Stag Brewery, Mortlake

Biodiversity Net Gain Report

For Reselton Properties

March 2022

The Former Stag Brewery, Mortlake

Biodiversity Net Gain Design Stage Report

March 2022

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

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Comments

Comments

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Executive Summary

This design stage Biodiversity Net Gain (BNG) assessment has been prepared by Waterman Infrastructure & Environment Ltd (Waterman) on behalf of Reselton Properties Limited ("the Applicant") to be submitted with two linked planning applications ("the Applications") for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ("the Site") within the London Borough of Richmond upon Thames (LBRuT).

The scheme currently represents a significant net gain of **11.83 habitat units (29.55%),** and **3.60 hedgerow units (21.04%).** Furthermore, the provision of bird, bat and invertebrate boxes to derive further biodiversity benefit/ enhancement will also be provided as part of the proposed Development.

Habitat creation across the Site includes:

- Creation of Intensive green roofs[1] (0.80ha) and extensive green roofs (0.08ha);
- Creation of mixed scrub (0.04ha);
- Creation of vegetated garden (0.22ha);
- Tree planting (234 trees) total area coverage of (0.11ha);
- Creation of rain gardens[2] (0.01ha);
- Creation of modified grassland (1.30ha).

The trading rules associated with a design stage Biodiversity Net Gain (BNG) assessment have been met, along with the BNG good practice principles, and all compensation of habitat losses on the Site are deemed to be 'meaningful' and in line with guidance[3].

[1] UKHab definition: *Roof vegetation on thin substrates with little or no irrigation and management. Vegetation established either artificially by seeding or planting or natural mosses, succulents, few herbs and grasses.*

[2] UKHab definition: *Rain garden is a shallow depression planted with deep-rooted native plants and grasses, located near a run-off source like a downspout, driveway or sump pump to capture rainwater run-off and stop the water from reaching the sewer system.*

[3] CIEEM (2019) Biodiversity Net Gain. Good Practice Principals for Development

1. Introduction

1.1. This design stage Biodiversity Net Gain (BNG) assessment has been prepared by Waterman Infrastructure & Environment Ltd (Waterman) on behalf of Reselton Properties Limited ("the Applicant") to be submitted with two linked planning applications ("the Applications") for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ("the Site") within the London Borough of Richmond upon Thames (LBRuT).

1.2. This report should be read in conjunction with the Environmental Statement (ES)[4] (hereafter referred to as 'the PEA'), undertaken by Waterman to accompany the planning submission.

Site Setting

1.3. The Site is approximately 11.66 hectares (ha) in area (this includes the redline planning boundary, and the blueline S278 works boundary as detailed in **Figure 1**), centred on Ordnance Survey Grid Reference TQ 204 760. The Site is bound by Lower Richmond Road to the south, the River Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High Street) to the west. The Site is bisected by Ship Lane.

1.4. The Site currently comprises a mixture of large-scale industrial brewing structures, large areas of hardstanding and playing fields.

1.5. The following habitats (as defined in the following BNG UKHab's categories) were recoded as part of the Preliminary Ecological Appraisal[5] undertaken in August 2021:

- Urban - Developed land; sealed surface;
- Urban street tree;
- Urban - Artificial unvegetated, unsealed surface;
- Urban - Introduced shrub;
- Grassland - Modified grassland;
- Native Hedgerow;
- Line of trees associated with bank or ditch; and
- Line of trees.

1.6. The extent of the Site together with the location of these habitats are provided in **Figure 1Error! Reference source not found.**.

Proposed Development

1.7. The current proposals for the Site (hereafter referred to as the proposed "Development") are for a redevelopment that will provide homes (including affordable homes), complementary commercial uses, community facilities, a new secondary school alongside new open and green spaces throughout. Associated highway improvements are also proposed, which include works at Chalkers Corner junction.

1.8. The two linked applications termed Application A and Application B seek planning permission for the following development:

Application A:

"*Hybrid application to include the demolition of existing buildings to allow for comprehensive phased redevelopment of the site:*

[4] Waterman IE (2022). The Former Stag Brewery, Environmental Statement, Ecology Chapter (ref: WIE18671-100_Chapter 13_Ecology-3.2.5)
[5] Waterman IE (2022). The Former Stag Brewery, Preliminary Ecological Appraisal (ref: WIE18671-R-1-2-3-PEA)

Planning permission is sought in detail for works to the east side of Ship Lane which comprise:

a) *Demolition of existing buildings (except the Maltings and the façade of the Bottling Plant and former Hotel), walls, associated structures, site clearance and groundworks*

b) *Alterations and extensions to existing buildings and erection of buildings varying in height from 3 to 9 storeys plus a basement of one to two storeys below ground*

c) *Residential apartments*

d) *Flexible use floorspace for:*

   i. *Retail, financial and professional services, café/restaurant and drinking establishment uses*

   ii. *Offices*

   iii. *Non-residential institutions and community use*

   iv. *Boathouse*

e) *Hotel / public house with accommodation*

f) *Cinema*

g) *Offices*

h) *New pedestrian, vehicle and cycle accesses and internal routes, and associated highway works*

i) *Provision of on-site cycle, vehicle and servicing parking at surface and basement level*

j) *Provision of public open space, amenity and play space and landscaping*

k) *Flood defence and towpath works*

l) *Installation of plant and energy equipment*

Planning permission is also sought in outline with all matters reserved for works to the west of Ship Lane which comprise:

m) *The erection of a single storey basement and buildings varying in height from 3 to 8 storeys*

n) *Residential development*

o) *Provision of on-site cycle, vehicle and servicing parking*

p) *Provision of public open space, amenity and play space and landscaping*

q) *New pedestrian, vehicle and cycle accesses and internal routes, and associated highways works"*

Application B:

"Detailed planning permission for the erection of a three-storey building to provide a new secondary school with sixth form; sports pitch with floodlighting, external MUGA and play space; and associated external works including landscaping, car and cycle parking, new access routes and other associated works"

Together, Applications A and B described above, including the proposed Section 278 Highways works comprise the 'Development'.

1.9. Full details and scope of the detailed planning application is detailed in the submitted Planning Statement, prepared by Gerald Eve LLP.

Relevant Policy & Legislation

1.10. The Environment Bill was given Royal Assent in November 2021 and is now the Environment Act 2021. The Act establishes a framework for several new policies and targets, of which many of the details will be set in secondary legislation as a Statutory Instrument (SI). The Act includes a target to halt the decline of nature by 2030 and to strengthen the existing biodiversity duty through the introduction of a mandatory requirement to achieve at least 10% BNG for new developments in England. These requirements are expected to come into force in the autumn of 2023.

1.11. It is understood that the BNG requirement is framed as a pre-commencement condition and that BNG information will need to be provided by the applicant as part of the planning application submission. The details of the forthcoming Regulations are subject to consultation which closes on the 5th April 2022.

1.12. It should be noted however that existing policies already seek to deliver biodiversity net gain and that the Applicant has decided to undertake a BNG assessment to showcase compliance. The following planning policies are considered relevant to this assessment full details of which are provided in **Appendix A**:

- National Planning Policy:
  - National Planning Policy Framework, 2021[6];
- Regional Planning Policy:
  - The London Plan, 2021[7];
- Local Planning Policy:
  - London Borough of Richmond upon Thames: Adopted Local Plan 2018[8].

Objectives of this BNG

1.13. As detailed within industry guidance[9], a BNG design stage report should be used to identify the BNG predicted to be achieved for a development, based on the scheme design to be submitted with planning documents which accompany a planning application.

1.14. The purpose of this report is to:

- Demonstrate how the Development is in line with planning policy requirements and achieves the targeted minimum of 10% BNG on Site;
- Justify how each of the BNG 'Good Practice Principles '[10] have been applied;

[6] Department of Communities and Local Government. (2021). National Planning Policy Framework.
[7] Greater London Authority (March 2021) *The London Plan The Spatial Development Strategy for Greater London*
[8] London Borough of Richmond upon Thames: Adopted Local Plan (2018) Local Plan: Strategic Policies
[9] CIEEM (2021). Biodiversity Net Gain Report and Audit Templates Chartered Institute of Ecology and Environmental Management, Winchester, UK.
[10] CIEEM (2019) Biodiversity net gain. Good practice principals for development. London, UK

- Explain how the 3.0 Metric[11] has been used to calculate BNG.

1.15. Further work will be required to explain how the habitats will be created, managed and monitored in the long term, in order to achieve the target condition of those habitats to be created and enhanced and the legal and financial mechanisms which will be used to secure the BNG. This will be in the form of an appropriate Habitat Management and Monitoring Plan that will be required for a 30 year period. An updated detailed assessment may be required as part of any Reserved Matters applications that come forward for the Site, however, this assessment is based on the minimum landscape parameters (presented in the Landscape Plan, Appendix B) for those aspects that are in outline only, they represent the final and fixed arrangement for those parts of the Development being submitted for detailed planning consent.

1.16. The report presents the on-Site habitat losses and gains within the Site redline planning boundary and S278 highways works only. This is because the calculation has shown that there is no requirement for additional land to be secured off-Site (ie outside the current red-line planning application boundary) to address a shortfall in BNG 10% minimum requirement.

[11] Natural England (2021) The Biodiversity Metric 3.0, DEFRA

2. Methodology

Guidance

2.1. This assessment has been produced in accordance with the BNG Good Practice Principals[12] and follows the methodology set out in the following guidance documents:

- The Biodiversity Metric 3.0 – User Guide[13] (hereafter referred to as 'the User Guide'); and
- The Biodiversity Metric 3.0 – Technical Supplement[14] (hereafter referred to as 'the Technical Supplement').

2.2. The three stages of the mitigation hierarchy (as detailed in the above guidance documents), avoidance, minimisation and compensation have been followed for the proposed Development. The habitats that are present on Site are assessed for their distinctiveness and condition. Those habitats that will need to be removed (their loss cannot be avoided but will be minimised) as a result of the development proposals will be compensated.

2.3. The methodology set out below defines a simplified version of the method used to carry out the BNG assessment. For full details including rules and methodology refer to the guidance documents referenced above.

Study Area and Baseline Survey

2.4. The assessment or study area is defined by the redline planning boundary and S278 works as presented in **Figure 1**.

2.5. A Preliminary Ecological Appraisal (PEA)[15] was carried out on the 31st August 2021 which comprised a data search and an 'Extended' Phase 1 Habitat Survey whereby all habitats were recorded following the methodology outlined in the UK Habitat (UKHab) Classification User Manual[16]. The type, distinctiveness, condition and extent of each habitat was recorded during this survey, and these factors are discussed in greater detail below.

Defra 3.0 Biodiversity Metric

2.6. This assessment has been completed using the Biodiversity Metric 3.0 Calculation Tools[17][18] (hereafter referred to as 'the Metric') and has been written in line with current guidance[19]. The Site exceeds 5000m^2 and therefore is too large to apply to the small site metric[20]. The Metric calculates biodiversity unit scores (which are a proxy for true biodiversity value) pre- and post – development and uses these to indicate percentage change in biodiversity as a result of a development.

2.7. In line with standard good practice guidance, the ten principles of BNG (**Appendix D**) have been applied to the Development which are intended to inform the process of master planning and development design. These ten principles, when applied together, set out a good practice framework for achieving BNG.

12 CIEEM (2019) Biodiversity net gain. Good practice principals for development. London, UK
13 Panks et al. (2021) Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide. Natural England.
14 Crosher et al. (2019b) The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019). Natural England, Worcester.
15 Waterman IE (2022). The Former Stag Brewery, Preliminary Ecological Appraisal (ref: WIE18671-R-1-2-3-PEA)
16 UK Habitat Classification Working Group (2018). UK Habitat Classification User Manual at https://ukhab.org/ukhab-documentation/.
17 Natural England (2021) The Biodiversity Metric 3.0 Auditing and Accounting for Biodiversity – User Guide. Natural England Joint Publication JP029.
18 Natural England (2021). Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide. Natural England.
19 CIEEM (2021). Biodiversity Net Gain Report and Audit Templates Chartered Institute of Ecology and Environmental Management, Winchester, UK
20 Natural England (2021) Small Sites Metric: Calculation Tool User Guide. Natural England Joint Publication JP040

2.8. The Metric generates a value measured in 'biodiversity units' for a Site before Development commences (referred to as the 'Baseline') and after Development is completed (referred to as the 'Creation') based on plans provided, allowing the difference (positive or negative) to be measured in an output given as a percentage (referred to as 'BNG').

2.9. The Metric uses inputs based on habitats and their quality. As such for each habitat parcel area / linear habitat length, a biodiversity value is generated based on factors that are multiplied together (**Table 1**). These factors are based on the initial ecological surveys for the Baseline status, and on plans provided (e.g. Landscape plans) for the Creation/Post-Intervention status.

Habitat Parcels (Area Habitats)

2.10. Habitats were separated into discrete parcels either where they were geographically discrete or where there was a change in habitat condition across a single location. Each parcel was recorded and calculated separately using the metric calculator. Urban trees are counted as habitat parcels (area habitat), although the method of calculating area is different to other habitat parcels, this is described below.

Urban Tree Metrics

2.11. Urban tree area is measured differently than habitat parcels and linear habitats. For individual trees (not including lines of trees or woodland) their area is calculated from stem diameter, which equates to size (Small, Medium or Large), full details on how this is calculated is defined within the User Guide. The number of individual trees of each size is then input to the 'Urban Tree Helper' table within the Metric, and an area is given which is input to the Metric along with each of the factors listed in **Table 1** below.

Linear Habitats (Length Habitats)

Hedgerow Metrics

2.12. In the Biodiversity Metric 3.0, hedgerows and lines of trees are measured by hedgerow biodiversity units (HBUs). This uses length (kilometres), distinctiveness, condition and strategic significance to calculate the HBUs. The loss and gain in HBUs need to be assessed separately to other biodiversity unit measures. As such, it is only possible to compensate for the loss of hedgerows/line of trees through the creation or enhancement of hedgerows/line of trees elsewhere.

2.13. **Table 1** defines the methodology for each of the factors assessed within the Metric for the baseline and also for creation.

Table 1: Methodology for assessing each factor within the Metric for the Baseline and for Creation

Factor	Baseline	Creation
Habitat type	Habitat types were recorded and mapped using UK Habitat Classification[21] (**Figure 1**, which also defines the study area) as part of the PEA[22] , see the PEA for full methodology.	Habitat types were taken from the landscape plans provided (**Appendix B**), and converted to UKHabs for comparison and use within the Metric (as shown within **Appendix H**)
Area	Habitats were separated into parcels either where they were geographically discrete or where there was a change in habitat condition across a single location.	Landscape plan areas were provided by the landscape architects (Gillespies LLP) as part of their Urban Green Factor (UGF) calculations.

