVERSITY NET GAIN THROUGH COMPENSATION

4.5 The current soft landscaping scheme, presented in the latest figures provided by Ligna Consultancy (2023c) (Appendix 2, Figure 1), include the construction of a residential property on site with associated hardstanding and landscaping. Although the Small Sites Metric Statutory Biodiversity Metric - Draft User Guide states "you cannot count newly planted trees within private gardens" the new tree planting within private gardens have been included in the metric as their retention can be guaranteed vial legal means (legal covenant or TPO), unlike with other 'urban vegetated garden' classifications. Therefore, deviation from the standard guidance is considered acceptable, as the legal protection of the trees will secure ecological enhancement on-site and also contribute towards the local tree canopy cover.

Post-development Calculation

4.6 A calculation has been provided to determine the biodiversity value for the proposed habitat areas at the site as shown in Tables 4.3 and 4.4 below, details of the proposed habitats and recommendations are provided in Section 5.

4.7 The biodiversity units provided on site by the created and retained habitat areas in the current landscaping plans is 1.8939 area units, 0.2109 linear units and 0.1950 watercourse units. This calculation is shown in full in the Small Site Metric Statutory Biodiversity Calculation Tool spreadsheet (Ligna Consultancy Ltd, 2023b).

4.8 The calculations are based on the ditch being retained as part of the proposed plans, with the driveway placed over the ditch rather than culverting the ditch.

4.9 As such, the proposed development is predicted to result in a net gain in biodiversity of 0.1929 habitat area units, 0.2109 linear units, and 0.0590 watercourse units resulting in a net percentage change of +11.34% for habitat area units and +43.46% watercourse units. A percentage increase of linear units cannot be calculated as the baseline was 0.

Table 4.3. Biodiversity unit score post-development based on current landscape plans[1] - area

Habitat	Area (m^2)	Targeted condition	Strategic Significance	Biodiversity Unit
Urban – developed land; sealed surface including buildings	452	N/A	Area not in local strategy	0.0000
Urban – vegetated garden	515	N/A	Area not in local strategy	0.0994
Green roof	5	N/A	Area not in local strategy	0.0010
Green wall	45	Moderate	Area not in local strategy	0.0106
Tree (retained and newly planted)	1791 (newly planted) + 1343 (retained)	N/A	Area not in local strategy	1.7829
			Total (including retained trees)	1.8939

Table 4.4. Biodiversity unit score post-development based on current landscape plans – linear and watercourse lengths

Habitat	Length (m)	Targeted condition	Strategic Significance	Biodiversity Unit
Native species hedge	63	Moderate	Area not in local strategy	0.2109
Ditch (enhanced)	17	Moderate	Area not in local strategy	0.1950

[1] Where Biodiversity Units do not add up to the exact total score, this is due to a rounding artifact and how urban trees are included within the total score. Scores presented here are the same as presented in the calculator

5 Discussion and Recommendations

5.1 The below elements should be included within the final landscaping design with the aim of ensuring that the proposed habitats reach their target condition score and together result in a biodiversity net gain.

5.2 A Landscape Ecological Management Plan (LEMP) should be drawn up to cover the creation and long-term maintenance of on-site habitats. This should form part of the contractual agreement for the future management of the site, including detailed prescriptions for the outline measures set out below. This will also ensure that the habitats created on site will be locally relevant, ecologically functional and contribute to ecosystem services, where possible.

OUTLINE MANAGEMENT REQUIREMENTS

All habitats

5.3 The management plan should set out the methods for planting and creation of habitats and mechanisms for monitoring and remedial action, for the duration of the management plan. This should not be restricted to the establishment period, but should be a long-term commitment, typically for at least 30 years. Mechanisms for funding will need to be agreed and implemented to ensure the appropriate ongoing management to deliver meaningful biodiversity benefits.

