

# Hillingdon Hospital

Biodiversity Net Gain Report

Hillingdon Hospitals NHS Foundation Trust

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May 2022

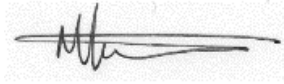
## Quality information

### Prepared by



George Cochrane-Davies  
Biodiversity Consultant

### Checked by



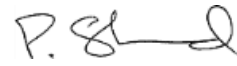
Mark Latham  
Principle Biodiversity  
Consultant

### Verified by



Lewis Deacon  
Technical Director

### Approved By



Paul Stannard  
Regional Director

## Revision History

Revision	Revision date	Details	Authorized	Name	Position
P01	04/05/2022	Hillingdon Hospital BNG Report	Yes	Paul Stannard	Regional Director

## Prepared for:

Hillingdon Hospital NHS Foundation Trust

## Prepared by:

AECOM Limited  
12 Regan Way  
Beeston  
Nottingham  
NG9 6RZ  
aecom.com

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# 1. Introduction

AECOM Ltd was commissioned by the Hillingdon Hospital NHS Foundation Trust (hereafter referred to as “the client”) to undertake a Biodiversity Net Gain (‘BNG’) assessment to inform the hybrid planning application for the redevelopment of the Hillingdon Hospital site (hereafter referred to as the ‘Proposed Development’).

The BNG assessment has been undertaken to quantify the overall effect of the Proposed Development on biodiversity value compared to the baseline situation using Biodiversity Metric 3.0<sup>1</sup> in accordance with the accompanying guidance<sup>2</sup> and best practice principles<sup>3</sup>. The report sets out the results of the BNG assessment including the methodology in Section 2, the results in Section 3, the recommendations are provided in Section 4 and the conclusions in Section 5.

## 1.1 Site Description

The Site is located at Pield Heath Road, Uxbridge, postcode UB8 3NN, in the London Borough of Hillingdon, at approximate central Ordnance Survey national grid reference TQ 06826 81850 (hereafter referred to as the ‘Site’). The Site’s real boundary is presented in Appendix A. The Site is approximately 10.13 ha in size and comprises of a mixture of hardstanding, buildings, amenity grassland, individual trees, plantation woodlands and introduced shrub. Hedgerows, line of trees and a length of the River Pinn are also present on site.

Hillingdon Hospital is located to the south of Pield Heath Road, bound by Royal Lane to the west, and Colham Green Road to the east. The hospital comprises a mix of hospital buildings of varying age scattered across the Site. Many of the single storey structures were built in 1940s and are in poor condition. The remainder of the Site consists mainly of surface level car parking, interspersed with pockets of landscaping.

There are two Tree Preservation Order (TPO) within the Site: one south of The Furze and the second is west of the Woodlands Centre. A culvert runs west-east crossing both TPO’s and is canalised under the service road and partially under the Woodlands Centre. On the east of the Site is a Grade II Listed Building, The Furze.

## 1.2 Proposed Development

The Proposed Development will comprise the demolition of the existing buildings and the redevelopment of the Site to provide a new Hillingdon Hospital, a mixed-use development (residential and commercial), multi-storey and surface car and cycle parks, vehicle access improvements, landscaping and public open spaces, utilities, and associated works (see Figure 1).

The detail planning application comprises:

- Replacement hospital building (79,603.6 sqm gross internal area or GIA) of basement, ground plus seven
- Storeys on the western extent of the site incorporating a linked mobility hub and multi storey car park (MSCP) for 781 car spaces;
- High quality landscaping buffer fronting Royal Lane;
- New bus stop arrangements and improved connections to the hospital on Pield Heath Road;
- Large central green open space for use by the hospital and wider community;
- 161 surface level car parking spaces with the ability to cater for up to 14,000 sqm of expansion space for future hospital expansion (if required).

The outline planning application includes:

- Up to 31,503 sqm of residential, comprising 327 dwellings;

<sup>1</sup> Natural England’s Biodiversity Metric 3.0 <http://publications.naturalengland.org.uk/publication/6049804846366720>

<sup>2</sup> Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

<sup>3</sup> Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide (2019)

- Plots – P01, P02, P03 (mixed use blocks with supporting provision of 800sqm of town centre uses (Use Class E) at ground floor level).
- Up to 302 car parking spaces, and 515 cycle parking spaces.
- Improved permeability and public access routes through the Site; and
- High quality public realm and landscaped gardens throughout the Site.