[21] UK Habitat Classification Working Group (2018). UK Habitat Classification User Manual at https://ukhab.org/ukhab-documentation/.

[22] Waterman IE (2022). The Former Stag Brewery, Preliminary Ecological Appraisal (ref: WIE18671-R-1-2-3-PEA)

Factor	Baseline	Creation
	Each parcel was recorded and calculated separately within the Metric. Areas were calculated in hectares to two decimal places using digital mapping and measuring tool CAD.	
Distinctiveness	Distinctiveness value is automatically generated by the Metric based on habitat type[5]. The overall distinctiveness categories used for habitat areas is shown within the user guide[5], habitats will be defined as Very Low, Low, Medium, High or Very High. See **Appendix F** for Table describing area habitat distinctiveness.	
Condition	Habitat condition is a score based on the quality of the habitat, judged against the perceived ecological optimum state for that particular habitat. It is, therefore, a means of measuring variation in the quality of patches of the same habitat type rather than a measure of quality between habitat types. The 'condition assessment'[23] involves assessing each habitat type / parcel as per the associated condition sheet, resulting in a condition score (Good, Moderate or Poor) which is then input into the Metric. Some intensively managed habitats have a pre-defined condition score; and for other very low distinctiveness habitats no assessment is required.	
	A condition assessment was carried out alongside the PEA[24], whereby each habitat parcel was assessed for its condition.	A condition assessment was carried out on the proposed habitats as shown within the landscape plans. The assessment was based both the landscape plans and the planting schedule (**Appendix B**) and based off a 'worst case scenario' as per guidelines.
Strategic Significance	Strategic significance utilises published local plans and objectives to identify local priorities for targeting biodiversity and nature improvement. It works at a landscape scale and gives additional unit value to habitats that are located in preferred locations for biodiversity and other environmental objectives.	
Time to Target Condition	N/A	Time to target condition is a standard score automatically generated by the Metric based on how long the habitat type takes to establish. The time period to use is the length of time (in years) between the intervention and the point in time the habitat reaches the pre-agreed target quality (i.e. distinctiveness, condition, area). This time will vary between habitat types, between change scenarios (e.g. creation typically takes longer than enhancement) and due to the way the habitat is managed.
Difficulty of Creation or Restoring a Habitat	N/A	Habitat creation carries an associated risk based on the difficulty and uncertainty of successfully creating, restoring or enhancing a habitat. A multiplier is therefore applied automatically by the Metric r to recognise the difficulty of creating different habitats, detailed in the user guide[5]. Where uncertainties have been identified further work will be required to help give confidence that the habitat creation or restoration will be successful.

[23] Defra. Biodiversity Metric 3.0 Habitat Condition Assessment Sheets and Instructions
[24] Waterman IE (2022). The Former Stag Brewery, Preliminary Ecological Appraisal (ref: WIE18671-R-1-2-3-PEA)

Factor	Baseline	Creation
Habitat banking and delays in creation/enhancement of habitats	N/A	Biodiversity metric 3.0 enables the recording of habitat creation/enhancement in advance or delayed for all habitats including hedgerows and lines of trees. These either reduce or increase the time to target condition proportionately.

2.14. Each of the factors listed in **Table 1** were populated into the Metric calculator for each habitat parcel (including urban trees) or linear habitat (hedgerow and line of trees) to generate a score for BNG as a percentage for area habitat, and also for linear habitats.

Irreplaceable Habitats

2.15. Impacts on 'irreplaceable' habitats[25] cannot be accounted for through the Metric. They require separate consideration which must comply with relevant policy and legislation. Data relating to these habitats can be entered into Biodiversity Metric 3.0 to (i) give an indication of the biodiversity value of the habitats present on a site (the baseline), and/or (ii) allow actions to enhance or restore these important habitats to contribute towards the delivery of net gain. The metric can also be used to give an indication of the minimum amount of replacement habitat that should be provided, however, it cannot and should not replace case specific assessments, and bespoke compensation should be agreed with the relevant decision maker for any losses or impacts to these habitats. There are no irreplaceable habitats on Site.

Trading Rules

2.16. For each habitat lost at the Baseline through the Development, it must be replaced by a 'like-for-like' habitat of the same / higher, broad type / distinctiveness. This is called 'Trading Rules'. Full description defined within the User Guide and the Technical Supplement. The type of trading depends on the distinctiveness of habitat lost, for example Very low distinctiveness habitat will not require trading, however Very high distinctiveness habitat will require bespoke compensation agreed with relevant authorities, and High distinctiveness habitat must be replaced with habitat of the same distinctiveness or above.

Limitations and Assumptions

2.17. It is important to note that this report does not define the full detailed methodology for BNG assessment, the guidance documents should be referred to where relevant and if necessary.

2.18. The minimum mapping unit (MMU) used for the BNG assessment is undefined by the 3.0 Metric, an MMU of 25m^2 has been used for this assessment for area habitats and therefore habitats smaller than this area is discounted. For linear habitats an MMU of 20m in length and between 1-5m wide has been used for this assessment and smaller liner habitats have been discounted. Where habitats have been discounted the adjacent habitat area has been used to complete the Metric.

2.19. Same habitat types have been grouped together for the purposes of the Metric, whereby their condition is the same.

2.20. Although ruderal/ ephemeral vegetation was recorded on Site, the habitat area was too small to be mapped. This is because the habitat area fell below the MMU of 25m^2, as per guidelines. For this reason, this habitat is not included in the Metric.

2.21. For the purposes of defining line of trees liner habitats it is assessed that the tree must be growing within a vegetated habitat (so excluding hardstanding) and must contain more than 2 trees.

[25] National Planning Policy Framework (2019) Glossary provides a definition and examples of irreplaceable habitats

2.22. Information on tree numbers at the Baseline was taken from the Arboricultural Impact Assessment (AIA) and information on tree numbers for creation taken from the landscape plan (**Appendix B**) and through consultation with the landscape team. Tree sizes have been based on their dimeter at breast height, taken from the Arboricultural Impact Assessment report from 2022. The total number of 'Urban trees' has been calculated separately through taking the total number of trees on Site and deducting the number of trees which are classified as 'Line of trees' thus not overvaluing the baseline.

2.23. For habitat creation, habitat areas have been provided by the landscape architects (Gillespies LLP) as part of their Urban Greening Factor (UGF) calculations.

2.24. In the absence of a detailed planting schedule regarding trees, all proposed trees have been classed as 'Small' size with a 'Moderate' condition rating like that of the trees present at the baseline. If this can be improved at future reserved matters stage this will only improve the BNG calculated herein at the Hybrid planning application stage.

2.25. As per the 'worst-case' scenario recommended methodology, urban tree condition at the baseline and post-development was generalised. With baseline trees assessed as having moderate condition and no strategic significance; and post-development trees having moderate condition and no strategic significance based on the landscape plan, planting schedule and management and monitoring plan.

2.26. It is acknowledged that when completing the 3.0 Metric an error message has been flagged. The error message reads 'Check Areas - Area of development footprint and habitat creation exceeds the area of habitats lost'. The development footprint is 11.66ha, 2.83ha of habitat is to be retained and 9.25 created. This has caused the error message, as when the retained and created habitat areas are added together it exceeds the development footprint of 11.66ha. However, this is due to a 'glitch' in the metric where retained urban trees do not automatically get taken off the development footprint area, whereas this occurs automatically as part of the site habitat baseline and creation areas.

3. Baseline Conditions

3.1. The Site was assessed as part of the PEA[1] carried out on the 31st August 2021 whereby all habitats were recorded following the UKHab Methodology[26]. Information to determine the type, distinctiveness, condition and extent of each habitat was determined from the results of the PEA.

3.2. The below results sections should be read in conjunction with the PEA report – which includes an assessment of the condition of those habitats present, and the completed Biodiversity Metric 3.0 Calculator[27].

3.3. The planning boundary is 9.25 ha and the S278 works boundary is 2.42 ha, in total the Site boundary is **11.66 ha**. The Site supports 9.13 baseline habitat units and 2.98 linear habitat units.

Habitat Baseline

3.4. CAD software was used to establish the size of each habitat polygon across the Site. Further analysis was undertaken on each habitat parcel to determine its condition (condition assessment), and strategic significance (policy review).

3.5. Baseline ecology surveys found the Site to consist of parcel habitats including a large area of buildings, hardstanding with modified grassland, urban trees and introduced shrub.

3.6. The following should be read in conjunction with the Baseline habitat map shown in **Figure 1,** which also shows habitat areas. And the condition assessment shown in **Appendix C.** The total Habitat Units on the Site are presented in **Table 2**. Baseline ecology surveys found the Site to comprise common and widespread urban habitats, the baseline habitats are defined below:

Urban- Developed land; sealed surface

3.7. This habitat includes all Buildings and Hardstanding areas on Site, as well as any built linear features. The majority of the Site consists of this habitat type. This habitat type condition is fixed at 'N/A' with no strategic significance.

Urban Street Tree

3.8. There are a total of 106 urban trees on Site at the Baseline of which 36 are 'Small', 36 are 'Medium' and 34 are 'Large'. Urban trees at the baseline were assessed to be of moderate condition with no strategic significance. It should be noted that this total tree count has not taken into account the 'groups of trees' mentioned in the AIA report, however as all 'groups of trees' are to be retained this will not affect the total number nor will it affect the biodiversity units. In addition, trees classified as 'lines of trees' have been removed from the total urban tree count to not overvalue the baseline habitat units.

Urban- Artificial unvegetated, unsealed surface

3.9. This habitat is located within along the footpaths and northern boundary of the Site. This type of habitat does not require condition assessment and is not strategically significant.

Urban-Introduced shrub

3.10. This habitat is makes up a small area located to the south of the Site which forms part of Mortlake Conservation Area. This grouped habitat type condition is fixed at poor with no strategic significance.

[26] UK Habitat Classification Working Group (2018). UK Habitat Classification User Manual at https://ukhab.org/ukhab-documentation/.
[27] Waterman IE (2021) HRW, Tottenham. Biodiversity Habitats Metrics Calculator Spreadsheet. WIE-103-XLS-1-1-1-BNG.

Grassland- Modified grassland

3.11. All grassland on Site is included within this habitat type and forms part of the Watney's Sports Ground playing fields, the undergrowth of the hedgerows, Mortlake Green and the footpath / roadside verges at Chalker's Corner and along the boundary with the River Thames. These grassland patches are grouped as all habitat conditions are low and with no strategic significance.

3.12. **Table 2** details habitat biodiversity value results for the habitat Baseline.

Table 2: Habitat baseline results

Habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Habitat Units
Urban - developed land; sealed surface	9.19	Very low	N/A*	**0.00**
Urban street tree	0.55**/***	Medium	Moderate	**4.38**
Urban – Artificial unvegetated, unsealed surface	0.10	Very Low	N/A*	**0.00**
Urban – Introduced shrub	0.06	Low	Poor	**0.14**
Grassland – Modified grassland	2.31	Low	Poor	**4.61**
Total	**11.66*** **	**-**	**-**	**9.13**

*condition N/A due to habitat type
**Trees on Site measured using the DEFRA BNG calculator tool for tree area[28]
***The area for 'Urban street tree' is not included within the total Site area within the 3.0 Metric

Hedgerow Baseline

3.13. CAD software was used to establish the length of each hedgerow type polygon across the Site. Further analysis was undertaken on each hedgerow linear feature to determine its condition (condition assessment), and strategic significance (policy review).

3.14. Baseline ecology surveys found the Site to comprise of four lines of trees and a single hedgerow both of which are common and widespread habitats.

3.15. The following should be read in conjunction with the Baseline habitat map shown in **Figure 1,** which also shows hedgerow lengths. And the condition assessment shown in **Appendix C.** The total Hedgerow Units on the Site are presented in **Table 3**.

3.16. Hedgerow types recorded on Site at the baseline are defined below:

Native Hedgerow

3.17. Privet *Ligustrum* sp hedge is present along the southern edge of Watney's Sports Ground playing fields. This habitat type condition is good with no strategic significance.

Line of trees associated with bank or ditch

3.18. A line of trees is located along the eastern boundary of the Site running adjacent to the River Thames. This habitat type condition is moderate with no strategic significance.

Line of trees

3.19. There are three lines of trees located to the west of the Site; two are located within Watney's Sports Ground playing field and one is located adjacent to Lower Richmond Road within the S278 works

[28] Natural England (2019) The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE

boundary. These lines of trees are grouped as all habitat conditions are moderate and with no strategic significance.

Table 3: Hedge baseline

Hedge Type	Length (km)	Habitat Distinctiveness	Habitat Condition	Habitat Unit
Native Hedgerow	0.10	Low	Good	**0.59**
Line of trees associated with bank or ditch	0.24	Low	Moderate	**1.11**
Line of trees	0.32	Low	Moderate	**1.28**
Total	**0.66**	**-**	**-**	**2.98**

4. Proposed Design

4.1. The landscape plan (**Appendix B**) was developed using Urban Greening Factor (UGF) classifications for the habitats to be created. The UGF classifications for habitats has been converted to UKHabs for use within the Metric (**Appendix I**). A UKHabs habitat conversion table can be found in **Appendix H.** These plans should be referred to throughout this section.

4.2. The condition of these proposed habitats has been predicted from the landscape plans provided, using a 'reasonable -case scenario' approach taking account of the aims of the planting strategy being to maximise habitat condition. This has taken account of the UKHab condition assessment criteria which disincentivises the use of non-native species. However, within the context and setting of this Development the use of ornamental planting aligns with some of the created habitats that form the overall soft landscaping strategy. Full condition assessments for each habitat can be found within **(Appendix C**).

4.3. As part of the scheme the following habitats are to be retained: Line of Trees associated with bank or ditch, two out of the three line of trees - the southernmost tree line within Watney's Sports Ground playing field (two trees within this line to be removed) and tree line located adjacent to Lower Richmond Road within the S278 works boundary- hedgerow and 69 urban trees (of which 18 are small, 21 are medium and 28 are large).

4.4. All other habitats are set to be lost as part of the Development. No habitat on Site is deemed 'irreplaceable', and the compensation provided through creation meets the requirements for the Trading rules.

4.5. In addition, compensation and enhancement measures will be provided in the form of artificial habitats for bats, bird, and invertebrates.

Habitat Creation

4.6. A summary of the proposed habitats as part of the Development are defined below:

Urban - Developed land; sealed surface

4.7. This habitat includes all Buildings and Hardstanding areas within the Site. Including pavements, roads and chlorinated water feature (as this habitat contains no biodiversity value). This habitat type condition is fixed at 'N/A' with no strategic significance.

