



Biodiversity Net Gain Assessment

St Bedes Inter Church School, Birdwood Road, Cambridge

CB1 3TD

St Bedes Inter Church School

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Design statement

This report contains recommendations on measures for achieving BNG. These recommendations do not constitute a design for BNG. In submitting these recommendations, Arbtech Consulting has no Design Liability associated with these recommendations for BNG. The strategy sets out the criteria which the landscape team can use to design the creation and management of the site.

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

The baseline habitat value of the site is 1.76 units, comprising Modified Grassland, Mixed scrub, Ruderal/Ephemeral, Urban trees.

The post development habitat value of the site is 2.06 units, comprising the retention and creation of developed land; sealed surface, other neutral grassland, mixed scrub, other woodland; broadleaved, vegetated garden and urban trees.

This results in a net **GAIN** in biodiversity of 16.82% which succeeds in meeting the 10% minimum target.

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1.0 Introduction and Context

Arbtech Consulting Limited was instructed by St Bedes Inter Church School to undertake a Biodiversity Net Gain (BNG) Assessment at St Bedes Inter Church School, Birdwood Road, Cambridge CB1 3TD (hereafter referred to as “the site”). The assessment was required to inform a planning application to Cambridge City Council for the development of a new music school building, which will connect to one elevation of the existing canopy on the western elevation of B1, with associated landscaping in the form of a complex of two attenuation ponds set within mixed native scrub and neutral grassland under a relaxed mowing regime (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/ (Arbtech, 2023).
- PEA/Survey Report for the site (Arbtech, 2023). Note the PEA encompasses the blue line boundary of the entire site, whereas this report focuses on the red line boundary associated with the proposed development.

1.2 Site Location, Geology and Landscape Context

The site is located at National Grid Reference TL 47816 56955 and has an area of approximately 10.3ha comprising school buildings with associated hard standing ground, car park, sports field and a small, wooded area. Although the entire site consists of 10.3ha, the proposed development will involve approximately 0.033ha of ground. It is directly surrounded by an allotment to the west, a footpath and river to the north and residential houses and a road to the east and south. The wider landscape comprises Burnside Fishing Lakes ~25m north of site which is bordered by trees and a railway line which is present ~205m north of site. There are residential dwellings to the east, west and south, with the city of Cambridge situated to the north-west of 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). Furthermore, according to the Policy Review of the Adopted Local Plans for Greater Cambridge June 2023 a 20% minimum uplift in BNG will be a requirement of linked policy BG/BG: Biodiversity and geodiversity in the emerging Greater Cambridge Local Plan. Delete

if BNG not referenced in Local Plan. Under the Environment Act 2021, most development will be required to deliver a minimum biodiversity net gain of 10% from November 2023. At an Oxford-Cambridge Partnership level the authorities have agreed a set of Environmental Principles which include the aims of doubling the area of land managed primarily for nature, and also to deliver a minimum 20% biodiversity net gain on development sites. These ambitions, together with the relatively low level of designated sites and priority habitats in Greater Cambridge, highlight the need for development to bring further net gains beyond the 10% proposed nationally. This will be addressed in the emerging Greater Cambridge Local Plan.

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 a Preliminary Ecological Appraisal (PEA) (Arbtech 2023). A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The PEA classified the habitats on site according to UKHabs v2.0 (UKHabs Ltd, 2023) using the 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 **emerging Greater Cambridge Local Plan based on existing allocations and extant planning permissions from the 2018 Local Plans for Cambridge and South Cambridgeshire.**

2.2 Post Development Biodiversity Value

The post development BNG Calculation was informed by Landscaping (90)003 (Eddisons, 2023) 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 1.0 (The UK Habitat Classification Working Group, May 2018) and the information provided within the **Landscaping (90)003 (Eddisons, 2023)**

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 emerging Greater Cambridge Local Plan and any existing within the 2018 Local Plans for Cambridge and South Cambridgeshire.

2.3 Limitations

No specific limitations known.

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. Full details of habitats on site are presented in the PEA (Arbtech, 2023).