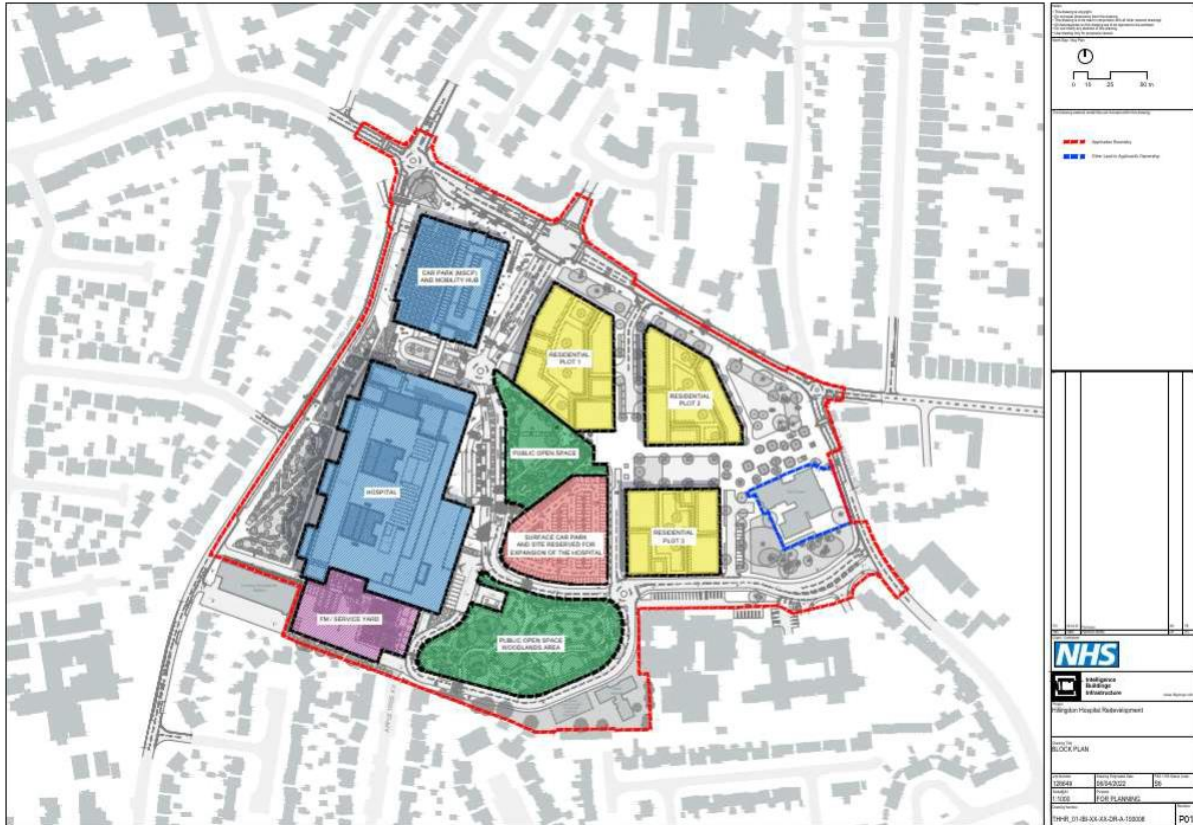
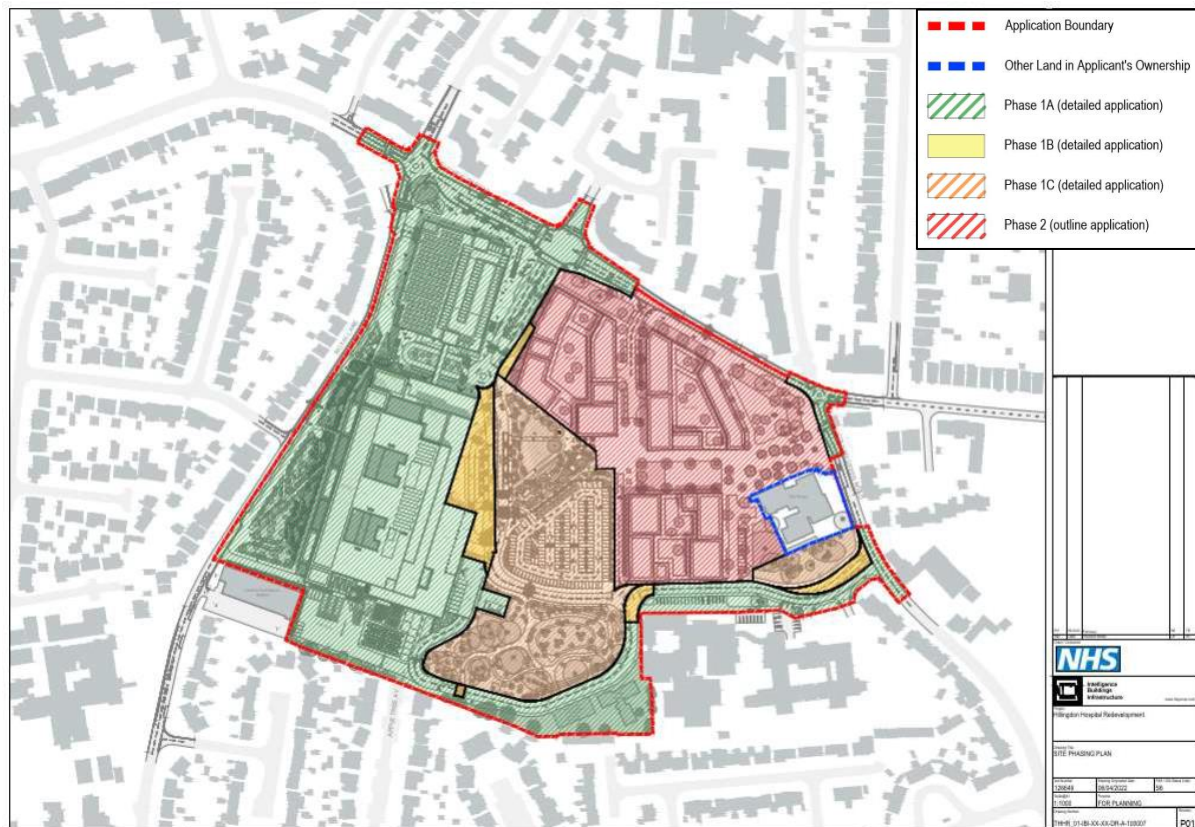


Figure 1. Block Plan<sup>4</sup>

The Proposed Development will be carried out in phases (see Figure 2).

- Phase 1a – comprising the demolition of the western buildings and construction of the new hospital, multi storey car park and access (in green in Figure 2).
- Phase 1b – Interim elements that will eventually be modified or replaced by the final part (phase 1c) of the detailed application being built.
- Phase 1c – construction of elements that can only be built upon demolition of the hospital i.e. the triangle of public open space, surface car park, woodland, new road/ junction and bus stops and roads.
- Phase 2 – comprising the demolition of the current hospital and the construction of the outline application for the residential buildings. The two separate landscape plans for the site will now be referred to collectively as the "Landscape Plan" for the site.

<sup>4</sup> Intelligence Building Infrastructure (2022). Drawing reference: THHR\_01-IBI-XX-XX-DR-A-100008



**Figure 2. Site Phasing Plan<sup>5</sup>**

The landscape strategy includes the retention of woodland habitat to the south and south-east of the Site and new planting and seeding, including the creation of green areas as follows:

- Along the south western boundary (east of the new Hospital building) comprising a wetland attenuation park, including depressions with grasses for damp conditions, rain gardens, new tree planting and footpaths;
- At the centre of the Site (central green space), including water attenuation basins with damp grasses and rain gardens and tree planting to the west and south and a central amenity grassland surrounded by an area of bulbs and wildflowers;
- Green space to the northeast of the existing woodland, extending the southern green area. It will include a
- Fluvial flood mitigation basin with grasses for damp conditions and plants for rain gardens. A mixed planting, including trees will be also included;
- To the northeast of the Site (corner Field Heath Rd with Colham Green Rd);
- Green wall (approximately 10m wide and 9m in height) to the southeast of the new hospital, near the ambulance yard;
- Within the residential courtyards; and,
- Green roofs on the hospital and most of the residential new buildings.

## 1.3 Policy context

### 1.3.1 National Policy and legislation

It is government policy that planning decisions should minimise impacts on and provide net gain for biodiversity (National Planning Policy Framework 2021)<sup>6</sup>. The Environment Act 2021<sup>7</sup> includes provisions to make BNG a mandatory requirement within the planning system in England requiring all relevant developments<sup>8</sup> to achieve a

<sup>5</sup> Intelligence Building Infrastructure (2022). Site Phasing Plan – Drawing

<sup>6</sup> <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<sup>7</sup> <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

<sup>8</sup> All development within the scope of the Town & Country Planning Act



minimum 10% net gain in biodiversity units relative to the site's baseline biodiversity value, it is anticipated the secondary legislation mandating the need for 10% net gain will be in place by November 2023. Therefore, this report will set 10% BNG as the target for which the proposed development should aim to achieve.

### 1.3.2 Local Planning Policy

The Hillingdon Local Plan – Development Management Policies<sup>9</sup> includes Policy DMHB11 – “Design of New Development” which states: “*All new developments must include landscaping and tree planting to protect and enhance amenity, biodiversity and green infrastructure.*” DMHB 13 – “Trees and Landscaping” also states:

*“All developments will be expected to retain or enhance existing landscaping, trees, biodiversity or other natural features of merit. Development proposals will be required to provide a landscape scheme that includes hard and soft landscaping appropriate to the character of the area, which supports and enhances biodiversity, particularly in areas deficient of green infrastructure.*”

Policy DMEI 7 – “Biodiversity Protection and Enhancement” also mentions that:

*“The design and layout of new development should retain and enhance any existing features of biodiversity or geological value within the site. Where loss of a significant existing feature of biodiversity is unavoidable, replacement features of equivalent biodiversity value should be provided on-site. Where development is constrained and cannot provide high quality biodiversity enhancements on-site, then appropriate contributions will be sought to deliver off-site improvements through a legal agreement. Proposals that result in significant harm to biodiversity which cannot be avoided, mitigated, or, as a last resort, compensated for, will normally be refused”.*

Local legislation does not go any further than to say losses to biodiversity should be offset and mitigated for, however, Policy G6 – “Biodiversity and access to nature” in The London Plan<sup>10</sup> goes beyond this by stating that “*development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain*”.