Grassland – Modified grassland

4.8. Modified grassland is proposed throughout the Site in the form of lawn areas to be used as streetscapes and courtyards this habitat has been assigned a poor condition with no strategic significance.

Urban – Rain garden

4.9. Two rain gardens are proposed within the south-eastern area of the Site. This feature provides a link to the master planning strategy for ecological development and sustainable drainage and allows surface water to be collected in mass planting areas along the Green Link. This habitat has been assigned a moderate condition with no strategic significance.

Urban – Vegetated garden

4.10. Planting of flower perennials and amenity and littoral planting comprising a mix of perennial shrub and groundcover planting will be provided throughout softscape areas. This habitat condition is fixed at Poor with no strategic significance.

Heathland and shrub- Mixed scrub

4.11. A patch of mixed scrub, made up of native dense planting mix, will be planted within the southwest of the Site. Native ornamental plants which have been categorised as mixed scrub will also be planted across the whole Site. The habitat has been assigned poor condition with no strategic significance.

Urban street tree

4.12. 234 urban trees are set to be planted as part of the development of which includes 'Specimen Trees', 'Hardy Native Street Trees' and 'Courtyard Ornamentals'. It should be noted that 'Native Ornamentals' were included as part of the tree planting however under the UKHabs definition these were not classified as trees but as Mixed Scrub and therefore were not included in the total number of trees. The inclusion of these trees overcompensates for the loss of trees at the Baseline. Using the 'worst-case' scenario approach these trees will be categorised as 'Small'. This habitat has been assigned a moderate with no strategic significance.

Urban – Intensive green roof

4.13. Intensive green roofs are proposed throughout the east and north-west part of the Site. The inclusion of these features provides biodiversity and energy benefits, as well as contributing to stormwater drainage and short term attenuation storage and a range of habitats for various insects and invertebrates and potentially birds and bats. This habitat has been assigned a good condition with no strategic significance.

Urban –Extensive green roof

4.14. Extensive green roofs are also proposed within the east and north-west of the Site. The inclusion of these features provides beneficial insulation to buildings and a degree of infiltration and storage of rainwater, while adding to the biodiversity of the site with a range of plant types, habitats for various insects and invertebrates and potentially birds and bats. This habitat has been assigned a good condition with no strategic significance.

Artificial features (not contributing to BNG score)

4.15. Artificial features in the form of bat and bird boxes will be included within the scheme design. Bird boxes (total 20 No.) are also provided on roofs closer to the River Thames, including five Schwegler Boxes for swifts and fifteen (15) additional boxes for other bird types. The green and brown roofs as detailed above would also include the provision of invertebrate features. Bat boxes are integrated into the green and brown roofs on various buildings of the development (detailed component) with a total of ten boxes, tubes or bricks provided in association with soft landscape treatment on these roofs.

Hedge Creation

4.16. A summary of the proposed linear features (hedges) as part of the Development are defined below:

Hedge ornamental non-native

4.17. Several non-native ornamental hedgerows are proposed throughout the western area of the Site totalling a length of 877m in length. For the purpose of the metric these hedges have been grouped together as they have a fixed poor condition and no strategic significance.

Line of trees

4.18. A line of trees is set to be planted along the western boundary of the Site which will consist of native ornamental trees. This habitat has been assigned moderate condition with no strategic significance.

5. Good Practice Principles for Development

5.1. This report has considered the ten BNG good practice principles (**Appendix D** for a breakdown of Good Practice Principles for Development) which have been applied to this assessment. Examples of how these Principles have been met is evidenced in **Appendix D**.

6. BNG Metric

6.1. The BNG metric results should be read in conjunction with the Baseline habitat plan (**Figure 1**Error! Reference source not found.), the illustrative landscape strategy and the landscape plan (**Appendix B**) and the Biodiversity Metrics calculator spreadsheet for habitats[29].

Habitat Loss

6.2. **Table 4** details the habitats retained and lost in hectares and the habitat units lost by the Development.

Table 4: Habitat losses result

Habitat	Area (ha) retained	Area (ha) lost	Habitat Distinctiveness	Habitat Condition	Habitat Units Lost
Urban - developed land; sealed surface	2.314	6.88	Very Low	N/A*	**0.00**
Urban street tree	0.41**	0.14***	Medium	Moderate	**1.09**
Urban – Artificial unvegetated, unsealed surface	0.00	0.10	Very Low	N/A*	**0.00**
Urban – Introduced shrub	0.01	0.06	Low	Poor	**0.13**
Grassland – Modified grassland	0.10	2.21	Low	Poor	**4.42**
Total	**2.83**	**9.38**	-	-	**5.64**

*condition N/A due to habitat type
**Trees on Site measured using the DEFRA BNG calculator tool for tree area[30]
***Tree area included within total area of habitat lost, whereas it is not included within the total Site area at baseline

Habitat Creation

6.3. **Table 5** details the habitat units delivered by the proposed habitat creation. Full condition assessment for Creation habitats can be found within **Appendix C**.

Table 5: Habitat creation results

Habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Habitat Units
Urban - developed land; sealed surface	6.81	Very Low	N/A*	0.00
Urban – Rain garden	0.01	Low	Good	**0.03**
Urban street tree**	0.11**	Medium	Moderate	**0.32**
Urban – vegetated garden	0.22	Low	Poor	**0.42**
Urban – Intensive green roof	0.80	Medium	Good	**4.49**
Urban – extensive green roof	0.08	Low	Good	**0.40**
Grassland – Modified grassland	1.30	Low	Poor	**0.11**
Heathland and shrub- Mixed scrub	0.042	Medium	Poor	**0.16**
Total	**9.25**	**-**	**-**	**8.34**

*condition N/A due to habitat type
**Trees on Site measured using the DEFRA BNG calculator tool for tree area[31]
*** Tree area included within total area of habitat lost, whereas it is not included within the total Site area at baseline

[29] Waterman IE (2021) HRW, Tottenham. Biodiversity Habitats Metrics Calculator Spreadsheet. WIE-103-XLS-1-1-1-BNG.
[30] Natural England (2019) The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE
[31] Natural England (2019) The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE

Trading Rules

6.4. The trading rules have been satisfied for all habitats lost at the baseline. Habitats with medium distinctiveness have been replaced by the same broad habitat type and habitats with low distinctiveness have been replaced by habitats with the same distinctiveness or higher.

Hedgerow Loss

6.5. **Table 6** details hedgerow biodiversity value loss results for hedgerow based on Creation.

Table 6: Habitat losses result

Hedge type	Length (km) retained	Length (km) lost	Habitat Distinctiveness	Habitat Condition	Habitat Units Lost
Native Hedgerow	0.09	0.01	Low	Good	**0.05**
Line of trees associated with bank or ditch	0.24	0.00	Low	Moderate	**0.00**
Line of trees	0.23	0.09	Low	Moderate	**0.36**
Total	**0.56**	**0.10**	-	-	**0.41**

Hedgerow Creation

6.6. **Table 7** details the hedgerow units for hedgerow creation. Full condition assessment for Creation habitats can be found within **Appendix C**.

Table 7: Habitat creation results

Hedge type	Length (km)	Habitat Distinctiveness	Habitat Condition	Habitat Units
Hedge Ornamental Non-Native	0.877	Very Low	Poor	0.85
Line of trees	0.115	Low	Poor	0.19
Total	0.99	-	-	1.04

Trading Rules

6.7. The trading rules satisfied for all hedge types lost at the baseline. Habitats with medium distinctiveness have been replaced by the same broad habitat type and habitats with low distinctiveness have been replaced by habitats with the same distinctiveness.

7. Overall BNG for the Site

7.1. The Site has an overall prediction of a **29.55% net gain** for the habitats Site with 2.7 net change in habitat units. The Site has an overall prediction of a **21.04% net gain** for the hedgerow on Site with a net change of 0.63hedgerow units. A screenshot of the headline results of the Biodiversity Metric 3.0 is presented in **Appendix E**.

7.2. As part of this assessment, it has been assumed that there will be no delay in starting to create the proposed habitats, although this may change following the receipt of detailed landscape and phasing plans for those elements that are in outline only. Therefore, the final net change in biodiversity value will likely be subject to change.

7.3. The predicted positive net change in the habitats units on Site, as a proxy for biodiversity value, is due to the loss of low value habitats at the baseline such as modified grassland and the retention of the higher value habitats such trees, and the creation /enhancement of higher value habitats such as trees, mixed scrub and intensive green roofs.

7.4. The predicted positive net change in the biodiversity value of the hedgerow on Site is due the retention of the majority hedgerow types at the baseline and the creation /enhancement of hedgerow such as line of trees and ornamental non-native hedgerow.

7.5. The largest area of habitat lost is 2.21 ha of modified grassland, which results in the loss of 4.42 habitat units. Loss is compensated through the creation of a smaller area of habitat of the same distinctiveness (approximately 1.30 ha of modified grassland), along with creation of other 'Low distinctiveness' habitats such as vegetated garden, mixed scrub, rain garden and extensive green roof, thus justifying the trading rules.

7.6. It is shown in **Figure 1** that the Baseline comprised majority building and hardstanding, and this is being replaced with a larger area of green infrastructure. The inclusion of green infrastructure such as a significant increase in trees and the green roof, connect and extend the green corridor present adjacent to the Sites' western boundary, in line with the London Plan and local policy LP12 and LP17. This green corridor link associated with the inclusion of artificial habitats for bats, birds and invertebrates enhances the Site as a whole for local BAP species.

7.7. Overall, there is a gain over the minimum 10% expected to be the mandatory minimum currently set by the Environment Act, 2021.

8. Biodiversity Net Gain Recommendations and Management and Monitoring Plan

8.1. To deliver successful implementation of the proposed habitats, a detailed Management and Monitoring plan would be required so that the habitats reach the target condition specified in the calculator and the expected requirements of the Environment Act, 2021 are met. A HMMP focuses on the delivery of long-term management and monitoring of created or enhanced features. For example, a HMMP plan would typically provide detailed management and maintenance information for years 1 - 5 and with broader management aims for the lifetime of the BNG commitment, for example, the lifetime of the project impacts or 30 years. The HMMP needs to be concise, proportionate and SMART (Specific, Measurable, Achievable, Reasonable, Time-bound). This should detail:

- Methods and management of preparation of the site, including any potential ground works required to prepare the Site;
- The methods for the habitat creation, including the management options and the timeframes for management;
- Proposals for monitoring, including methods, frequency and timing should be included, as well as setting out the reporting procedures and options for remedial works, if needed;
- Maps and drawings should be provided in spatially accurate digital drawings, e.g., using GIS to allow accurate monitoring.

8.2. The success of the proposed Development is also likely to require joint agreements with the key stakeholders including:

- The roles, responsibilities and competency requirements of those involved in implementing the BNG HMMP should be clearly stated and secured;
- Funding mechanisms which are required to create and manage the habitats in perpetuity (currently set at no less than 30 years); and
- Legal mechanisms which are required to commit to the management of the Site for nature conservation purposes in perpetuity. Furthermore, this will mitigate the risk of these habitats being lost in the future due to changes in ownership or land management.

8.3. Other enhancement measures such as erection of bat boxes, bird nest boxes and invertebrate boxes would be considered an ecological enhancement, however, wouldn't affect the calculated net gain scores under the DEFRA Metric Biodiversity 3.0 methodology.

Figures

APPENDICES

A. Planning Policy relevant to BNG

Environment Act 2021

The Environment Bill was given Royal Assent in November 2021 and is now the Environment Act 2021. The Act establishes a framework for several new policies and targets, of which many of the details will be set in secondary legislation as a Statutory Instrument (SI). The Act includes a target to halt the decline of nature by 2030 and to strengthen the existing biodiversity duty through the introduction of a mandatory requirement to achieve at least 10% biodiversity net gain (BNG) for new developments in England. These requirements are expected to come into force in the autumn of 2023. It is understood that the BNG requirement is framed as a pre-commencement condition and that BNG information will need to be provided by the applicant as part of the planning application submission. The details of the forthcoming Regulations are subject to consultation which closes on the 5th April 2022.

National Planning Policy

National Planning Policy Framework, 2021

The National Planning Policy Framework (NPPF) was published in 2012 and last updated on 20th July 2021[32]. Section 15 (outlined below) of the NPPF, 'Conserving and Enhancing the Natural Environment', replaces Section 11 of the previous NPPF 2012 revision and NPPF 2018[33]. No significant changes to Section 15 are noted between the 2019[34] and 2021 update. The Government Circular 06/2005[35] - Biodiversity and Geological Conservation: Statutory Obligations and Their Impact within the Planning System, remains valid and is still referenced within the NPPF.

The NPPF also stipulates that Local Planning Authorities (LPAs), when determining planning applications, should apply the following principles:

- *"If significant harm to biodiversity 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 should be refused;*
- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity."*

National Planning Practice Guidance, 2019

The Government's National Planning Practice Guidance 2016[36], updated in 2019[37] (NPPG) is intended to provide guidance to local planning authorities and developers on the implementation of the planning policies set out within the NPPF. The guidance of most relevance to ecology and biodiversity is the Natural Environment Chapter, which explains key issues in implementing policy to protect biodiversity, including local requirements.

32 Ministry of Housing, Communities and Local Government. (2021). National Planning Policy Framework.
33 Ministry of Housing, Communities and Local Government. (2018). National Planning Policy Framework.
34 Ministry of Housing, Communities and Local Government. (2019). National Planning Policy Framework
35 Department of Communities and Local Government. (2005). Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.
36 Department for Communities and Local Government. (2016). National Planning Practice Guidance. DCLG, London.
37 Department for Communities and Local Government. (2019). National Planning Practice Guidance. DCLG, London.

Regional Planning Policy

The London Plan: The Spatial Development Strategy for Greater London, 2021

The new London Plan 2021[38] sets out the overall strategic plan, setting out a framework for development over the next 20 to 25 years and includes several policies relating to ecology. Key to the London Plan is Policy G6 'Biodiversity and Access to Nature' which sets out the Mayor's policy in relation to biodiversity and access to nature. This states:

- *"Sites of Importance for Nature Conservation (SINCs) should be protected.*
- *Boroughs, in Developing Plans, should:*
  - *a) use up-to-date information about the natural environment and the relevant procedures to identify SINCs and ecological corridors to identify coherent ecological networks;*
  - *b) identify areas of deficiency in access to nature (i.e. areas that are more than 1km walking distance from an accessible Metropolitan or Borough SINC) and seek opportunities to address them;*
  - *c) support the protection and conservation of priority species and habitats that sit outside the SINC network, and promote opportunities for enhancing them using Biodiversity Action Plans;*
  - *d) seek opportunities to create other habitats, or features such as artificial nest sites, that are of particular relevance and benefit in an urban context; and*
  - *e) ensure designated sites of European or national nature conservation importance are clearly identified and impacts assessed in accordance with legislative requirements.*
- *Where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:*
- *avoid damaging the significant ecological features of the site;*
  - *f) minimise the overall spatial impact and mitigate it by improving the quality or management of the rest of the site; and*
  - *g) deliver off-site compensation of better biodiversity value.*
- *Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.*
- *Proposals which reduce deficiencies in access to nature should be considered positively.*

Mayor of London: Environment Strategy, 2018

The London Environment Strategy, 2018[39] compliments the London Plan. It sets out how London's biodiversity can be protected and enhanced and contains a list of Priority Habitats and Species within the city. Priority species (SAPs) and habitats (HAPs) related to the Site are listed below:

- *Birds, house sparrow, and bats (SAPs);*
- *Rivers and Streams (HAPs).*

The relevant policy within the strategy is Policy 5.2.1 'Protect a core network of nature conservation sites and ensure a net gain in biodiversity'.