Table 1: Baseline Biodiversity Value

Habitat	Area / Length (ha km)	Area retained	Description	Condition Assessment	Strategic Significance
Modified Grassland	0.264	0.168	<p>The majority of the site consists of open green space, which comprises of regularly mown grassland. The majority of this habitat is used as a sports field, playing field and for educational purposes. The grass sward length is ~3cm. Species include perennial rye grass (D), wall barley (A) with dandelion (F), ribwort plantain (F), white clover (O) and selfheal (O). Other species are present around the site which include ragwort (A), creeping thistle (A), bristly oxtongue (A) and daisy (F).</p> <p>The Habitat Condition Assessment for grassland on site as a whole resulted in a “<i>moderate</i>” score, passing criteria A, C, D, F & G.</p>	Moderate	Location ecologically desirable but not in local strategy
Ruderal/Ephemeral	0.104	0.00	<p>Tall ruderal vegetation is present on the northern edge of the woodland which will be replaced with a retention pond and other neutral grassland. The Habitat Condition Assessment for tall ruderal vegetation on site resulted in a “<i>moderate</i>” score, with A and B passing criteria.</p>	Moderate	Location ecologically desirable but not in local strategy
Urban trees	0.016	0.012	<p>4 small trees including 1 to be removed.</p> <p>There are scattered trees around the site which include small leaved lime, whitebeam, rowan, silver birch, field maple, cedar, plum. The Habitat Condition Assessment for scattered trees on site resulted in a “<i>moderate</i>” score, with A,B,D, and F passing criteria.</p>	Moderate	Location ecologically desirable but not in local strategy

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 in Appendix 5b, which is based on the assumption that a 30-year management plan will be implemented for the site, as managed by the site team. The proposed development will result in the loss of the ruderal vegetation, which will be replaced with other neutral grassland similar to that present in the wildlife area. There will also be a loss of some neutral grassland from the playing field.

Table 2: Post Development Biodiversity Value

Habitat	Area / Length retained (ha/km)	Area / Length created (ha/km)	Description	Target Condition	Time to reach target	Strategic Significance
Developed land; sealed surface	N/A	0.024	New music block and associated hard standing	N/A - Other	0	Location ecologically desirable but not in local strategy
Other neutral grassland	N/A	0.096	Areas to be reseeded around new building post development	Moderate	5	Location ecologically desirable but not in local strategy
Mixed scrub	N/A	0.007	Additional native scrub around pond. Species include Red Barrenwort (<i>Epimedium Rubrum</i>), Golden Creeping Jenny (<i>Aurea</i>), Lesser Periwinkle (<i>Vinca Minor</i>), Apple Blossom (<i>Escallonia</i>).	Moderate	5	Location ecologically desirable but not in local strategy
Ponds (non-priority habitat)	N/A	0.013	A new surface water retention pond in former scrub area.	Moderate	3	Location ecologically desirable but not in local strategy
Modified Grassland	N/A	0.084	Ruderal area to be replaced with modified grassland under relaxed mowing regime.	Moderate	5	Location ecologically desirable but not in local strategy
Urban tree	0.012	0.036	8 new small trees around pond will comprise of ornamental cherry, downy birch, swamp cypress and common alder.	Poor	27	Location ecologically desirable but not in local strategy

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 1.76 units, comprising Modified Grassland, Mixed scrub, Ruderal/Ephemeral, Urban trees.

The post development habitat value of the site is 2.06 units, comprising the retention and creation of developed land; sealed surface, other neutral grassland, mixed scrub, other woodland; broadleaved, vegetated garden and urban trees.

This results in a net **GAIN** in biodiversity of 16.82%

4.0 Recommendations to Deliver BNG

4.1 Discussion

The current proposed plan results in a 16.82% net **GAIN** in habitat units. This **MEETS** the 10% mandatory target.

4.2 Landscaping

The landscaping proposals and management plan should consider the following:

- Enhancements to existing grassland with areas of relaxed mowing aiming to create a “good” quality version of other neutral grassland.
- Avoid non-native species and ornamental cultivars. Use locally characteristic native species.
- The management plan should contain higher level detail as to species mixtures and finalised designs. Pond could be enhanced to priority habitat criteria.
- Pond could be larger, or form more of a network of ponds.