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<sup>9</sup> London Borough Of Hillingdon (2020). Local Plan Part 2 Development Management Policies.

<sup>10</sup> Mayor of London (2021). The London Plan - The Spatial Development Strategy for Greater London.



## 2. Methodology

### 2.1 Biodiversity Metric 3.0

The BNG assessment involves making a comparison between the biodiversity value of habitats present within the Site prior to development (i.e., the 'baseline') and the predicted biodiversity value of habitats following the completion of the development (i.e., 'post-development'). The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.

Biodiversity Metric 3.0<sup>11</sup> calculates the overall loss or gain of biodiversity of development projects by assessing the distinctiveness (i.e., type of habitat and its value), condition, extent, and strategic significance of habitats on site pre- and post-development, including both permanent and temporary land-take areas. To achieve biodiversity net gain, the biodiversity unit score must have a post-development score higher than the baseline score.

When calculating the post-development biodiversity units, the metric includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to mitigate for losses and achieve net gain.

The metric assesses and generates separate outputs for area-based habitats<sup>12</sup> (measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and rivers (measured in river units). To claim a net gain in biodiversity, there must be an increase across all habitats, hedgerow and river units, the units cannot be summed to give an overall biodiversity unit value i.e. an increase in habitat and hedgerow units cannot be used to offset a loss in river units.

The information required to undertake the calculation is described below.

#### 2.1.1 Baseline Data

Phase 1 Habitat data collected by AECOM in November 2020<sup>13</sup> (hereafter referred to as 'the baseline') has been utilised to determine the baseline area-based and linear-based habitats. All the habitats recorded within the Site were converted from standard Phase 1 habitat types<sup>14</sup> to UK Habitat Classification categories<sup>15</sup> (see Appendix B), before being digitised in a Geographic Information System (GIS) to provide area and length measurements of each habitat type (the Baseline Habitat Plan is provided in Appendix A). The Phase 1 Habitat data has been supplemented by a desk-based assessment of the site using aerial photography to ensure the baseline information best captures the biodiversity value of the site.

All baseline habitats identified within the Site were assigned a condition during the field survey using the condition assessment criteria outlined in the Biodiversity Metric 3.0 – Technical Supplement<sup>16</sup> by a suitably qualified ecologist. The data was aggregated and entered into the metric to calculate the baseline biodiversity units.

#### 2.1.2 River habitats

Habitat categories, associated distinctiveness and condition scores are approached differently for rivers. In line with current guidance<sup>17</sup>, a desk study was undertaken to identify all river habitats present within the Site using the 'Discovering Priority Habitat in England' river data map<sup>18</sup>. Following this, where data was available, river habitats

<sup>11</sup> Natural England's Biodiversity Metric 3.0 <http://publications.naturalengland.org.uk/publication/6049804846366720>

<sup>12</sup> This includes all area-based terrestrial and intertidal habitats. All habitats from the low water mark to the high-water mark can and should be assessed using Metric 3.0 where they are impacted by development. Any marine habitats beyond the low water mark cannot be assessed using Metric 3.0.

<sup>13</sup> AECOM (2022). Hillingdon Hospital – Ecological Impact Assessment – March 2022.

<sup>14</sup> Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough.

<sup>15</sup> <https://ukhab.org/>

<sup>16</sup> Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

<sup>17</sup> Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

<sup>18</sup> Discovering Priority Habitats in England. River data - <https://priorityhabitats.org/rivers-data/>

were assigned a habitat category and distinctiveness using a combination of Section 41 (NERC Act, 2006) Priority Habitat descriptions and River Naturalness Assessment class scores.

Where data was not available for river habitats present in the Site, River Naturalness Assessments and River Condition Surveys (Modular River Physical (MoRPh) Survey<sup>19</sup>) were undertaken on 19<sup>th</sup> July 2021 by an accredited surveyor. Surveys aimed to determine the habitat distinctiveness and condition of all stretches of river on site and within 10 m riparian zone buffer of the Site boundary. Individual watercourses within the Proposed Development red line boundary were identified and measured using opensource data on MAGIC<sup>20</sup>. While undertaking the field survey, the average width of the watercourse was determined and used to calculate the individual survey module lengths. Five contiguous modules were then surveyed to provide data for one sub-reach. If the length of one sub-reach was not equal to or greater than 20% of the total length of the watercourse within the red line boundary, further sub-reaches were surveyed until this condition was met. Where this condition could not be met, condition of the watercourse was determined by applying surveyor judgement considering the sections of the watercourse that could be surveyed.

Post-survey, an additional desk-study was conducted to determine the river type of the watercourse. The reach length, planiform, confinement and sinuosity of the watercourse was determined by assessing MAGIC and Google Earth to provide the river type. This river type was combined with the indicative condition score (as determined by the MoRPh field surveys) to provide the final river condition.

As with terrestrial habitats, enhancement of existing on-site watercourses is likely the best option for delivering a 10% net gain in river units. The results of the MoRPh field surveys were analysed to assessment which factors impacted the baseline condition score, and potential enhancement options as outlined from the MoRPh field surveys were modelled to determine their impact on improving watercourse condition.

## 2.1.3 Post-Development Data

The Landscape Plans for the detailed and outline applications<sup>21, 22</sup> has been used to determine the extent and type of habitats to be lost, retained and created post-development. Habitats in the Landscape Plan were converted to UK Habitat Classification categories before being digitised into GIS to produce the 'Post-Development' Plan (see Appendix C). Target condition scores for the proposed habitats were selected in accordance with Biodiversity Metric 3.0 User Guide and Technical Supplement<sup>23</sup> using professional judgement to ensure the condition scores selected were realistic. The data was utilised to predict the post development biodiversity units.

## 2.1.4 Strategic Significance

Metric 3.0 requires that the strategic significance of all baseline and post-development habitats be defined. Strategic significance refers to strategic locations for local biodiversity and nature improvements, identified within local planning policies and strategies. As part of this assessment, the following local planning policy documents were reviewed to determine the strategic significance of the habitats on Site (see Table 1)

**Table 1. Strategic Significance**

The London Plan - The Spatial Development Strategy for Greater London. <sup>24</sup>	<b>Policy G4 Open Space</b>
	<ul style="list-style-type: none"> <li>Development Plans should promote the creation of new areas of publicly accessible open space particularly green space should not result in the loss of protected open space.</li> </ul>
	<b>Policy G5 Urban greening</b>
London Borough of Hillingdon	<ul style="list-style-type: none"> <li>Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls, and nature-based sustainable drainage.</li> </ul>
	<b>Policy G7 Trees and woodlands</b>
	<ul style="list-style-type: none"> <li>Development proposals should ensure that, wherever possible, existing trees of value are retained. If trees are removed there should be adequate replacement based on the existing value of the benefits of the trees removed</li> </ul>
<b>Policy EM7: Biodiversity and Geological Conservation</b>	

<sup>19</sup> <https://modularriversurvey.org/>

<sup>20</sup> <https://magic.defra.gov.uk/>

<sup>21</sup> IBI Group (2022). THHR\_01-IBI-XX-XX-DR-A-100003

<sup>22</sup> PRIOR+PTNRS (2022). 220412\_THH\_PP\_GLA Scheme - Urban Greening Factor

<sup>23</sup> Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

<sup>24</sup> Mayor of London (2021). The London Plan - The Spatial Development Strategy for Greater London.