Local Planning Policy

[38] Greater London Authority (March 2021) *The London Plan The Spatial Development Strategy for Greater London*
[39] Mayor of London (2018) *London Environment Strategy*

London Borough of Richmond upon Thames: Local Plan, adopted 2018 and 2020

LBRuT will set out policies and guidance for the development of the borough over the next 15 years. It looks ahead to 2033 and identifies where the main developments will take place, and how places within the borough will change, or be protected from change, over that period. The following strategic visions, objectives and policies within the final draft of the Local Plan are of relevance to biodiversity:

Policy LP 12 'Green Infrastructure' states:

"Green infrastructure is a network of multi-functional green spaces and natural elements, which provides multiple benefits for people, nature and the economy.

A) To ensure all development proposals protect, and where opportunities arise enhance, green infrastructure, the following will be taken into account when assessing development proposals:

- *the need to protect the integrity of the green spaces and assets that are part of the wider green infrastructure network; improvements and enhancements to the green infrastructure network are supported;*
- *its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation;*
- *incorporating green infrastructure features, which make a positive contribution to the wider green infrastructure network*

*B) The hierarchy of open spaces, as set out in the table below (*refer to original document*), will be protected and used in accordance with the functions shown."*

Policy LP 15 'Biodiversity' states:

"A) The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority interms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:

1) *protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;*
2) *supporting enhancements to biodiversity;*
3) *incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;*
4) *ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats;*
5) *enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and*
6) *maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan.*

8.4. *B) Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:*

1) *firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts);*
2) *secondly be adequately mitigated; or*
3) *as a last resort, appropriately compensated for."*

Policy LP 17 'Green Roofs and Walls' states:

1) *"Green roofs and / or brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green / brown roof.*
2) *The onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.*
3) *The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions."*

London Borough of Richmond upon Thames: Supplementary Planning Documents and Guidance

A series of Supplementary Planning Guidance (SPG) and Supplementary Planning Documents (SPDs) has been produced by LBRuT to provide greater detail on existing local planning policies to support decisions on planning applications. LBRuT no longer produces SPGs as they have been replaced with SPDs since 2004. However, they remain material considerations in planning decisions. With regards to biodiversity, a SPG titled 'Nature Conservation and Development'[40] has been published by LBRuT. This SPG states:

i. *"It is important that nature conservation should be integrated at the planning stage with all new development. Schemes should be designed to retain existing features and habitats of wildlife value on site, and to create new habitats where appropriate."*

Currently, the only parts of the UDP that remain saved and have not been superseded are those Proposal sites that were originally saved. The eastern part of the Site is allocated on the Proposals Map as site S4 (Budweiser Stag Brewery)[41].

The LBRuT adopted a planning brief for the Site in July 2011 with SPD[42] status. This document sets out opportunities and constraints regarding the redevelopment of the Site. With regard to biodiversity, this SPD states:

> *"Opportunities should be taken to enhance biodiversity throughout the site and particularly along the River."*

Action Plans

UK Post-2010 Biodiversity Framework

The Environment Departments of all four governments in the UK work together through the Four Countries Biodiversity Group. Together they have agreed, and Ministers have signed, a framework of priorities for UK-level work for the Convention on Biological Diversity. Published on 17 July 2012, the 'UK Post-2010 Biodiversity Framework'[43] covers the period from 2011 to 2020. This now supersedes the UK

[40] London Borough of Richmond upon Thames (no-date); 'Design Guidelines for Nature Conservation & Development'.
[41] London Borough of Richmond upon Thames (2005); 'Unitary Development Plan. Chapter 12 – Local Strategies and Plan Proposals'.
[42] London Borough of Richmond upon Thames (2011); 'Stag Brewery, Mortlake, SW14 Planning Brief. Supplementary Planning Guidance'.
[43] JNCC and DEFRA (on behalf of the Four Countries' Biodiversity Group). (2012). *UK Post-2010 Biodiversity Framework*.

Biodiversity Action Plan (UK BAP)[44]. However, many of the tools developed under UK BAP remain of use, for example, background information about the lists of priority habitats and species. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work in the countries.

Although the UK Post-2010 Biodiversity Framework does not confer any statutory legal protection, in practice many of the species listed already receive statutory legal protection under UK and / or European legislation. In addition, the majority of Priority national (English) BAP habitats and species are now those listed as Habitats of Principal Importance (HoPI) and Species of Principal Importance (SoPI) in England listed under Section 41 (S41) of the NERC Act 2006. For the purpose of this report, habitats and species listed under S41 of the NERC Act are referred to as having superseded the UK BAP. All public bodies have a legal obligation or 'biodiversity duty' under Section 40 of the NERC Act 2006 to conserve biodiversity by having particular regard to those species and habitats listed under S41.

Based on the results of the PEA the following HoPIs and SoPIs listed under S41 are considered to be of potential value on and/or immediately adjacent to the Site:

- Birds, House Sparrow, Bats (SoPI);
- Rivers and Streams (HoPI);
- Noctule bat (SoPI);
- Soprano pipistrelle bat *Pipistrellus pygmaeus* (SoPI);
- Starling *Sturnus vulgaris* (SoPI).

Regional Biodiversity Action Plan (London Environment Strategy)

Regionally, the Site is covered by the London Environment Strategy (LES), this strategy is also adopted by the LPA as its local BAP. The LES covers greater London and was published in May 2018. The strategy includes a list of priority species and habitats. Priority species (SAPs) and habitats (HAPs) related to the Site are listed below:

- Birds, House Sparrow, Bats (SAP);
- Rivers and Streams (HAPs).

Richmond Biodiversity Action Plan

At a local level, the Site is covered by the London Borough of Richmond upon Thames (LBRuT)[45]. This document identifies habitats and species of importance locally and contains local targets relevant for planning and mitigation within Haringey.

Based on the results of the PEA a number of LBAP priority species (SAPs) and habitats (HAPs) are considered to be of potential value on and/or immediately adjacent to the Site, including:

- Tidal Thames (HAP);
- House sparrow (SAP).
- Song thrush (SAP)
- Swift (SAP)
- Stag beetle (SAP)

[44] HMSO. (1994) *Biodiversity The UK Action Plan*.
[45] Richmond Biodiversity Partnership (2019): 'London Borough of Richmond Upon Thames. Biodiversity Action Plan)

B. Landscape and Planting Plans

BIRD AND BAT BOXES:

Bat boxes are integrated into the green and brown roofs on various buildings of the development (detailed component) with a total of ten boxes, tubes or bricks provided in association with soft landscape treatment on these roofs. Boxes are to be oriented between south-east and south-west to suit use.

Bird boxes (total 20 No.) are also provided on roofs closer to the River Thames, including five Schwegler Boxes for swifts and fifteen (15) additional boxes for other bird types. These are to be oriented east or west to suit use. Refer to Ecological report and Protected Species Report for more detail on location and types.

Plant species have been selected to suit a variety of habitats and micro-climatic conditions across the site.

These will include a range of plants suitable as food or habitat plants for a wide range of fauna, including bee attracting flowering plants.

For Development Area 2, the biodiversity strategy will utilise the same principles as above and will be provided in detail design stage.

Legend

- Bird Boxes
- Bat Boxes
- Hibernaculums
- Green Roof Habitat
- Brown Roof Habitat
- Site Application Boundary
- School Application Boundary

PLANTING STRATEGY

The soft landscape strategy of the Stag Brewery development includes several layers of planting typologies including streetscapes, plazas and squares, courtyards, riverside littoral planting and incorporation of existing trees.

The main structural planting of trees will comprise lines of feature trees defining one or both edges of the main access routes – Ship Lane, Green Link and Thames Street.
Street trees will also be installed along residential streets, as well as augmenting tree planting on Lower Richmond Road and Mortlake High Street. A mix of perennial shrub and groundcover planting will be provided throughout all softscape areas, with mass planting and screen planting to suit use of each area. Planting mature heights will take into account safety and secure by design parameters to ensure general safety and to maintain sightlines and passive surveillance opportunities.

Soft landscape strategy for plazas and squares in the development will provide for a range of functions and activities, as well as providing resting places, shade and seasonal celebration. Residential courtyards will provide green amenity open space for residents and visitors, as well as natural play opportunities for children.

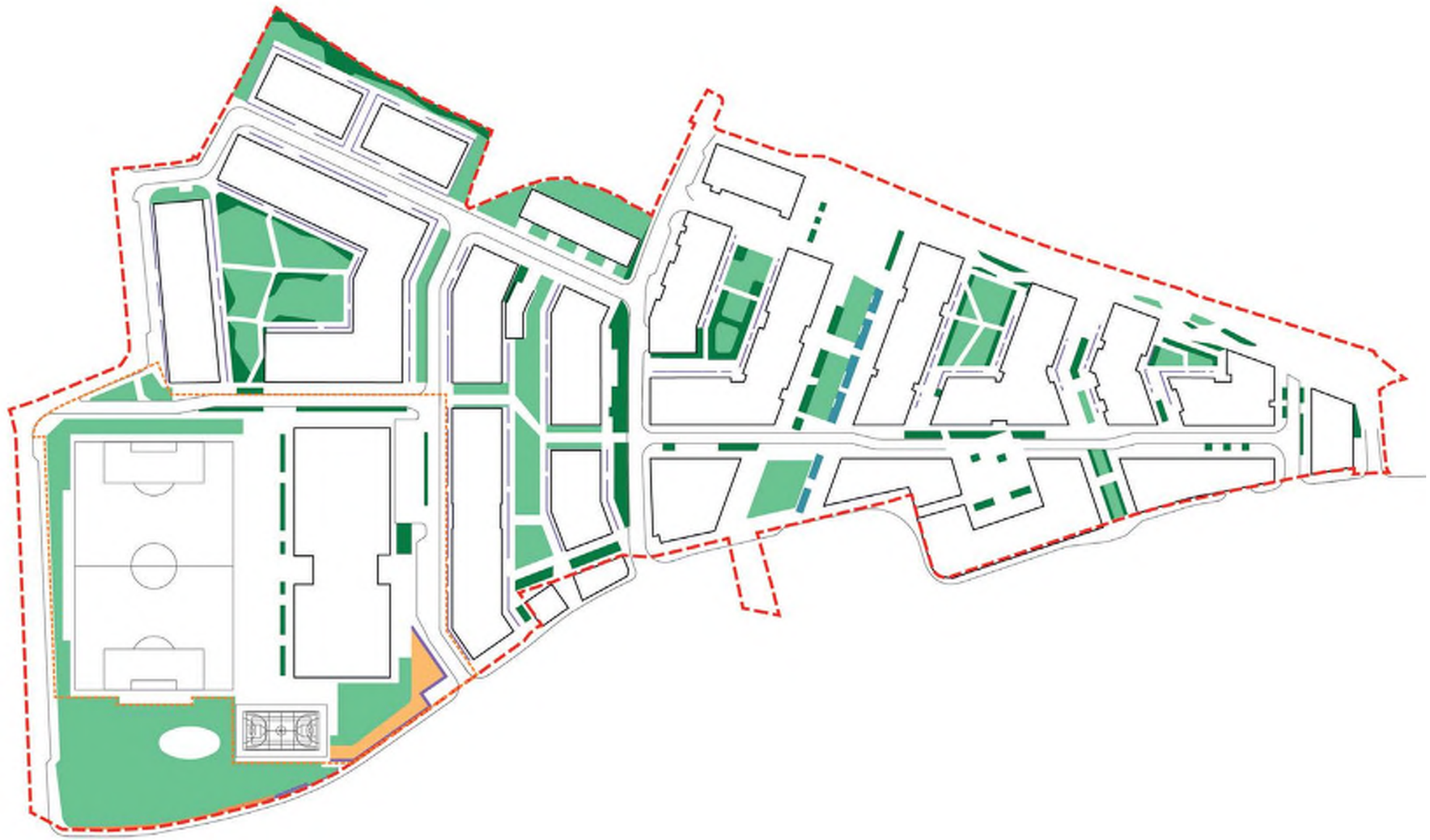
Littoral plant species are used in the areas close to the river edge, responding to existing riverside vegetation. This plant selection emphasises the riverside location and integrates the river edge living environment into the development. A mix of native, locally adapted and exotic plants are proposed to provide increased biodiversity and a sustainable mix of plants with improved drought resistance and longevity.

Good quality existing trees around the site will add valuable character to the site, and together with the soft landscape strategy, will deliver a well-connected green network in and around Stag Brewery development.