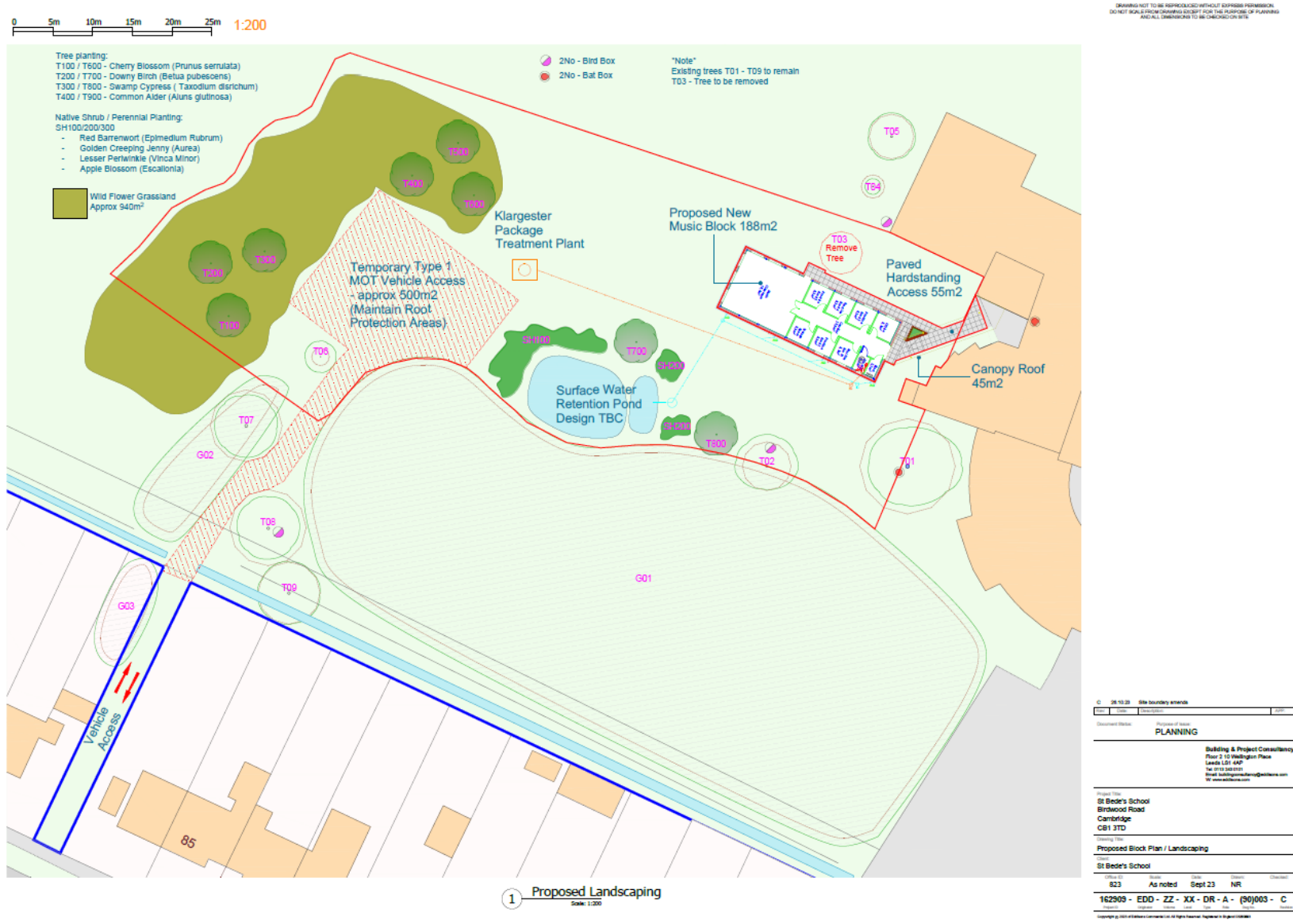
4.3 Post Development

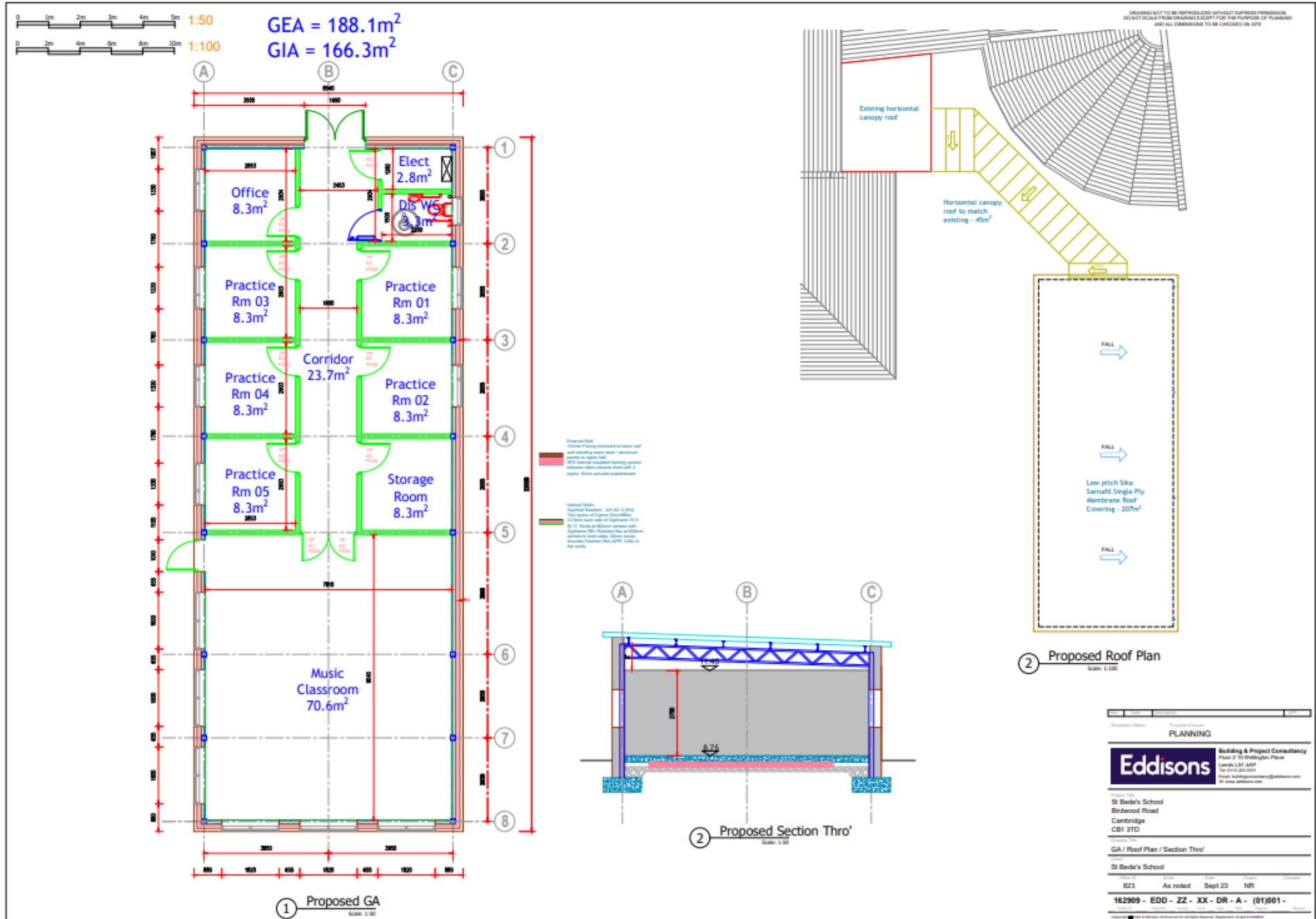
A Biodiversity Net Gain (BNG) Management Plan must be produced for the site once BNG interventions have been finalised. This must include recommendations for the implementation, management and monitoring of the site for at least 30 years.

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 Biodiversity Metric 4.0 (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 User Guide (JP039).
- UK Habitat Classification Working Group (2018). UK Habitat Classification – Habitat Definitions V1.0.