Local Plan: Part 1 – Strategic Policies <sup>25</sup>	<ul style="list-style-type: none"> <li>• The protection and enhancement of populations of protected species as well as priority species and habitats identified within the UK, London, and the Hillingdon Biodiversity Action Plans.</li> <li>• The provision of biodiversity improvements from all development, where feasible.</li> <li>• The provision of green roofs and living walls which contribute to biodiversity and help tackle climate change.</li> <li>• The use of sustainable drainage systems that promote ecological connectivity and natural habitats.</li> </ul>
London Borough of Hillingdon Local Plan: Part 2 – Development Management Policies <sup>26</sup>	<p><b>DMHB 13 – “Trees and Landscaping”</b></p> <ul style="list-style-type: none"> <li>• Where space for ground level planting is limited, such as high-rise buildings, the inclusion of living walls and roofs will be expected where feasible.</li> <li>• Where trees are to be removed, proposals for replanting of new trees on-site must be provided or include contributions to offsite provision”.</li> </ul>
National Character Area 115 – Thames Valley <sup>27</sup>	<p><b>SEO 3: Maintain existing greenspace and plan for the creation of green infrastructure associated with the significant projected growth of urban areas, to reduce the impact of development, to help reduce flooding issues, and to strengthen access and recreation opportunities</b></p> <ul style="list-style-type: none"> <li>• Encouraging the introduction of measures to encourage biodiversity, such as enhanced habitat provision within urban developments (for example bat roosts and swift nest boxes).</li> <li>• Creating multi-functional natural green space surrounding new development, linking into the heart of urban areas as part of comprehensive green infrastructure planning.</li> <li>• Promoting the incorporation of sustainable urban drainage systems to reduce flood risk, and water conservation measures to support water resources and to manage demand.</li> </ul> <p><b>SEO 4: Restore and increase woodland for carbon sequestration, noise and pollution reduction, wood fuel and protection from soil erosion, while also enhancing biodiversity, sense of place and history.</b></p> <ul style="list-style-type: none"> <li>• Restoring, expanding, and sustainably managing woodlands, for the prevention of soil erosion, carbon sequestration and storage, recreation, enhancing biodiversity and landscape.</li> </ul>
MAGIC Maps <sup>28</sup>	No priority habitats present.

## 2.1.5 Assumptions

In undertaking the calculation, the following assumptions have been made:

- The Landscape Plans did not include specific habitat details such as species lists. Because of this, precautionary target conditions have been assumed based on professional judgement with recommended management advice being provided in Appendix E to help best manage these habitats to enable achievement of target condition;
- The landscape habitat classification of “Flower-rich perennial planting / Rain gardens” has been included within this assessment as a 50% split of “Urban – Introduced shrub” and “Urban – Rain garden”; and
- The assessment assumes that the proposed development will only result in those impacts to the watercourse described in this report and detailed in the post development section below.
- Whilst this BNG Assessment was being undertaken the updated Biodiversity Metric 3.1 was released in April 2022. If updates are required in future, there may be a requirement to update this assessment to the Biodiversity Metric 3.1. It is assumed that this would not drastically change the BNG score.

## 2.1.6 Constraints or limitations

- The river condition assessment survey utilises the MoRPh5 survey methodology which assesses watercourse condition based on its morphological features and not the biological elements of river condition; these are assessed in other reports associated with the Scheme; and
- If the Scheme boundary changes, there is potential that more MoRPh surveys could be required, and calculation of River Habitat Units would also need to be repeated in this instance

<sup>25</sup> Hillingdon Council (2012) – Local Plan: Part 1 – A Vision For 2026 – Strategic Policies.

<sup>26</sup> Hillingdon Council (2020) – Local Plan: Part 2 – Development Management Policies.

<sup>27</sup>

<sup>28</sup> <https://magic.defra.gov.uk/magicmap.aspx>

## 3. Results

### 3.1 Biodiversity Metric 3.0 Calculation Tool Output

#### 3.1.1 Baseline Habitats

The Site covers a total area of 10.13 ha. The habitats identified on Site vary in ecological value, ranging from very low to high distinctiveness. The most dominant habitats on Site include hardstanding and buildings which cover a total of 7.59 ha combined, amenity grassland covers approximately 1.30 ha. In addition, 0.35 km of hedgerow habitats and 0.22 km of the River Pinn is present (The Baseline Plan is provided in Appendix A).

The following descriptions provide a summary of the baseline habitats, their strategic significance, and their condition (further justifications of habitat condition scores are provided in Appendix D).

##### **Buildings and hardstanding (Urban – Developed land; sealed surface)**

These areas of building and hardstanding have been categorised in UKHab as 'Urban – Developed land; sealed surface'. The habitat has a condition of 'N/A – Other' which is pre-set within the metric. It has been assessed as having low strategic significance due the habitat having no biodiversity value.

##### **Amenity grassland (Grassland – Modified Grassland)**

Areas of amenity grassland are present throughout the Site, forming part of the current landscaping around existing buildings.

This habitat has been categorised in UK Habitats as 'Grassland – Modified Grassland'. The habitat has been assigned a condition of poor and has been assessed as having low strategic significance.

##### **Broadleaved woodland (Woodland and forest – Other woodland; broadleaved)**

Woodland in the south/centre of the Site is dominated by English oak and is accompanied by ash trees, holly, yew, elder and hawthorn. The ground flora comprises nettle, cleavers, bramble, hemlock, cow parsley, lords and ladies, wood avens.

Woodland to the south of the Furze and east of the Site along the watercourse is also dominated by English oak, with also ash, willow, and elder trees present. Nettle, white dead nettle, bramble, cow parsley and cleavers were recorded as a ground flora. These two woodlands comprise a Tree Protection Order (TPO).

The north-eastern woodland (between the eastern boundary and the eastern car park), as is dominated by Turkey oak (an invasive species), is not considered as a priority habitat".<sup>29</sup>

This habitat has been categorised in UK Habitats as 'Woodland and Forest – Lowland mixed deciduous woodland'. The habitat has been assigned conditions of moderate and poor. The habitat has been assessed as having medium strategic significance due to its importance in local plans and policy.

##### **Introduced shrub (Urban – Introduced shrub)**

Several small blocks of shrubs area present on Site that form current landscaping around existing buildings.

This habitat has been categorised in UK Habitats as 'Urban – Introduced Shrub'. The habitat has a pre-set condition of poor and has been assessed as having low strategic significance.

##### **Bare ground (Urban – Vacant / derelict land/ bare ground)**

Bare ground consists mainly of areas where buildings have been removed on Site.

This habitat has been categorised in UK Habitats as 'Urban – Vacant/derelict land/bare ground'. The habitat has been assigned an assumed condition of poor and has been assessed as having low strategic significance.

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<sup>29</sup> AECOM (2022). Hillingdon Hospital Ecological Impact Assessment.

### Hedgerow with trees (Native hedgerow with trees)

Hedgerow with trees are present along the western and southern boundaries of the site. The hedgerows present on the western edge of the site are dominated by beech (*Fagus sylvatica*) with frequent examples of field maple (*Acer campestre*) and occasional instances of hawthorn (*Crataegus monogyna*), large-leaved lime (*Tilia platyphyllos*) and willow (*Salix sp.*). Despite containing five species, this hedgerow has not been considered to be a 'species rich hedgerow' because of the dominant presence of beech.