PLANT PALETTE

Legend

- Lawn
- Mass Plantings
- New Hedges
- Existing Hedges
- Meadow
- Rain Gardens
- Site Application Boundary
- School Application Boundary



Lawn

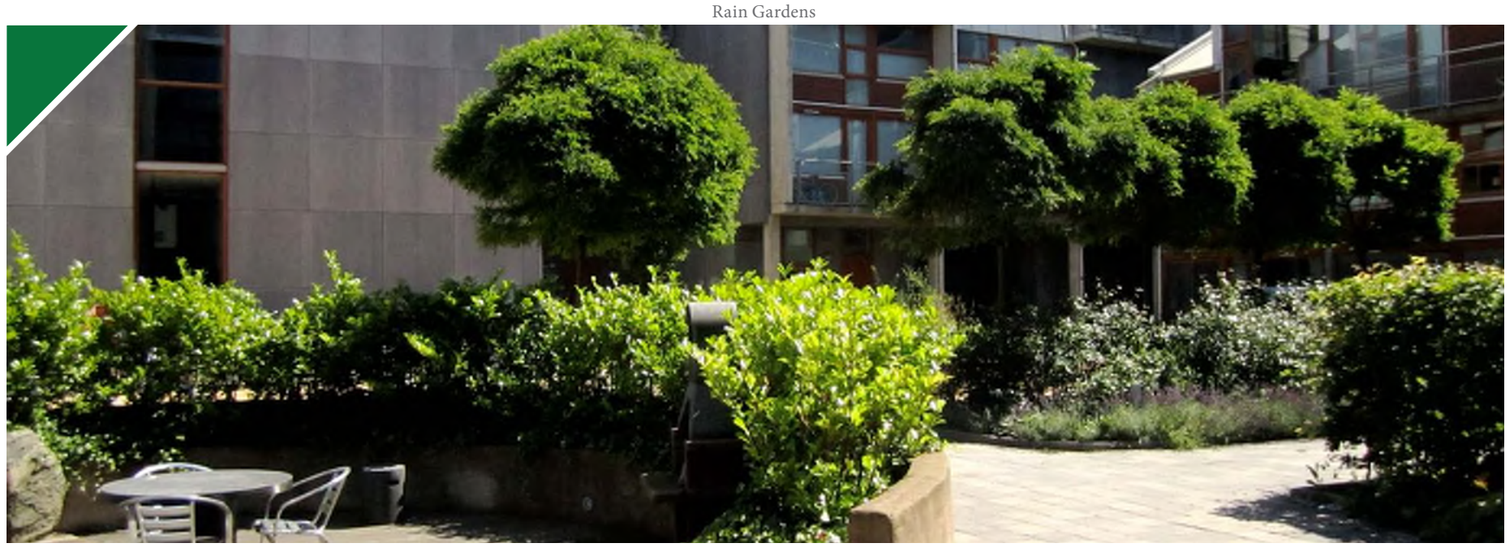
Lawn

Hedges

Rain Gardens

Rain Gardens

Mass Planting



Mass Planting

MASS PLANTING: TYPICAL MIXES

SHADE PLANTING


Aconitum spp.


Lunaria


Vinca difformis


Saxifraga umbrosa


Aster divaricatus


Helleborus niger


Tiarella spp.


Persicaria affinis


Digitalis


Blechum orientale


Polypodium


Polystichum

SUN PLANTING


Allium


Eremurus


Agastache


Osteospermum


Armeria maritima


Aster


Lupinus


Digitalis purpurea


Perovskia


Crocosmia


Helianthemum


Thymus vulgaris

RAIN GARDEN PLANTING


Myosotis Scorpioides


Iris Pseudacorus


Iris Versicolor


Mentha Aquatica


Angelica Purpurea


Silene flos-cuculi


Phalaris Arundinacea


Juncus Articulatus


Carex Rostrata


Wildflower Borders


Reed Borders


Wildflower Borders

UNDERSTOREY / GROUNDCOVERS


Cyperus Involucratus


Galium Odoratum


Zantedeschia Aethiopica


Francoa Sonchifolia


Dianella Tasmanica


Heuchera Cylindrica


Luzula Nivea


Arum Pictum


Crinum Asiaticum


Asarum Europaeum


Asplenium scolopendrium


Adiantum Aleuticum

STRATEGY:

The proposed tree strategy can be broken down into the following landscape types and will be defined by the tree species shown in the indicative planting list and the tree strategy plan:

1. Retained trees: on-going husbandry and canopy management of the existing trees, alongside a new augmented tree planting to emphasise and enhance the amenity impact of any blocks of planting.
2. Large feature trees underpin pedestrian avenues and squares, framing the urban sphere by creating a soft backdrop and creating a shaded threshold to any main spaces; Clusters of small feature trees are informally scattered in large green area to provide shade and define more intimate spaces within.
3. The Courtyards: mainly small trees will be chosen for their hardiness in these conditions, light weight and light dappled canopy to ensure their suitability for the conditions encountered.
4. Structural Street Tree Planting: along the streets, tree planting is to be predominantly species with columnar canopies, allowing the trees to be situated in close proximity to the building massing & thereby providing shade and shelter from wind and giving seasonal interest in leaves, bark and form. Interspersed softscape bays and corners are populated with clusters that unify the street scene and define their own character.
5. Augmented tree planting in softscape areas throughout the wider masterplan: these are predominantly of a smaller habit, native species and mixed forms with some multi-stem species that have good seasonal qualities, suited to the spaces and anticipated light levels.
6. Specimen trees: will be interspersed throughout the development in selected parts of pedestrianised areas and in locations which present a good opportunity to host and display trees of particular merit.
7. Native small trees will be located in a grove in the pocket park below the school, providing community access and educational opportunities for students.

The selection will conform to the Borough's Greenscape Guidance - being a varied palette of predominantly native trees, with a sourcing preference for UK stock with adaptability to climate change, and comments received in consultation with LBRuT officers and the arboriculturalists engaged for the submission taken into account. Further information can be found in the environmental statement, appendices and addendums.

TREE PLANTING STRATEGY DIAGRAM

TREE PLANTING

TREE PALETTE

EG: ACER X FREEMANII 'AUTUMN BLAZE'

EG: QUERCUS ROBUR

EG: MALUS SYLVESTRIS

EG: CORNUS SANGUINEA

EG: PRUNUS SERRULA(STANDARD & MULTI-STEM)

EG: BETULA UTLIS V. JACQUIMONTII (STANDARD & MULTI-STEM)

EG: CRATAEGUS MONOGYNA

EG: ROSA CANINA

EG: BETULA PENDULA

EG: VIBURNUM OPULUS

TREE PLANTING

TREE PALETTE

EG: TILIA CORDATA

EG: ACER PLATANOIDES ‘COLUMNARE’

EG: BETULA UTLIS V. JACQUIMONTII (MUTI-STEM)

EG: CORNUS SANGUINEA

EG: CARPINUS BETULUS ‘FRANS FONTAINE’

EG: ACER CAMPESTRE ‘STREETWISE’

EG: ACER GRISEUM

EG: AMELANCHIER LAMARCKII

BIODIVERSITY ROOF

BIODIVERSITY ROOF

BIODIVERSE ROOFS (Total 2,524m²):

It is proposed to implement extensive green / brown roof systems on a number of the buildings with flat roofs, exploiting the ecological potential of these upper levels. A percentage of the roof space on new buildings in the development has been designed as extensive green or brown roofs, to provide biodiversity and energy benefits, as well as contributing to stormwater drainage and short term attenuation storage. While it is acknowledged that the LBRuT recommendation of 70% of roofs being allocated to green roofs is not achieved, we have provided over 50% of green or brown roofs and have endeavoured to maximise suitable biodiversity through the green and brown roof strategy, as well as significant planting areas and retained vegetation throughout the site. The roofscape is also utilised to provide PV cells, air conditioning and other mechanical plant and lift overrun structures, together with maintenance access. The calculated available roof space excludes areas unsuitable for the inclusion of biodiverse roofs such as pitched roof structures, lift over-runs and areas allocated for building plant or services.

Green and brown roofs provide beneficial insulation to buildings and a degree of infiltration and storage of rainwater, while adding to the biodiversity of the site with a range of plant types, habitats for various insects and invertebrates and potentially birds and bats. A number of bat and bird boxes and bricks will be integrated into the roofscape and informal habitats created with rocks and gravel surfaces to brown roof sections.

Green roofs include a wildflower and native grasses mix and are designed as a sustainable, biodiverse roofscape and a pleasant visual outlook for surrounding higher buildings. This light weight roof system will assist in absorbing rainwater as well as increasing the biodiversity of the site by providing additional foraging and habitat for insects and birds.

Brown roofs are accessible for maintenance purposes and will incorporate PV cells in some areas, as indicated in Architectural and MEP drawings. Each brown roof will be seeded with plant species collected from the site or nearby, to boost local endemic habitat and foraging for local species. Certain features will be introduced to maximise potential for biodiversity and habitat for target species. These will include log piles, slabs or tree branches gathered from the local area, combined with bird and bat boxes noted below. Where possible, the substrate depth will be varied to provide opportunities for small pools of water to collect on the roof.

For Development Area 2, biodiverse roofs will be incorporated using same principles as above and additional details will be provided in detail design stage.

Biodiverse roof allocation - Development Area 1

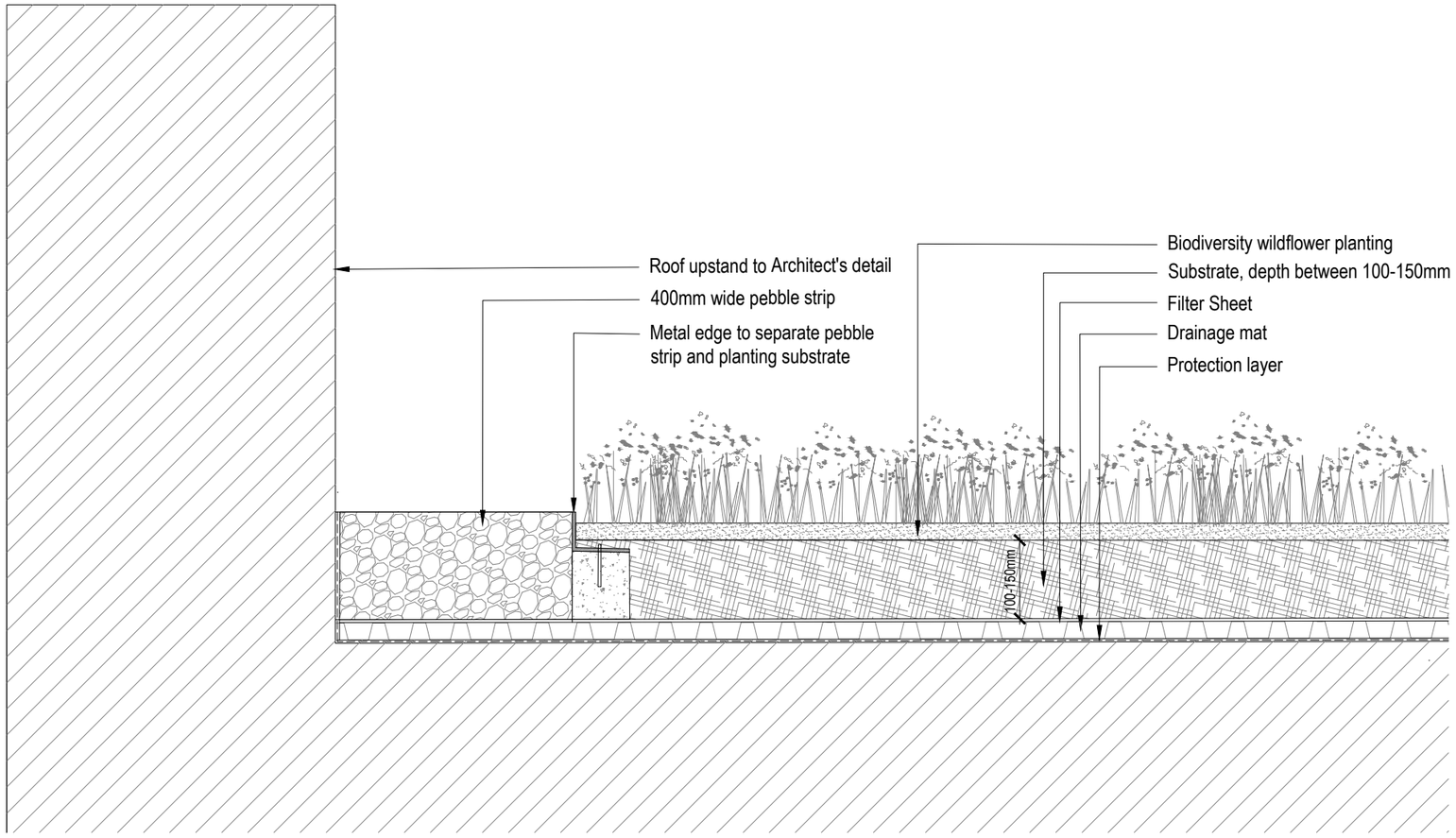
	Area (square metres)	Area as percentage
Available roof space	4,475	N/A
Green roof allocation	2,164	48%
Brown roof allocation	360	8%
Total allocated	2,524	56%

Legend

- Green Roof (total 2,164m²)
- Brown Roof (total 360m²)
- Site Application Boundary
- School Application Boundary