Trees

5.4 Eleven trees are proposed on site. The management plan should include details of methods for planting, monitoring and maintenance of the trees to ensure the trees meet the required size within the duration of the plan. In order to deliver the proposed habitats and maintain them in the condition required to achieve the biodiversity value determined above, the trees will be a native species. The tree canopies should be predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5m wide where possible. The management regime should encourage micro habitat sites for birds, mammals and insects e.g. presence of deadwood, cavities, loose bark etc, and the tree should be immediately adjacent to other vegetation, and tree canopies must be oversailing vegetation beneath.

Native hedgerow

5.5 A total of 65m of native hedgerow are proposed for site. For native hedges the targeted condition is at least moderate and therefore the hedgerow needs to meet at least four of the

following criteria, and does not fail both attributes in more than one functional group e.g. fails attributes A1 *and* A2:

- A1: >1.5m average height;
- A2: >1.5m average width;
- B1: <0.5m gap at the base of the hedge;
- B2: gaps comprising <10% of the total length of the hedge;
- C1: >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of the length;
- C2: plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground;
- D1: lack of invasive and neophyte species; and
- D2: >90% of hedgerow undisturbed ground is free of damage caused by human activities.

5.6 The management plan should include details of methods for planting, monitoring and maintenance of the hedgerow to ensure the hedgerow meets the required condition within the duration of the plan.

Green roof

5.7 A minimum condition does not need to be met for the green roof but in order to enhance the area as much as possible the following measures could be included within the design:

- Varied vegetation structure, 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;
- 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;
- The absence of invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Green wall

5.8 In order to deliver the proposed condition for the green wall (moderate) at least two of the criteria listed in the green roof section above need to be met.

Ditch enhancement

5.9 In order to deliver the proposed biodiversity targets the condition of the ditch on site must be increased from poor to moderate. In order to meet the targeted moderate condition at least six of the following criteria must be met:

- The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution;
- A range of emergent, submerged and floating-leaved plans are present. As a guide >10 species of emergent, floating or submerged plants present;
- Less than 10% cover of filamentous algae and/or duckweed *Lemna sp.;*
- A fringe of aquatic marginal vegetation present along more than 75% of the ditch;
- Physical damage is evident along less than 5% of the ditch, with examples of damage including: excessive poaching, damage from machinery use or storage, or any other damaging management activities;
- Sufficient water levels maintained – as a guide a minimum summer depth of approximately 50cm in minor ditches and 1m in main drains;
- Less than 10% of the ditch is heavily shaded;
- There is an absence of non-native plant and animal species.

Vegetated gardens

5.10 Under current proposals the gardens will comprise lawn and shrubs. A specific condition does not need to be met for these areas. However, good horticultural practice should be followed, as detailed below.

Wildlife Planting

5.11 Current proposed landscaping plans on site include areas of shrub planting. It is recommended that wildlife planting should be integral to the soft landscape plans and should include native

species and/or species of recognised value to wildlife. The Royal Horticultural Society (RHS) provides lists of such species[2]. The use of nectar-rich and berry producing plants will attract a wider range of insects, birds and mammals and continue to accommodate those already utilising the site. Where possible, larger shrubs should be under-planted to create greater structure and cover for wildlife. The use of block planting of single species should be avoided in favour of a higher diversity of plant types per square metre.

Good Horticultural Practice

5.12 It is recommended that sustainable horticultural practices are employed to minimise off-site ecological impacts. These include:

- all native plant material should be sourced from suppliers who have adopted Flora Locale's (2012) Code of Practice for collectors, growers and suppliers of native flora;
- avoidance of the use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended);
- the use of peat-free composts and soil conditioners to reduce the loss of important peat bogs;
- feeding of plants using organic based fertilisers and improving the soil structure by incorporating organic material, preferably composted municipal waste;
- the use of drought tolerant plants and mulches to reduce evaporation and the amount of mains water needed for horticulture; and

5.13 Minimising the use of pesticides (herbicides, insecticides, and fungicides) to prevent cumulative fatal effects to animals via the food chain. Where use is unavoidable, non-residual chemicals should be applied.