This habitat has been categorised in UK Habitats as 'Native Hedgerows with Trees'. The habitat has been assigned a condition of good and moderate, with low strategic significance.

### Species poor hedgerow (Native hedgerow)

Two species poor hedgerow are present on site, one is along the eastern edge of the Site, containing elder (*Sambucus nigra*) and the second is present next to building 9 formed which contains cherry laurel (*Prunus laurocerasus*).

This habitat has been categorised in UK Habitats as 'Native Hedgerow'. Both hedgerows have been assigned poor condition due to their very limited biodiversity value with low strategic significance.

### Individual broadleaved trees (Urban – Urban tree)

Scattered trees are present both within amenity grassland on Site and on traffic islands.

This habitat has been split into UK Habitat categorisation as 'Line of Trees' if planted linearly, or 'Urban – Urban tree' if scattered. Habitat conditions have been based upon habitat distinctiveness value meaning that 'Line of Trees' has been assigned a poor condition (low distinctiveness habitat), and 'Urban Tree' has been assigned a moderate condition (medium distinctiveness habitat). Both habitats have been assigned a medium strategic significance due to the importance of trees in local plans.

### River Information

The tributary of the River Pinn flows south-westerly through the Scheme boundary. The stretch surveyed is quite straight, possibly having been historically realigned for urban development, although it is regaining some local sinuosity where unvegetated side bars have formed. The steep banks are predominantly vegetated by a mixture of trees, short-creeping herbaceous plants and short and tall grasses. The invasive non-native species Himalayan balsam (*Impatiens glandulifera*) was recorded on the bank faces during a MoRPh Survey by AECOM in 2021.

This habitat has been categorised in UK Habitats as Other Rivers and Streams. The MoRPh survey showed that the tributary of the River Pinn is in moderate condition and a total of 215 m is within the Scheme boundary and was therefore included within the baseline habitats calculation. The watercourse is not a Priority River habitat and is not mentioned in the Local Plan, River Basin Management Plan or Catchment Plans and was therefore classed as 'Low potential/action not identified in any plan', which equates to a low strategic significance.

## 3.1.2 Baseline Habitat Units

The respective baseline biodiversity value for area-based and linear habitats are provided in Table 1, 2 and 3. In total, the baseline biodiversity value of the habitats present was calculated as 11.30 habitat units, 2.35 hedgerow units and 1.94 river units.

**Table 2. Baseline area-based habitats**

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Grassland - Modified grassland	1.3	Low	Poor	Low	2.60
Woodland and forest - Other woodland; broadleaved	0.43	Medium	Moderate	Medium	3.78
Woodland and forest - Other woodland; broadleaved	0.08	Medium	Poor	Medium	0.35
Urban - Developed land; sealed surface	7.59	V.Low	N/A - Other	Low	0.00

Urban - Introduced shrub	0.16	Low	Poor	Low	0.32
Urban - Vacant/derelict land/ bareground	0.58	Low	Poor	Low	1.16
Urban - Urban tree	0.35*	Medium	Moderate	Medium	3.08
<b>Total</b>	<b>10.13</b>	-	-	-	<b>11.30</b>

\*Urban tree area not included in total to prevent double counting of area.

**Table 3. Baseline hedgerow habitats**

Hedgerow type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Line of Trees	0.03	Low	Poor	Medium	0.07
Native Hedgerow	0.02	Low	Poor	Low	0.04
Native Hedgerow with trees	0.28	Medium	Moderate	Low	2.24
<b>Total</b>	<b>0.35</b>	-	-	-	<b>2.35</b>

**Table 4. Baseline river habitats**

Hedgerow type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	River Units
Other Rivers and Streams	0.22	High	Moderate	Low	1.94
<b>Total</b>	<b>0.22</b>	-	-	-	<b>1.94</b>

### 3.1.3 Post-Development Habitats

The proposed Landscape Plans<sup>30,31</sup> include provision of a wide variety of urban habitats including rain gardens, intensive and extensive green roofs, bioswales, introduced shrub, hardstanding areas, 464 urban trees and areas of amenity grassland. The habitats identified on Site post-development vary in ecological value, ranging from very low to high distinctiveness. The habitats included in these plans have been converted to the most appropriate UK Habitat Classification types using the Metric 3.0 translation tool and professional judgement of a suitably experienced ecologist, the habitat conversion table is provided in Appendix B.

The habitats proposed to be retained on the Site include areas of modified grassland, other woodland; broadleaved, hardstanding areas, introduced shrub and urban trees. A total of 0.26 km of hedgerow habitats is to be retained as well as just under 0.19 km of running water.

The proposed habitats to be created and retained are shown on the post-development Plan in Appendix C.

Rain gardens, intensive green roof, bioswale, extensive green roof and urban trees are all habitats that are mentioned within local documents as being of priority, however, no areas on the site have been identified as being of strategic importance for the local area, therefore medium strategic significance has been assigned. All other habitats are not mentioned in the plans and, therefore, low strategic significance has been assigned.

The high-level management prescriptions required for the created habitats to reach their target condition in the specified timeframe is provided in Appendix F.

#### 3.1.3.1 Retained Habitat Units

The post-development biodiversity value of the retained habitats was calculated as 3.62 for area-based habitat units (Table 5), 1.88 for hedgerow habitat units (Table 6), and 1.71 for river habitat units (Table 7).

<sup>30</sup> IBI Group (2022). THHR\_01-IBI-XX-XX-DR-A-100003

<sup>31</sup> PRIOR+PTNRS (2022). 220412\_THH\_PP\_GLA Scheme\_Urban Greening Factor

**Table 5. Retained area-based habitats**

Habitat type (UKHab)	Area (ha)	Distinctiveness	Condition	Strategic significance	Habitat Units
Grassland - Modified grassland	0.11	Low	Poor	Low	0.22
Woodland and forest - Other woodland; broadleaved	0.34	Medium	Moderate	Medium	2.99
Urban - Developed land; sealed surface	0.04	V. Low	N/A – Other	Low	0.00
Urban - Introduced shrub	0.03	Low	Poor	Low	0.06
Urban - Urban tree*	0.04	Medium	Moderate	Medium	0.35
<b>Total</b>	<b>0.56</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3.62</b>

\*Urban tree area not included in total to prevent double counting of area.

**Table 6. Retained hedgerow habitats**

Hedgerow type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	Hedgerow Units
Native Hedgerow	0.02	Low	Poor	Low	0.04
Native Hedgerow with trees	0.23	Medium	Moderate	Low	1.84
<b>Total</b>	<b>0.25</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.88</b>

**Table 7. Retained river habitats**

Hedgerow type (UKHab)	Length (km)	Distinctiveness	Condition	Strategic significance	River Units
Other Rivers and Streams	0.19	High	Moderate	Low	1.71
<b>Total</b>	<b>0.19</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.71</b>

### 3.1.3.2 Created Habitat Units

The post-development biodiversity value of the created habitats was calculated as 16.03 for area-based habitat units (Table 8), 0.25 for hedgerow habitat units (Table 9) and 0.05 for river habitat units (Table 10).