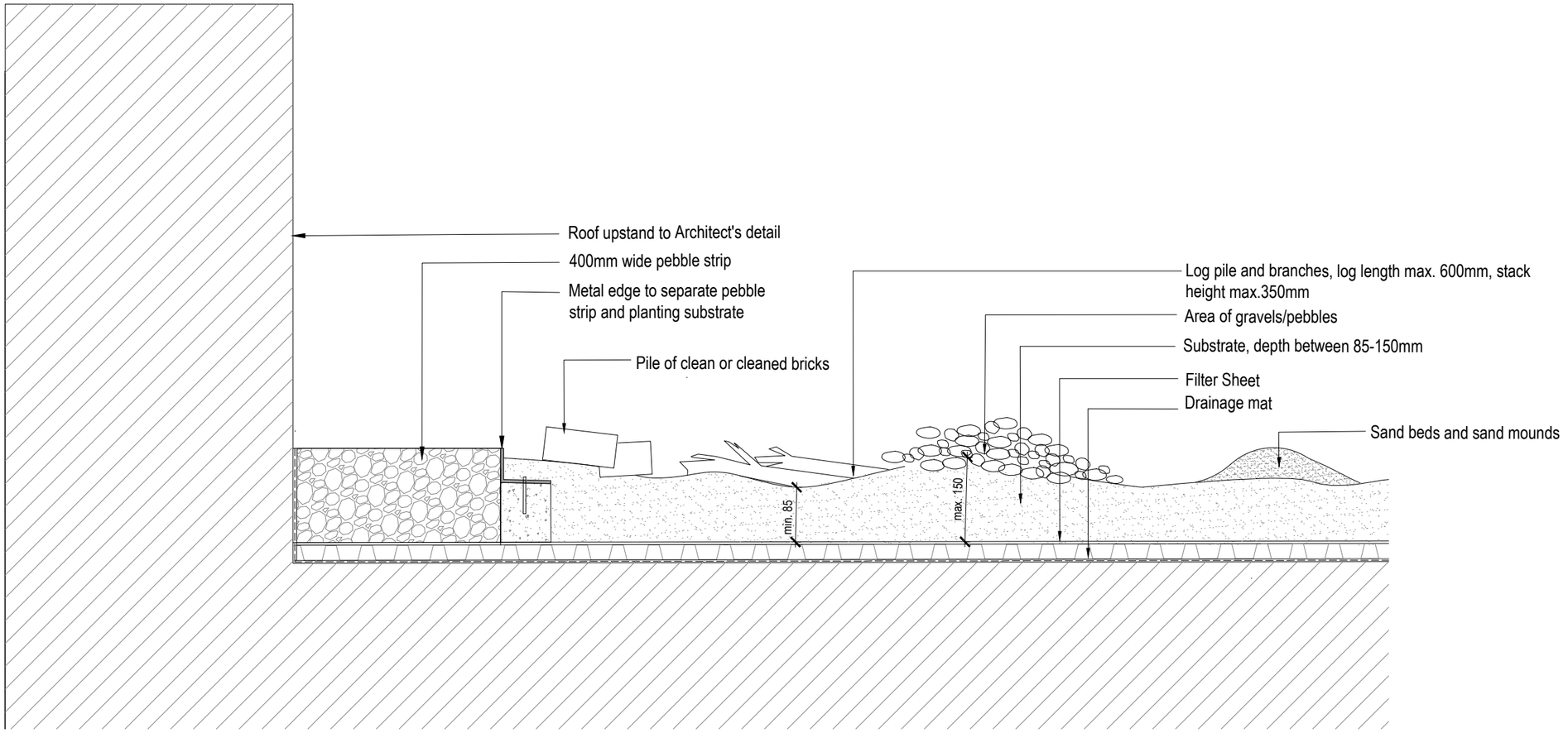
BIODIVERSITY ROOF

GREEN ROOF TYPICAL DETAIL



BIODIVERSITY ROOF

BROWN ROOF TYPICAL DETAIL



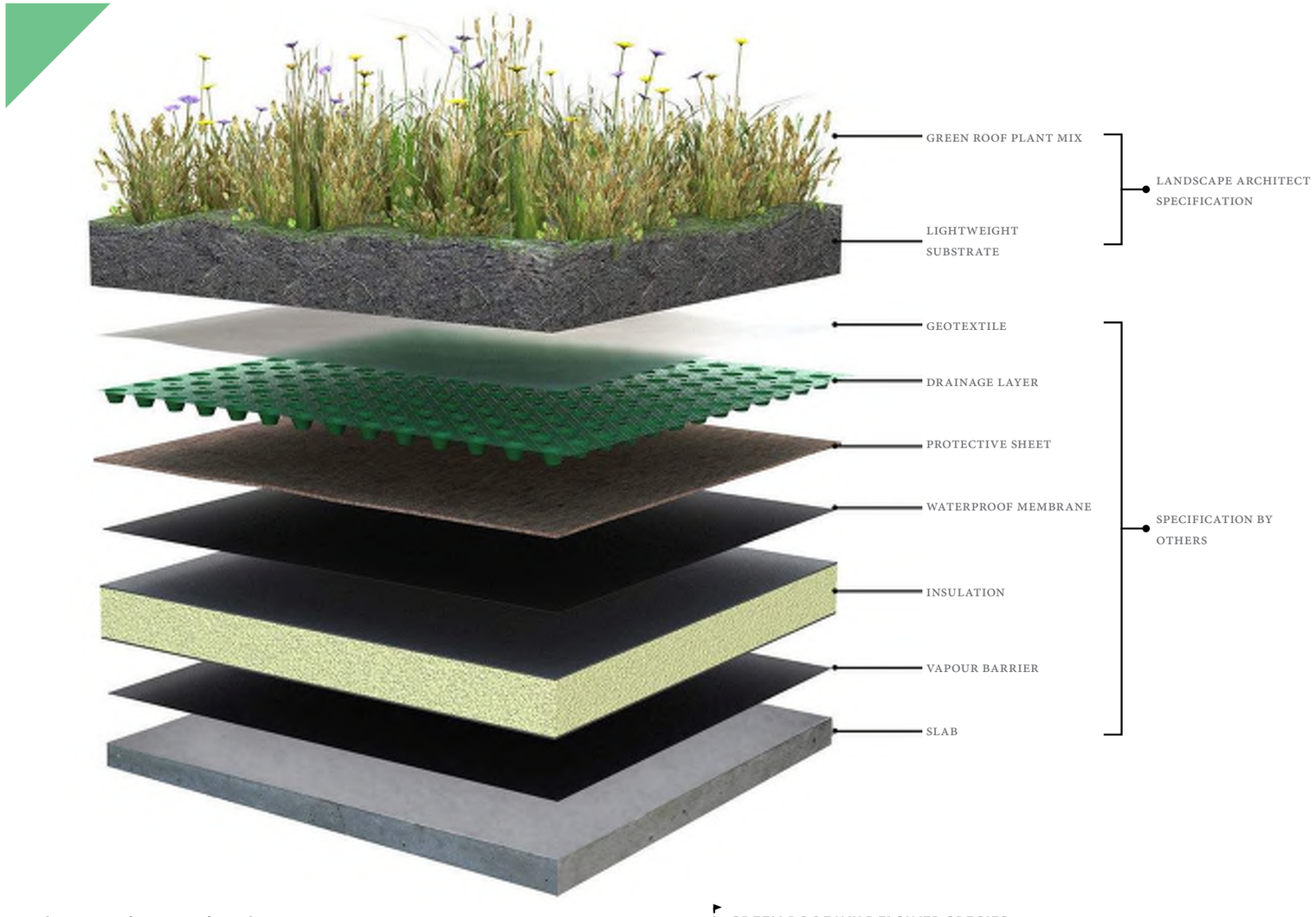
BIODIVERSITY ROOF

GREEN ROOF PLANTING DETAIL

Green roofs include a wildflower (90%) and native grasses (10%) mix and are designed as a sustainable, biodiverse roofscape and a pleasant visual outlook for surrounding higher buildings. An indicative species palette is included on this page.

XF118 WILDFLOWER INDICATIVE SPECIES LIST

Botanical Name	Height	Blossom	Flowering Season
Achillea millefolium	8-40 cm	White	June-August
Armeria maritima	5-20 cm	Pink	April-October
Bellis perennis	3-12c m	White / Yellow	March-October
Campanula glomerata	3-30 cm	Blue	June-October
Campanula rotundifolia	15 cm	Blue	July-September
Centaurea cyanus	20-50 cm	Blue	June-August
Centaurium erythrea	10-40 cm	Pink	July-August
Dianthus deltoides	15-30 cm	Pink	April-October
Echium vulgare	30-60 cm	Blue	June-September
Galium verum	15-60 cm	Yellow	July-August
Geum rivale	20-40 cm	Pink	April-August
Linaria vulgaris	20-40 cm	Yellow	July-September
Lotus corniculatus	10-20 cm	Yellow	June-September
Lychnis flos-cu-culi	50-60 cm	Pink	May-August
Papaver rhoes	20-60 cm	Red	June-August
Pilosella aurantiaca	20-60 cm	Orange	July-October
Prunella vulgaris	5-20 cm	Purple	June-October
Rhianthos minor	30-50 cm	Yellow	May-August
Saponaria officianalis	20-40 cm	Light Pink	July-September
Scabiosa columbaria	15-50 cm	Blue	July-October
Sedum acre	5-10 cm	White / Yellow	July-August
Silene uniflora	8-25cm	White	June-August
Silene vulgaris	25-50 cm	White	June-August
Thymus polytricus	4-10 cm	Mauve	May-August



Precedent Image of Green Roof Detail

GREEN ROOF WILDFLOWER SPECIES


Alliaria petiolate


Echium vulgare


Papaver rhoes


Galium verum


Daucus carota


Prunella vulgaris


Silene vulgaris


Rhianthos minor

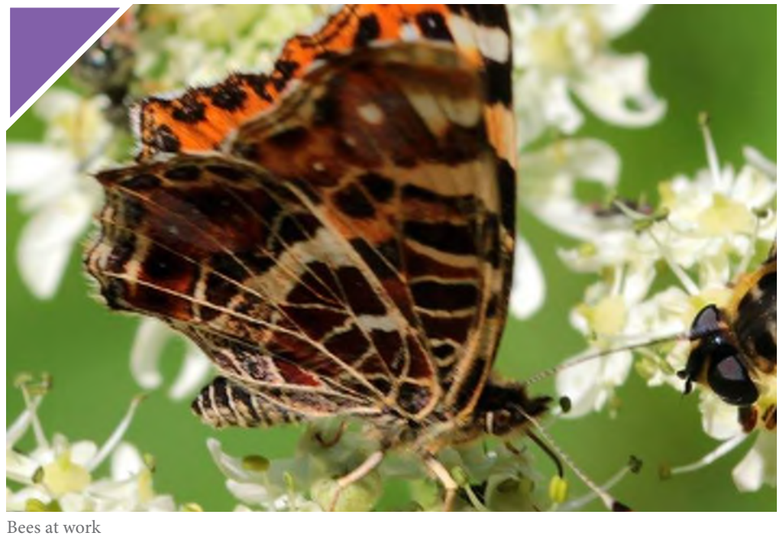
ECOLOGY

Living roofs are designed, with a combination of green and brown roofs to provide a range of plants and habitats, as well as contributing to the biodiversity of the site.
Insect attracting plants and structures to form shelters and habitats will be included in green and brown roof details.
A number of ecological enhancements will be incorporated in the proposed landscape and a minimum of ten bat boxes are to be provided in suitable location within the Detailed Application Boundary Area.

Bird boxes

Bat box

Bat box



Bees at work

Wood log piles

SUSTAINABLE URBAN DRAINAGE STRATEGY:

RAIN GARDENS

Rain gardens form a significant landscape feature within the central Green Link, draining one side of the pavement directly into a planted storage 'trench' which ultimately connects to the stormwater attenuation system. This feature provides an effective sustainable drainage system while creating an obvious ecological feature in the public realm, accentuating the visibility of sustainable measures taken in the development. This feature provides a link to the master planning strategy for ecological development and sustainable drainage and allows surface water to be collected in mass planting areas along the Green Link.

BIODIVERSE ROOFS

Green and brown roofs on the majority of buildings across the site provide biodiversity and also contribute to the rainwater attenuation. Surface treatments in the public and private realm are proposed as predominantly permeable, with soft landscape, turf and grasses, together with permeable pavements of gravel (self-binding or bonded) contrasting with hard paving surfaces and assisting drainage of stormwater.

IRRIGATION

An irrigation system will be provided to all soft landscape areas (planting and lawn) excluding green or brown roofs. This will include soil moisture monitors and a programmable control system to ensure efficiencies in operation and water management.

The irrigation plant room and central controls will be positioned in the basement plant room and link to mains water supply.

PERMEABLE SURFACES

Paved areas will be designed where feasible to drain into tree pits and planting areas, providing natural watering and assisting infiltration and storage of stormwater.

For Development Area 2, the sustainable urban drainage strategy will be developed in accordance with the above and provided in detail design stage.

Legend

- Rain Garden
- Planter
- Permeable Paving
- Site Application Boundary
- School Application Boundary

Rain garden

Planter

Rain garden detail

Rain garden detail

Permeable paving

URBAN GREENING FACTOR

The objective of urban greening is the inclusion of measures within new developments that result in an increase in green cover within the development area, and should be integral to planning the layout and design of new buildings and developments. This objective has been considered from the inception of the design process for the Stag Brewery.

Urban greening covers a wide range of interventions including, but not limited to, street trees, green roofs, green walls, and rain gardens. It can provide a range of benefits including amenity space (especially where traditional green space may be limited), enhanced biodiversity, addressing the urban heat island effect and sustainable drainage.

Policy G5 Urban Greening of the Draft New London Plan sets a urban greening factor model to assist in determining the appropriate provision of urban greening for new developments in London. The Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development.

The Urban Greening Factor for a proposed development is calculated in the following way:

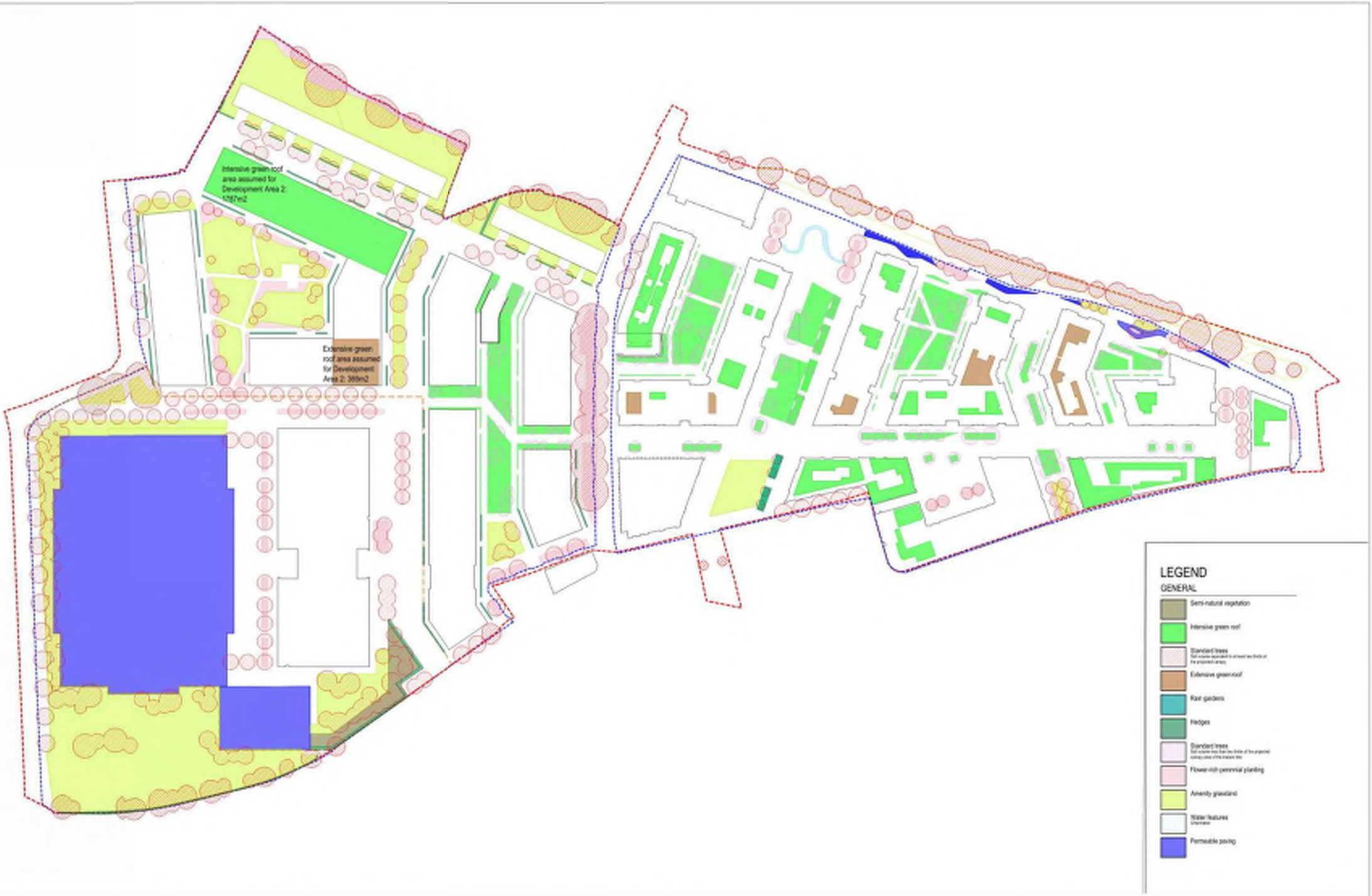
(Factor A x Area) + (Factor B x Area) + (Factor C x Area) etc. divided by Total Site Area.