Appendix 1: Proposed Development Plan

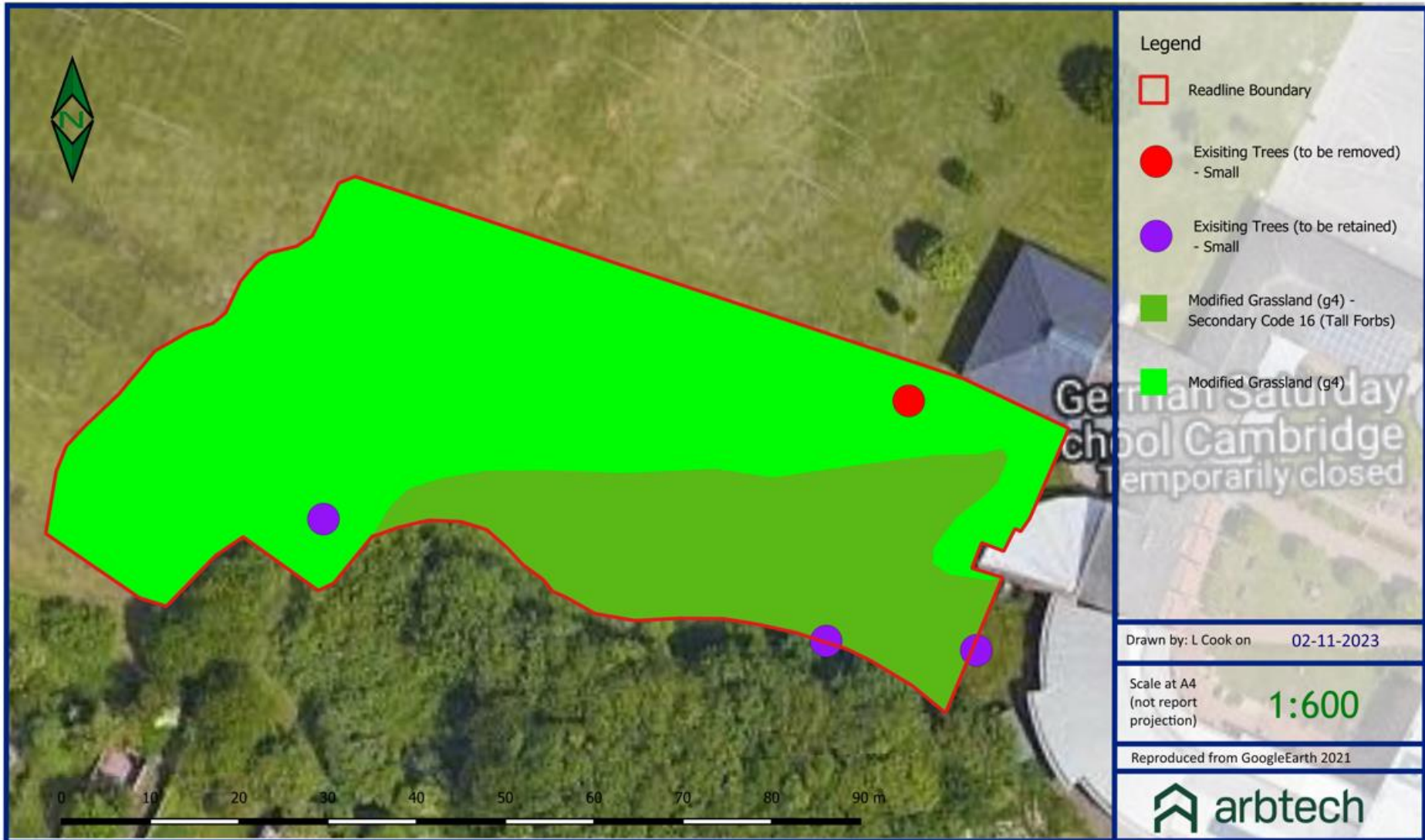




Appendix 2: Site Location Plan



Appendix 3a: Habitat Survey Plan



Appendix 3a: Habitat Survey Plan

Condition Sheet: INDIVIDUAL TREES Habitat Type

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The tree is a native species (or at least 70% within the block are native species).	Y	Trees are of the species small leaved lime, whitebeam, rowan, silver birch, field maple, cedar, plum across the site. 4 of which are to be removed.
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).	Y	Automatically passes for individual trees
C	The tree is mature (or more than 50% within the block are mature).	N	Trees are not mature and all consist of small size.
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	Trees are not managed and do not show signs of damage.
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N	Trees do are not of the age where these features are present.
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	More than 20% of tree canopy shades the ground below for each tree.
Number of criteria passed		4	
Condition Assessment Result (out of 6 criteria)		Condition Assessment Score	Score Achieved x/□
Passes 5 or 6 criteria		Good (3)	
Passes 3 or 4 criteria		Moderate (2)	x
Passes 2 or fewer criteria		Poor (1)	
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.			

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
ukhab - UK Habitat Classifier			
Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)	
A	There are 6-8 vascular plant species per m ² present, including at least 2 forbs (this may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition.	Y	8 species average identified per m ² surveyed.
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	Sward height was very low due to intensive mowing.
C	Some scattered scrub (including bramble <i>Rubus fruticosus</i> agg.) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	No scrub present within the grassland.
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	Very low damage recorded to grassland on site.
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	N	No bare ground presence.
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	Y	No bracken present within the grassland.
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴).	Y	No invasive species identified.
Essential criterion achieved (Yes or No)		Yes	
Number of criteria passed		5	
Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved x4	
Passes 6 or 7 criteria including passing essential criterion A	Good (3)		
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	x	
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)		

Condition Sheet: URBAN Habitat Type

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.	Y	Vegetation showed good structural heterogeneity.
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.	Y	Multiple species of flowering plants are present.
C	Invasive non-native plant species (listed on Schedule 9 of WCA ¹) and others which are to the detriment of native wildlife (using professional judgement) ² cover less than 5% of the total vegetated area ³ . Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	N	Non native species were present but below 5% cover.

Number of criteria passed **3**

Condition Assessment Result	Condition Assessment Score	Score Achieved x/□
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):		
<ul style="list-style-type: none"> • Passes all 3 core criteria; AND <ul style="list-style-type: none"> • Meets the requirements for Good condition within criterion C. 	Good (3)	
<ul style="list-style-type: none"> • Passes 2 of 3 core criteria; OR <ul style="list-style-type: none"> • Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C. 	Moderate (2)	x
<ul style="list-style-type: none"> • Passes 0 or 1 of 3 core criteria. 	Poor (1)	

Appendix 4: Post Development Plan