**Table 8. Created area-based habitats**

Habitat type (UKHab)	Area (ha)	Distinctiveness	Target Condition	Strategic significance	Time to target condition (yrs)	Habitat Units
Urban - Rain garden	0.43	Low	Moderate	Medium	3	1.70
Grassland - Modified grassland	0.53	Low	Poor	Low	1	1.02
Urban - Intensive green roof	0.29	Medium	Moderate	Medium	5	1.43
Urban - Bioswale	0.24	Low	Moderate	Medium	1	0.68
Urban - Developed land; sealed surface	6.63	V.Low	N/A - Other	Low	0	0.00
Urban - Extensive green roof	0.96	Low	Moderate	Medium	3	3.80
Urban - Introduced shrub	0.54	Low	Poor	Low	1	1.04
Urban - Urban tree*	1.89	Medium	Moderate	Medium	27	6.36
<b>Total</b>	<b>9.62</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>16.03</b>

\*Urban tree area not included in total to prevent double counting of area.



**Table 9. Created hedgerow habitats**

Habitat type (UKHab)	Length (km)	Distinctiveness	Target Condition	Strategic significance	Time to target condition (yrs)	Hedgerow Units
Native Hedgerow	0.13	Low	Poor	Low	1	0.25
<b>Total</b>	<b>0.13</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.25</b>

**Table 10. Created river habitats**

Habitat type (UKHab)	Length (km)	Distinctiveness	Target Condition	Strategic significance	Time to target condition (yrs)	Hedgerow Units
Culvert	0.00 (<0.005)	Low	Poor	Low	1	0.01
Culvert	0.01	Low	Poor	Low	1	0.02
Other Rivers and Streams	0.00 (<0.005)	High	Fairly Poor	Low	2	0.00
Culvert	0.01	Low	Poor	Low	1	0.01
<b>Total</b>	<b>0.03</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.05*</b>

\*Total in metric adds up to 0.05 despite totals in this table adding up to 0.04, assumed to be caused by rounding within the metric.

## 3.1.4 Summary of Results

All baseline habitats and habitats created and retained are present within the accompanying metric assessment for the Proposed Development (see Appendix F).

A summary of the results is shown in Table 11. Based on the current Post-Development Plan, the Proposed Development is predicted to result in a net gain of 8.36 habitat units (74.00%), a net loss of 0.22 hedgerow units (-9.17%) and a net loss of -0.18 river units (-9.42%).

**Table 11. Summary of results**

Area/Linear Units	Baseline	Post-development	Total net unit change	Total net % change	Units required to achieve 10% BNG
Habitat units	11.30	19.65	8.36	74.00%	-
Hedgerow units	2.35	2.13	-0.22	-9.17%	+0.46
River units	1.94	1.75	-0.18	-9.42%	+0.37

### 3.1.4.1. Trading rules

The trading rules within the metric are a set of rules that try to prevent a 'trading down' of habitats. Losses of habitat are to be compensated for on a "like for like" or "like for better" basis.

The trading rules within the metric are currently not satisfied for medium distinctiveness habitats (see Table 12). The reason for this is the loss of 'other woodland; broadleaved' on the Site. As per the guidance outlined in the Biodiversity Metric 3.0 – Technical Supplement<sup>32</sup>, in order to meet the trading rules for medium distinctiveness habitats, habitats such as 'other woodland; broadleaved' should be replaced by the same broad habitat, or one of a higher distinctiveness.

The landscape teams that have developed the plans for the site have taken the approach of providing a high amount of individual trees across the site. Whilst replacing 'other woodland; broadleaved' with urban street trees does not meet the trading rules for medium distinctiveness habitats, in this instance 1.23 habitat units of woodland are currently lost on the site and is being compensated for by the provision of 464 trees with an equivalent unit value of 6.36 habitat units. This is deemed to be appropriate compensation for the loss of the woodland areas as this provides approximately five times the amount of units, whilst also providing a similar habitat. Examples of these similar habitats are shown in Appendix C in the southern, western, and central areas of the proposed development where dense clusters of urban trees are to be provided.

<sup>32</sup> Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

**Table 12. Trading Summary**

Distinctiveness Group	Trading Rule	Trading Satisfied
Very High	Bespoke compensation likely to be required	Yes
High	Same habitat required	Yes
Medium	Same broad habitat or a higher distinctiveness habitat required	No*
Low	Same distinctiveness or better habitat required	Yes

\*As discussed in section 3.1.4.1, despite not appealing the trading rules, the proposed development is deemed to have sufficiently offset for the loss of the woodland habitat by means of urban tree provision.

### 3.1.4.2. Summary of changes by broad habitat types

Tables 13, 14 and 15 show the overall change in broad habitat types. There is an overall loss of woodland units, ruderal units, native hedgerows units and river units. There is an overall gain of grassland units, heathland and shrub units, urban units, species rich hedgerow units, ditch units and culvert units.

**Table 13. Change by broad area-based habitat type**

Habitat group	Baseline		Post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Area change	Unit change
Grassland	1.30	2.60	0.64	1.24	-0.66	-1.36
Urban	8.68	4.56	11.09	10.86	2.41	6.30
Woodland and forest	0.51	4.14	0.34	2.99	-0.17	-1.14

**Table 14. Change by broad hedgerow habitat type**

Hedgerow type	Baseline		Post development		Change	
	Existing length	Existing value	Proposed length	Proposed value	Length change	Unit change
Native Hedgerow with trees	0.28	2.24	0.23	1.84	-0.05	-0.40
Native Hedgerow	0.02	0.04	0.15	0.29	0.13	0.25
Line of trees	0.03	0.07	0.00	0.00	-0.03	-0.07

**Table 15. Change by broad river habitat type**

River type	Baseline		Post development		Change	
	Existing length	Existing value	Proposed length	Proposed value	Length change	Unit change
Other Rivers and Streams	0.20	1.90	0.20	1.70	0.00	-0.20
Culvert	0.00	0.00	0.02	0.05	0.02	0.05

## 4. Recommendations

Based on the current proposals and outlined assumptions, the Proposed Development is predicted to result in an overall net gain of approximately 74.00% habitat units, a net loss of approximately -9.17% hedgerow units and a net loss of -9.42% for river units.

The value for habitat units exceeds the 10% net gain target so no further action is required. However, further action will be needed to enable both hedgerow and river measures to meet the 10% net gain target. In accordance with best practice, the delivery of biodiversity units should always be initially considered on-site. As shown in Table 11, 0.46 hedgerow units and 0.37 river units are required to achieve 10% biodiversity net gain.

These recommendations can be incorporated into the Proposed Development at detailed landscaping stages secured via condition or through the reserved matters process on the wider masterplan (phase 2)

### 4.1 Recommendations – Hedgerow Units

In order for the site to achieve a 10% net gain for hedgerow units, an additional 0.46 hedgerow units are required. Potential enhancement options could include:

- **Enhancement 1:** Increasing the distinctiveness of the hedgerow to be provided on site. Currently the plans for the site include the provision of 0.13 km 'native hedgerow'. If planting schedules for this hedgerow was adjusted to meet the description of a 'native species rich hedgerow' this would uplift the BNG score from -9.17% to 1.53%.
- **Enhancement 2.1:** In addition to Enhancement 1, further enhancement of hedgerows currently present on site. Currently the plans for the site show that 0.23 km of 'native hedgerow with trees' is to be retained. If, at a minimum, 0.03 km of this length could be enhanced to form 'native species rich hedgerow with trees' this would uplift the BNG score from 1.53% to 12.23%. It is advised that this process is undertaken for an extended length, in the interest of connectivity, however, 0.03 km would be sufficient to meet the 10% BNG requirement.
- **Enhancement 2.2:** In addition to Enhancement 1, alternatively, if an additional 0.06 km of 'native species rich hedgerow' could be integrated into the plans for the site, in addition to enhancement 1, this would also provide sufficient hedgerow unit uplift (1.53% to 11.40%).