The table opposite summaries the urban greening factor for the Stag Brewery development.

P10736-00-003-GIL-190806 Urban Greening Summary
Rev 02

GILLESPIES

Surface cover type	Factor	Area (m2)	Value
Semi-natural vegetation (e.g. woodland, flower-rich grassland) created on site.	1	396	396
Wetland or open water (semi-natural; not chlorinated) created on site.	1	0	0
Intensive green roof or vegetation over structure. Vegetated sections only. Substrate minimum settled depth of 150mm	0.8	2164	1731.2
Standard trees planted in natural soils or in connected tree pits with a soil volume equivalent to at least two thirds of the projected canopy area of the mature tree	0.8	4956	3964.8
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket)	0.7	360	252
Flower-rich perennial planting	0.7	0	0
Rain gardens and other vegetated sustainable drainage elements	0.7	213	149.1
Hedges	0.6	774	464.4
Standard trees planted in pits with soil volume less than two thirds of the projected canopy area of the mature tree	0.6	148	88.8
Green wall –modular system or climbers rooted in soil	0.6	0	0
Groundcover planting	0.5	2455	1227.5
Amenity grassland (species-poor regularly mown lawn).	0.4	11022	4408.8
Extensive green roof of sedum mat without substrate	0.3	0	0
Water features (chlorinated) or unplanted detention basins.	0.2	58	11.6
Permeable paving	0.1	9220	922
Sealed surfaces	0	60823	0
Total site area (m2)		92589	
Urban Greening Factor			0.15



Notes

1.0 Do not scale from drawing, use figured dimensions only.
1.1 All dimensions to be checked onsite.
1.2 This drawing to be read in conjunction with all other Gillespies drawings and specifications.

0 5 10 25 50 m

STAG BREWERY

URBAN GREENING FACTOR - SITE WIDE

P1CT36-00-004-GIL-0802

PLANNING P00

GILLESPIES

Urban Greening Factor Calculator - Site Wide				
Surface Cover Type	**Factor**	**Area (m²)**	**Contribution**	**Notes**
Semi-natural vegetation (e.g. trees, woodland, species-rich grassland) maintained or established on site.	1	417	417	
Wetland or open water (semi-natural; not chlorinated) maintained or established on site.	1		0	
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm.	0.8	7975	6380	
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree.	0.8	12723	10178.4	
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code 2014.	0.7	797	557.9	
Flower-rich perennial planting.	0.7	2190	1533	
Rain gardens and other vegetated sustainable drainage elements.	0.7	62	43.4	
Hedges (line of mature shrubs one or two shrubs wide).	0.6	557	334.2	
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6	1998	1198.8	
Green wall –modular system or climbers rooted in soil.	0.6		0	
Groundcover planting.	0.5		0	
Amenity grassland (species-poor, regularly mown lawn).	0.4	12438	4975.2	
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014.	0.3		0	
Water features (chlorinated) or unplanted detention basins.	0.2	58	11.6	
Permeable paving.	0.1	9073	907.3	
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0	58962	0	
Total contribution			**26536.8**	
Total site area (m²)			92464	
Urban Greening Factor			**0.28699602**	

C. Condition Assessment

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	07.12.2021	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	Sunny		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Ephemeral/ruderal vegetation
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?		Condition sheet used	
Reason for assessment (if not baseline condition survey)	Done form PEA		
Limitations (if applicable)	Detail in the PEA used to determine crtierion P or F		

Habitat description

Small areas of ephemeral / tall ruderal vegetation hashave colonised cracked and disturbed areas of hardstanding. The species recorded within these areas include bristly ox-tongue Helminthotheca echioides, smooth sow-thistle Sonchus oleraceus, cleavers, wall barley, broad-leaved willow herb Epilobium montanum, Michaelmas daisy Aster amellus, spear thistle Cirsium vulgare, prickly lettuce Lactuca serriola, cocksfoot Dactylis glomerata, mugwort Artemisia vulgaris, knotgrass Polygonum sp, greater plantain, wood avens, red fescue, common ragwort Jacobaea vulgaris, broad leaved dock, common dandelion, common hogweed Heracleum sphondylium, common nettle, perennial rye-grass, herb Robert and Canadian fleabane Erigeron canadensis.

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	P	P	P										
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Moderate
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	07.12.2021	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	Sunny		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Hedgerow
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?	Onsite Hedge south of Watneys Sports Ground	Condition sheet used	Native Hedgerow
Reason for assessment (if not baseline condition survey)	Done form PEA		
Limitations (if applicable)	Detail in the PEA used to determine crtierion P or F		

Habitat description

A length (of approximately 90m) of privet Ligustrum sp hedge is present along the southern edge of Watney's Sports Ground playing fields. This hedge is approximately 1.5 m in height and 0.75 m wide and appears to be subject to a regular management regime

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	P	P	P	F	F	P	F						
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Good
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	07.12.2021	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	Sunny		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Line of trees
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?	Line of trees (all)	Condition sheet used	Line of trees
Reason for assessment (if not baseline condition survey)	Done form PEA		
Limitations (if applicable)	Detail in the PEA used to determine crtierion P or F		

Habitat description

Line of trees are present within the Watney's Sports Ground playing fields, Chalker's Corner and lining the lining the River Thames. These trees vary in age. Along the River Thames the tree species include ash Fraxinus excelsior, sycamore Acer pseudoplatanus, elder Sambucus nigra, goat willow Salix caprea, cherry Prunus sp., elm Ulmus sp. and hawthorn Crataegus monogyna. Within Watney's sports Ground playing fields the tree species include wingnut Pterocarya sp, London Plane Platanus x hispanica, Indian Bean Tree Catalpa bignonioides, Manna Ash Fraxinus ornus, red horse chestnut Aesculus x carnea, pink hawthorn Crataegus laevigatus 'Rosea Flore Pleno', cockspur hawthorn Crataegus crus-galli and Ornamental Hawthorn Crataegus sp. At Chalkers Corner the tree species include red norway Maple Acer platanoides 'Crimson King', cherry Prunus sp, cider gum Eucalyptus gunnii, horse chestnut Aesculus hippocastanum and false acacia Robina pseudoacacia. Some recent management in the form of pruning works is present at the trees.

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	P	P	P	F	P									
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Moderate
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	07.12.2021	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	Sunny		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Modified Grassland
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?	On Site - Adjacent to River Thames	Condition sheet used	Grassland habitat type (low)
Reason for assessment (if not baseline condition survey)	Done form PEA		
Limitations (if applicable)	Detail in the PEA used to determine crtierion P or F		

Habitat description

Amenity grassland is present at the Site within Watney's Sports Ground playing fields, Mortlake Green and the footpath / roadside verges at Chalker's Corner and along the boundary with the River Thames. The short length of sward (approximately 5cm) and limited species diversity recorded indicate that the amenity grassland is subject to an intensive mowing regime. The dominant species recorded was perennial rye grass Lolium perenne with species including common bent Agrostis capillaris, common daisy Bellis perennis, ribwort plantain Plantago lanceolata, red fescue Festuca rubra, white clover Trifolium repens, common catsear Hypochaeris radicata, yarrow Achillea millefolium, dove's-foot cranesbill Geranium molle and Taraxacum sp also present.

Where the edges of the amenity grassland have avoided the mowing regime, this has a longer sward and is more species rich with wall barley Hordeum murinum (dominant in areas), yarrow Achillea millefolium, red clover Trifolium pratense, meadow cranesbill Geranium pratense, common dandelion Taraxacum officinale, cleavers Galium aparine, false oat-grass Arrhenatherum elatius, Yorkshire fog Holcus lanatus, herb Robert Geranium robertianum, common mallow Malva sylvestris, wood avens Geum urbanum, broad-leaved dock Rumex obtusifolius, greater plantain Plantago major and common nettle Urtica dioica present

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	P	P	F	F	F	F							
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Poor
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	07.12.2021	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	Sunny		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Modified Grassland
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?	On Site - Whatneys and Chalkers Corners Verge ar	Condition sheet used	Grassland habitat type (low)
Reason for assessment (if not baseline condition survey)	Done form PEA		
Limitations (if applicable)	Detail in the PEA used to determine crtierion P or F		

Habitat description

Amenity grassland is present at the Site within Watney's Sports Ground playing fields, Mortlake Green and the footpath / roadside verges at Chalker's Corner and along the boundary with the River Thames. The short length of sward (approximately 5cm) and limited species diversity recorded indicate that the amenity grassland is subject to an intensive mowing regime. The dominant species recorded was perennial rye grass Lolium perenne with species including common bent Agrostis capillaris, common daisy Bellis perennis, ribwort plantain Plantago lanceolata, red fescue Festuca rubra, white clover Trifolium repens, common catsear Hypochaeris radicata, yarrow Achillea millefolium, dove's-foot cranesbill Geranium molle and Taraxacum sp also present.

Where the edges of the amenity grassland have avoided the mowing regime, this has a longer sward and is more species rich with wall barley Hordeum murinum (dominant in areas), yarrow Achillea millefolium, red clover Trifolium pratense, meadow cranesbill Geranium pratense, common dandelion Taraxacum officinale, cleavers Galium aparine, false oat-grass Arrhenatherum elatius, Yorkshire fog Holcus lanatus, herb Robert Geranium robertianum, common mallow Malva sylvestris, wood avens Geum urbanum, broad-leaved dock Rumex obtusifolius, greater plantain Plantago major and common nettle Urtica dioica present

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	F	F	F	F	F	P							
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Poor
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	07.12.2021	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	Sunny		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Urban Trees
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?		Condition sheet used	Urban Trees (including street trees)
Reason for assessment (if not baseline condition survey)	Done form PEA		
Limitations (if applicable)	Detail in the PEA used to determine crtierion P or F		

Habitat description

Urban trees are present across the Site (growing out of hardstanding and as sperate stand from the line of trees habitats below), within the brewery component of Site. These trees vary in age and comprise false acacia Robinia pseudoacacia, sycamore Acer pseudoplatanus London plane Platanus x hispanica, hornbeam, small-leaved lime Tilia cordata, wild cherry Prunus avium, whitebeam Sorbus aria, Himalayan birch Betula utilis, ash Fraxinus excelsior, elder Sambucus nigra, holly, Swedish whitebeam Sorbus intermedia and tree-of-heaven Ailanthus altissima. Some recent management in the form of pruning works is present at the trees

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	P	P	P	F	F								
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Moderate
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	extensive green roof
Site name or location	Stag Brewery	Condition assessment required? (y/n)	
Onsite or offsite?	onsite	Condition sheet used	extensive green roof
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

extensive green roofs to be planted as part of the landscape design plans

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	P	P	P											
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Good
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	intensive green roof
Site name or location	Stag Brewery	Condition assessment required? (y/n)	
Onsite or offsite?	onsite	Condition sheet used	intensive green roof
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

intensive green roof to be planted as part of the landscape design plans

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	P	P	P											
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Good
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	Line of trees
Site name or location	Stag Brewery	Condition assessment required? (y/n)	Y
Onsite or offsite?	onsite	Condition sheet used	Line of trees
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

line of trees to be planted on site as part of the landscape design plan

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	P	F	F	P									
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Poor
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	mixed scrub
Site name or location	Stag Brewery	Condition assessment required? (y/n)	
Onsite or offsite?	onsite	Condition sheet used	mixed scrub
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

mixed scrub to be planted as part of the landscape design plans

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	P	F	P	F	F									
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Poor
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	modified grassland
Site name or location	Stag Brewery	Condition assessment required? (y/n)	
Onsite or offsite?	onsite	Condition sheet used	grassland habitat type (low distinctiveness)
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

modified grassland to be planted as part of the landscape design plans

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	F	F	F	P	P	F							
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Poor
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	rain garden
Site name or location	Stag Brewery	Condition assessment required? (y/n)	
Onsite or offsite?	onsite	Condition sheet used	urban
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

rain gardens to be planted as part of the landscape design plans

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	P	P	P											
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Good
Suggested enhancement interventions to improve condition	N/A		

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS

Date	NA	Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)	
Weather conditions	NA		
Surveyor name(s)	Lee Mantle	Unique polygon reference(s)	
Project / development name	Stag Brewery	Metric 3.0 habitat type	urban trees
Site name or location	Stag Brewery	Condition assessment required? (y/n)	
Onsite or offsite?	onsite	Condition sheet used	urban trees
Reason for assessment (if not baseline condition survey)	habitat creation condition assesment		
Limitations (if applicable)			

Habitat description

urben trees to be planted as part of the landscape design plans

Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria.
For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.

Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	**TOTAL**
Result	F	P	P	F	F	P								
Photo ref														
Target note ref														

Are any criteria non-negotiable? (Y/N)	N	Condition (Good/Moderate/Poor):	Moderate
Suggested enhancement interventions to improve condition	N/A		

D. BNG Good Practice Principals

BNG Good Practice Principals

Principle	Definition	Evidence
Principle 1. Apply the Mitigation Hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.	The proposed Development has been fully assessed as part of the EIA process and the assessment that has applied the mitigation hierarchy is presented in the Environmental Statement.
Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere	Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or Net Gain.	As part of the landscape masterplan development, although no irreplaceable habitats were identified, habitats of value such as trees were protected within the design with buffers around these habitats incorporated early in its design stages.
Principle 3. Be inclusive and equitable	Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain. Achieve Net Gain in partnership with stakeholders where possible, and share the benefits fairly among stakeholders.	Consultation with Richmond council has been undertaken throughout the design stage of the proposed development as part of previous planning applications including: LBRuT - 18/0547/FUL, 18/0548/FUL, and 18/0549/FUL, GLA - ref 4172, 4172a and 4172b (withdrawn), in line with policies detailed in the London Borough of Richmond upon Thames: Adopted Local Plan 2018. Whilst this consultation was undertaken prior to net gain, mandatory discussion has been key as part of the 10% net gain provided as part of this assessment.
Principle 4. Address risks	Mitigate difficulty, uncertainty and other risks to achieving Net Gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.	Time between losses occurring and the gains being fully realised have not been taken account of in this assessment. However, the assumptions made have been set out in this BNG report. A management plan will be created and implemented to mitigate the risks of achieving a Net Gain.
Principle 5. Make a measurable Net Gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.	A measurable, overall gain for biodiversity has been calculated. This has been achieved through the use of the Defra Metric 3.0, UKHabs classification system and ArcGIS to calculate the biodiversity units and the use of local action plans to make informed recommendations.
Principle 6. Achieve the best outcomes for biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when: Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature	The proposed Development has been fully assessed as part of the EIA process and the assessment presented in the Environmental Statement and has been used to make choices that have informed the design of the landscape masterplan and to ensure the proposed Development contributes towards nature conservation priorities and local and national levels, including: the retention and protection of higher value habitats such as trees;

Principle	Definition	Evidence
	conservation Achieving Net Gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels Enhancing existing or creating new habitat Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity	the compensation for loss of modified grassland with creation of a larger area of habitat of the same distinctiveness of benefit to local wildlife; Planting of 205 new trees throughout the Site as well as green roofs to enhance ecological connectivity.
Principle 7. Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).	A Net Gain exceeding 10% has been calculated and the do-nothing scenario on site would not have achieved the same outcome.
Principle 8. Create a Net Gain legacy	Ensure Net Gain generates long-term benefits by: Engaging stakeholders and jointly agreeing practical solutions that secure Net Gain in perpetuity; Planning for adaptive management and securing dedicated funding for long-term management; Designing Net Gain for biodiversity to be resilient to external factors, especially climate change; Mitigating risks from other land uses; Avoiding displacing harmful activities from one location to another; and Supporting local-level management of Net Gain activities	A management plan will be created with input from stakeholders to agree practical solutions to ensure a Net Gain is maintained. Details of funding for long-term management will be agreed and detailed within the management plan
Principle 9. Optimise sustainability	Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.	BNG has been prioritised throughout the whole design process of the proposed Development and this will optimise the wider environmental benefits.
Principle 10. Be transparent	Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.	The proposed landscape design plan has not materially changed and mandatory discussion has been key as part of the 10% net gain provided as part of this assessment.

E. Headline results

Headline Results

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On-site baseline	*Habitat units*	9.13
	Hedgerow units	2.98
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	11.83
	Hedgerow units	3.60
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	29.55%
	Hedgerow units	21.04%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	2.70
	Hedgerow units	0.63
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	29.55%
	Hedgerow units	21.04%
	River units	0.00%
Trading rules Satisfied?	Yes	

F. Distinctiveness

Distinctiveness categories and multiplier scores used for Area Habitats (taken from Biodiversity Metric 3.0 – User Guide)

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

G. UKHabs Habitat Conversion Table

UGF-UKHabs Habitat Conversion Table

Landscape Design Plan (Urban Greening Factor classification)	UKHabs Conversion
Semi-natural vegetation	Mixed Scrub
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm	Intensive green roof
Standard trees planted in connected tree pits	Urban Trees
Extensive green roof with substrate of minimum settled depth of 80mm	Extensive green roof
Flower-rich perennial planting	Vegetated Garden
Rain gardens and other vegetated sustainable drainage elements	Rain Garden
Hedges	Hedge Ornamental Non-Native
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree	Urban Trees
Amenity grassland	Modified Grassland
Water features (chlorinated) or unplanted detention basins.	Developed Land; Sealed Surface*
Permeable paving	Developed Land; Sealed Surface*
Sealed surfaces	Developed Land; Sealed Surface

*See Limitations section for conversion justification

H. Metric 3.0

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)	*Habitat units*	2.70
	Hedgerow units	0.63
	River units	0.00
Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)	*Habitat units*	29.55%
	Hedgerow units	21.04%
	River units	0.00%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total area / length	11.66	0.66	0.00
Total units	9.13	2.98	0.00
Area / length retained	2.83	0.56	0.00
Units Retained	3.50	2.56	0.00
Area / length proposed for enhancement	0.00	0.00	0.00
Baseline units proposed for enhancement	0.00	0.00	0.00
Area / length lost	9.38	0.10	0.00
Units lost	5.64	0.41	0.00

Area Habitats

Area habitats

On site change by broad habitat type

Habitat group	Baseline		Post development on site		Onsite Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Onsite Unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	2.31	4.61	1.40	2.70	-0.91	-1.91
Heathland and shrub	0.00	0.00	0.04	0.16	0.04	0.16
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	9.90	4.52	10.75	4.45	0.84	-0.07
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Area Habitats

Off site change by broad habitat type

Habitat group	Baseline		Post development Off-site		Off-site Change	
	Existing area	Off-site Existing value	Off-site proposed area	Off site Proposed value	Off-site area change	Off-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.00	0.00	0.00	0.00	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Area Habitats

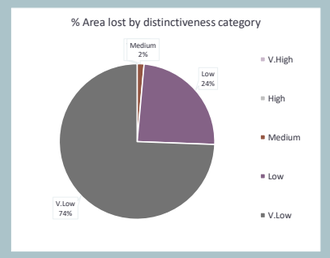
Combined on site and off site change by broad habitat type

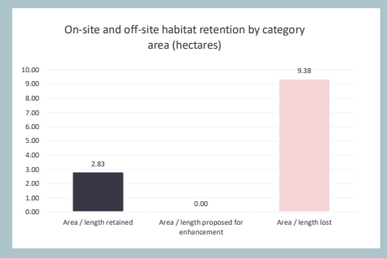
Habitat group	Baseline		On-site and Off-site post development		Combined change	
	Existing area	Existing value	Combined proposed area	Combined proposed value	Proposed area	Proposed value
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	2.31	4.61	1.40	2.70	-0.91	-1.91
Heathland and shrub	0.00	0.00	0.04	0.16	0.04	0.16
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	9.90	4.52	10.75	4.45	0.84	-0.07
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

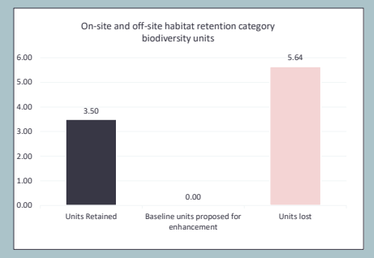
Area Habitats

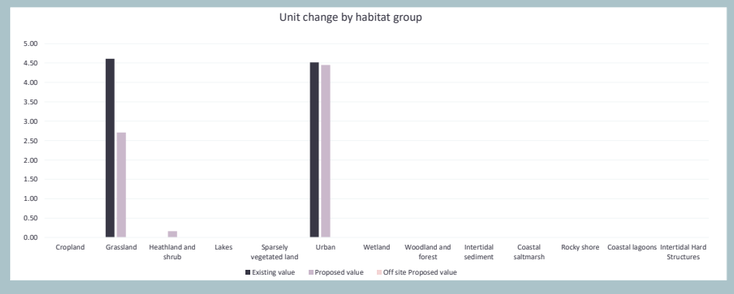
Combined area lost by distinctiveness band

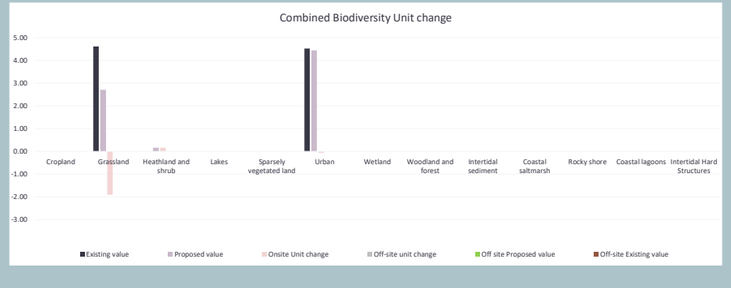
Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0	
Medium	0.1361	1
Low	2.266	24
V.Low	6.98	74











Hedgerows and Lines of Trees

Hedgerows and lines of trees

On site change by hedgerow type

Hedgerow type	Baseline		Post development on site		Onsite Change	
	Existing length on-site	Existing value	Proposed length on-site	Proposed value on-site	On-site length change	On-site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.10	0.59	0.09	0.54	-0.01	-0.05
Line of Trees	0.32	1.28	0.35	1.11	0.03	-0.17
Line of Trees - Associated with bank or ditch	0.24	1.11	0.24	1.10	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.88	0.85	0.88	0.85

Off site change by hedgerow type

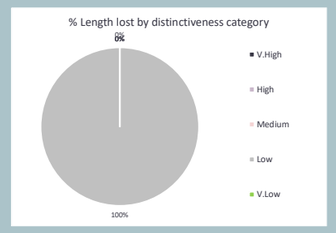
Hedgerow type	Off site baseline		Post development off site		Off site Change	
	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

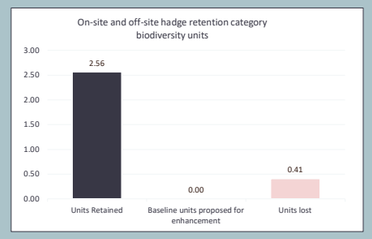
Combined on and off site change by hedgerow type

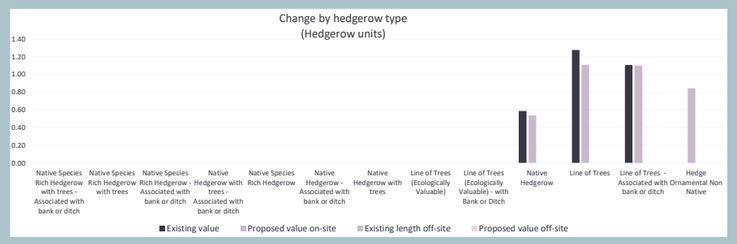
Hedgerow type	Baseline		Post development on site		Onsite Change	
	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.10	0.59	0.09	0.54	-0.01	-0.05
Line of Trees	0.32	1.28	0.35	1.11	0.03	-0.17
Line of Trees - Associated with bank or ditch	0.24	1.11	0.24	1.10	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.88	0.85	0.88	0.85

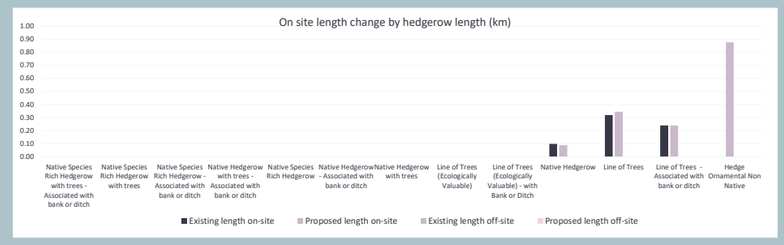
Combined length lost by distinctiveness band

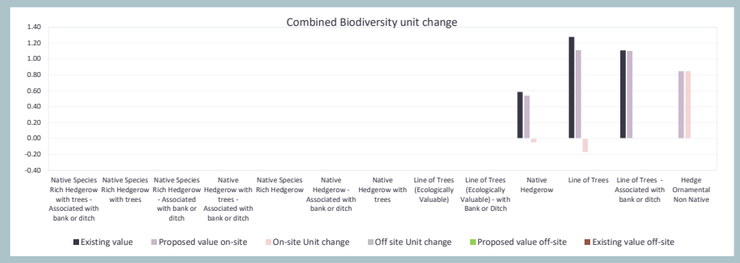
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0.099	100
V.Low	0	

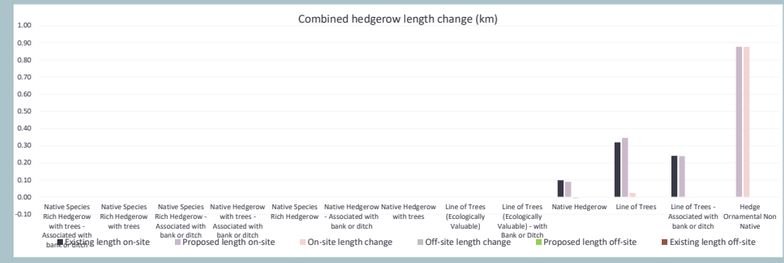












Rivers and Streams

Rivers and Streams

On site change by river type

River type	Baseline		Post development on site		Onsite Change	
	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Off site change by river type

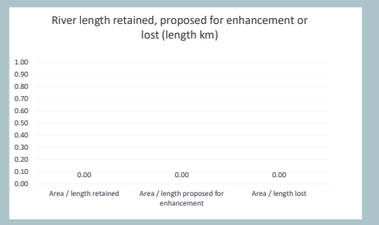
River type	Baseline		Post development off-site		Off-site Change	
	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off-site unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

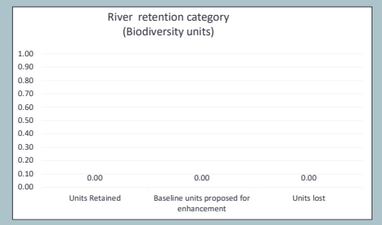
Combined on and off site change by river type

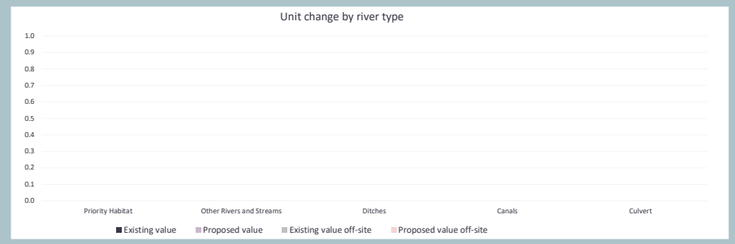
	Baseline	Post development on site	Onsite Change

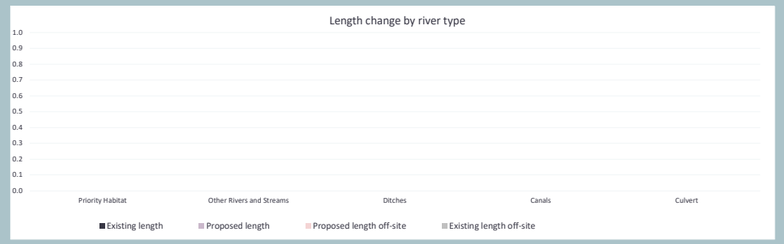
Combined length lost by distinctiveness band

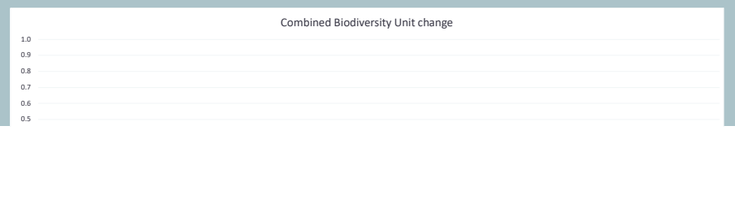
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	











Rivers and Streams

River type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Waterman

UK and Ireland Office Locations