[2] For example The Royal Horticultural Society (RHS) Plants for Pollinators Scheme https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators

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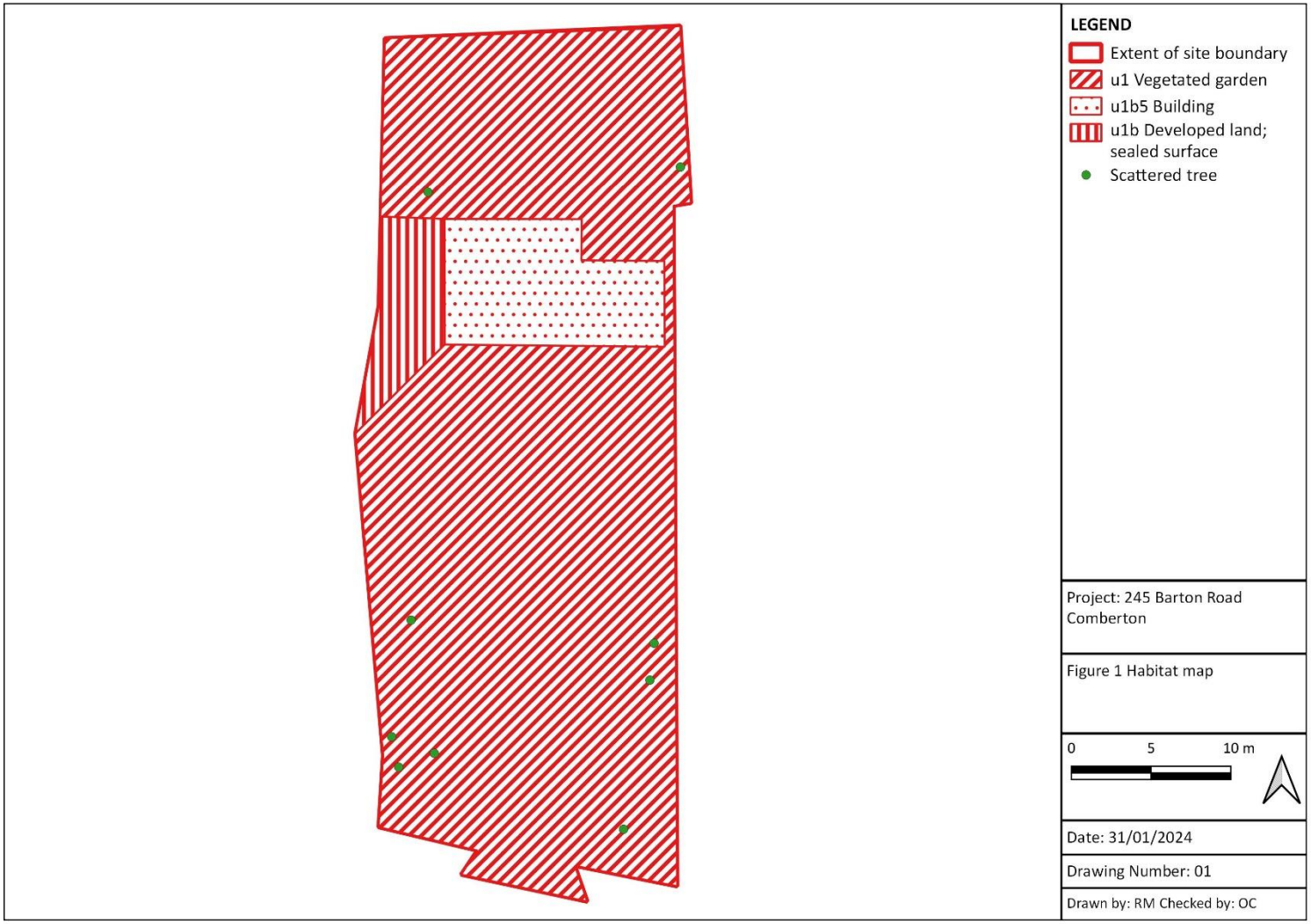
Appendix 1 : Habitat map

Figure 1: Habitat Map



Appendix 2: Proposed landscape plans

Figure 1: Proposed Landscaping Plans (Ligna Consultancy, 2024c)