### 4.2 Recommendations – River Units

In order for the site to achieve a 10% net gain for river units, a minimum of 0.08 km of is required to be enhanced from 'moderate' condition to 'fairly good' condition. This length of enhancement would uplift the river units BNG score from -9.42% to 10.72%. Potential mitigation measures regarding river habitats could include:

- Re-naturalising the riparian zone and improving the vegetation structure diversity along the bank top and bank face;
- Enhancement to flow types by altering the flow structure using deflectors;
- Enhancement of sections of the watercourse in line with the recommendations of the Water Framework Directive Assessment report to ensure 'no deterioration'; and
- Eradication of riparian invasive non-native species (INNS) within the Scheme boundary.

Due to the limited opportunity to provide additional on-site mitigation, opportunities to undertake off-site mitigation may be considered a potential option to achieve 10% biodiversity net gain. This would need to be agreed with local landowners and stakeholders and assured through an appropriate legal agreement.

## 5. Conclusion

Based on the current plans for the Site, the Proposed Development is predicted to result in an overall net gain of approximately 74.00% of habitat units, a net loss of -9.17% for hedgerow units and a net loss of -9.42% for river units. High-level recommendations have been provided in Section 4 to help the Proposed Development achieve a minimum of 10% net gain in hedgerow units and river units.

The outputs of the metric are dependent on all retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within Natural England's Biodiversity Metric 3.0 Technical Supplement<sup>33</sup>.

Management prescriptions required to meet the target condition assigned to each habitat in the metric are provided in Appendix F. Habitats would need to be monitored to ensure correct establishment and growth, and remedial action would need to be taken if this does not proceed as expected, otherwise the target conditions used in the calculations may not be met and the predicted biodiversity units might not be achieved.

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<sup>33</sup> Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

# Appendix A Baseline Habitat Plan



# Appendix B Habitat Conversion

## Landscape Plan Classifications

## UK Habitat Classification

Intensive green roof	Urban - Intensive green roof
Standard trees	Urban - Urban tree
Extensive green roof	Urban - Extensive green roof
Flower-rich perennial planting / Rain gardens	50% Urban – Introduced Shrub 50% Urban – Rain Garden
Amenity grassland	Grassland - Modified grassland
Permeable paving	Urban - Developed land; sealed surface
Proposed tree planting in hard landscape	Urban - Urban tree
Proposed tree planting in soft landscape	Urban - Urban tree
Proposed semi-mature tree planting in soft landscape	Urban - Urban tree
Proposed mixed planting	Urban - Introduced shrub
Native planting (how beautifully vague lol)	Urban - Introduced shrub
Proposed rain garden	Urban - Rain garden
Proposed native hedge planting	Native hedgerow
Proposed grass seeding	Grassland - Modified grassland
Proposed grass seeding - to include bulb and wildflower	Grassland - Modified grassland
Proposed grass seeding - for damp conditions	Linked to swales areas - see below
Proposed swales / attenuation ponds	Urban - Bioswale
Green roof under PV panels	Urban - Extensive green roof



# Appendix C Post-Development Habitat Plan





# Appendix D Condition Assessment Rationale

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Woodland and forest – Other woodland; broadleaved (W1 – North East Corner)	1. Age distribution of trees: 2/3 2. Wild, domestic and feral herbivore damage: 3/3 3. Invasive species: 1/3 4. Number of native tree species: 1/3 5. Cover of native tree and shrub species: 1/3 6. Open space in woodland: 1/3 7. Woodland regeneration: 2/3 8. Tree health: 3/3 9. Vegetation and ground flora: 1/3 10. Woodland vertical structure: 2/3 11. Veteran tree: 1/3 12. Amount of deadwood: 3/3 13. Woodland disturbance: 3/3	Habitat condition assessment undertaken in November 2020.	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	24 = Poor Condition
Woodland and forest – Other woodland; broadleaved (W2 – East Ditch)	1. Age distribution of trees: 2/3 2. Wild, domestic and feral herbivore damage: 3/3 3. Invasive species: 2/3 4. Number of native tree species: 2/3 5. Cover of native tree and shrub species: 3/3 6. Open space in woodland: 3/3 7. Woodland regeneration: 2/3 8. Tree health: 3/3 9. Vegetation and ground flora: 2/3 10. Woodland vertical structure: 2/3 11. Veteran tree: 2/3 12. Amount of deadwood: 3/3 13. Woodland disturbance: 3/3	Habitat condition assessment undertaken in November 2020.	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	32 = Moderate Condition
Woodland and forest – Other woodland; broadleaved (W3 – South East Corner)	1. Age distribution of trees: 2/3 2. Wild, domestic and feral herbivore damage: 3/3 3. Invasive species: 2/3 4. Number of native tree species: 2/3 5. Cover of native tree and shrub species: 3/3 6. Open space in woodland: 2/3	Habitat condition assessment undertaken in November 2020.	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	31 = Moderate Condition

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	7. Woodland regeneration: 2/3 8. Tree health: 3/3 9. Vegetation and ground flora: 2/3 10. Woodland vertical structure: 2/3 11. Veteran tree: 2/3 12. Amount of deadwood: 3/3 13. Woodland disturbance: 3/3				
Woodland and forest – Other woodland; broadleaved (W4 – Stream)	1. Age distribution of trees: 2/3 2. Wild, domestic and feral herbivore damage: 3/3 3. Invasive species: 3/3 4. Number of native tree species: 2/3 5. Cover of native tree and shrub species: 3/3 6. Open space in woodland: 3/3 7. Woodland regeneration: 2/3 8. Tree health: 3/3 9. Vegetation and ground flora: 2/3 10. Woodland vertical structure: 2/3 11. Veteran tree: 2/3 12. Amount of deadwood: 2/3 13. Woodland disturbance: 3/3	Habitat condition assessment undertaken in November 2020.	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	32 = Moderate Condition
Woodland and forest – Other woodland; broadleaved (W5 – Centre South)	1. Age distribution of trees: 2/3 2. Wild, domestic and feral herbivore damage: 3/3 3. Invasive species: 3/3 4. Number of native tree species: 3/3 5. Cover of native tree and shrub species: 3/3 6. Open space in woodland: 1/3 7. Woodland regeneration: 2/3 8. Tree health: 3/3 9. Vegetation and ground flora: 1/3 10. Woodland vertical structure: 2/3 11. Veteran tree: 2/3 12. Amount of deadwood: 3/3 13. Woodland disturbance: 3/3	Habitat condition assessment undertaken in November 2020.	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	31 = Moderate Condition
Urban – Introduced shrub	Pre-set condition	Habitat condition assessment undertaken in November 2020.	-	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Grassland – Modified grassland	No detail provided in the EclA report so assumed poor condition assigned.	Habitat condition assessment undertaken in November 2020.		Professional judgement	Poor
Urban – Vacant / Derelict Land / Bareground	No detail provided in the EclA report so assumed poor condition assigned.	Habitat condition assessment undertaken in November 2020.	-	Professional judgement	Poor
Urban - Developed land; sealed surface	No assessment required; condition is pre-set.	Habitat condition assessment undertaken in November 2020.	Urban Habitat Type	Professional judgement	N/A - Other
Native Hedgerow (Eastern Hedge)	Despite passing various condition criteria, poor condition has been assigned due to the highly urban setting.	Habitat condition assessment undertaken in November 2020.	-	Professional judgement	Poor
Native Hedgerow (Building 9)	Despite passing various condition criteria, poor condition has been assigned due to the highly urban setting.	Habitat condition assessment undertaken in November 2020.	-	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor
Native Hedgerow with trees (Southern Hedge)	A1: Height - >1.5m average along length: Pass. A2: Width - >1.5m average along length: Pass. B1: Gap – hedge base: Pass. B2: Gap – hedge canopy continuity: Fail. C1: Undisturbed ground and perennial vegetation: Fail. C2: Undesirable perennial vegetation: Pass D1: Invasive and neophyte species: Pass D2: Current damage: Fail. E1: Tree age: Pass. E2: Tree health: Pass.	Habitat condition assessment undertaken in November 2020.	Hedgerow Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Native Hedgerow with trees (West Hedge)	A1: Height - >1.5m average along length: Pass A2: Width - >1.5m average along length: Pass B1: Gap – hedge base: Pass B2: Gap – hedge canopy continuity: Pass C1: Undisturbed ground and perennial vegetation: Fail C2: Undesirable perennial vegetation: Pass D1: Invasive and neophyte species: Pass D2: Current damage: Pass E1: Tree age: Fail. E2: Tree health: Fail.	Habitat condition assessment undertaken in November 2020.	Hedgerow Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Native Hedgerow with trees (West Hedge)	A1: Height - >1.5m average along length: Pass A2: Width - >1.5m average along length: Pass B1: Gap – hedge base: Pass B2: Gap – hedge canopy continuity: Pass C1: Undisturbed ground and perennial vegetation: Fail C2: Undesirable perennial vegetation: Pass D1: Invasive and neophyte species: Pass D2: Current damage: Pass E1: Tree age: Fail. E2: Tree health: Fail.	Habitat condition assessment undertaken in November 2020.	Hedgerow Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

# Appendix E Habitat Management Required to Achieve Target Condition

Habitat type	Habitat measure	Target condition	Time to target condition (years)	Habitat Condition Sheet	Condition Criteria	Associated habitat management requirements
Urban - Rain garden	Created	Moderate	3	Urban Habitat Type	<p>Target condition is 'moderate' in 3 years. The condition criteria are as follows:</p> <ul style="list-style-type: none"> <li>Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e., scrub, grassland, herbs) should not account for more than 80% of the total habitat area.</li> <li>There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife.</li> <li>Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area.</li> </ul> <p>It is expected that all of the condition criteria will be met, however, a precautionary condition of moderate has been assigned because specific details such as species composition is unknown.</p>	<p>The use of sandy soil is preferable. It is advised that a simple percolation test is undertaken to ensure that water drains away at a rate of at least 50mm per hour. It is encouraged that a diverse range of moisture loving herbs and shrubs are included.</p> <p>Rain gardens are typically low maintenance although regular inspections and weeding is likely to be required within the first two years.</p> <p>As the feature matures, the plants will suppress weed growth which will limit the necessity of regular maintenance, although once every 3-4 months for a visual inspection is advised.</p>
Grassland - Modified grassland	Created	Poor	1	Grassland Habitat Type	<p>Target condition is 'Poor' in 1 year. This will require the area to be seeded with an amenity grassland seed mix following ground preparation and regularly cut for amenity and security purposes.</p>	<p>Plant an appropriate seed mix.</p> <p>Manage as amenity grassland.</p>
Urban - Intensive green roof	Created	Moderate	1	Urban Habitat Type	<p>Target condition is 'moderate' in 5 years. The condition criteria are as follows:</p> <ul style="list-style-type: none"> <li>Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e., scrub,</li> </ul>	<p>Because of the varied nature of intensive green roofs, it is challenging to provide management advice whilst not knowing specific habitat details.</p>

grassland, herbs) should not account for more than 80% of the total habitat area.

- There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife.
- Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area.

It is expected that all of the condition criteria will be met, however, a precautionary condition of moderate has been assigned because specific details such as species composition is unknown.

With this in mind, the following high-level advice should be followed. Urban Green Infrastructure Technical Guide<sup>34</sup> includes the following text:

*"The planting medium in intensive green roofs starts at 150mm and if trees are included, this can increase to 800mm. Where this is the vision, the substrate will be architecturally contoured. Once the soil the plants are installed, the irrigation is fitted, meaning an increased saturated weight, which will require a structural consultant. The irrigation and drainage systems have to operate effectively to reduce the possibility of overloading the roof's structure."*

*Intensive green roofs are widely used on buildings to create large roof top areas that can incorporate all sizes and types of plants, including grasses, ground covers, flowers, shrubs, and trees, and will often have paths or walkways.*

*Due to the plant varieties supported, intensive green roofs require a maintenance schedule which involves essential pruning, regular maintenance checks, application of organic fertiliser and an irrigation system."*

In order for successful establishment, the maintenance advice provided below (or that of the supplier, if it differs) should be followed:

- Carry out planting according to the specification in the Landscape Plan;
- Carry out planting with due diligence and do not introduce pernicious or invasive species;
- Provide appropriate levels of irrigation where required; Monitor planting to ensure correct establishment, and take remedial action if growth fails.
- Undertake maintenance checks on a regular basis (monthly is recommended), and carry out the following tasks:
- Weed and remove unwanted seedlings; and,
- Clear gutters or drainage outlets.

Urban - Bioswale	Created	Moderate	1	Urban Habitat Type	<p>Target condition is 'moderate' in 5 years. The condition criteria are as follows:</p> <ul style="list-style-type: none"> <li>• Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e., scrub, grassland, herbs) should not account for more than 80% of the total habitat area.</li> <li>• There is a diverse range of flowering plant species, providing nectar sources for insects.</li> </ul>	<p>Advice for planting and maintenance (or that of the supplier if it differs) should be followed:</p> <ul style="list-style-type: none"> <li>• Prepare ground removing any undesirable species;</li> <li>• Carry out planting according to the specification in the Landscape Plan;</li> <li>• Carry out planting with due diligence and do not introduce pernicious or invasive species;</li> </ul>
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<sup>34</sup> ANS Global (2021). Urban Green Infrastructure Technical Guide.

					<p>These species may be either native, or non-native but beneficial to wildlife.</p> <ul style="list-style-type: none"> <li>Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area.</li> </ul> <p>It is expected that all of the condition criteria will be met, however, a precautionary condition of moderate has been assigned because specific details such as species composition is unknown.</p>	<ul style="list-style-type: none"> <li>Select plants which favour wet soils and can sustain short periods of flooding are planted;</li> <li>Undertake maintenance checks and carry out the following tasks:</li> <li>Weed and remove unwanted seedlings; and,</li> <li>Clear gutters or drainage outlets to ensure the habitat is performing its primary function.</li> </ul>
Urban - Developed land; sealed surface	Created	N/A - Other	0	-	-	-
Urban - Extensive green roof	Created	Moderate	3	Urban Green Infrastructure Technical Guide <sup>35</sup>	<p>Target condition is moderate in 3 years. Condition criteria that are relevant and can or are likely to be achieved are as follows:</p> <ul style="list-style-type: none"> <li>Vegetation is established through seeding, plug planting or natural colonisation.</li> <li>Area should be easily recognisable as a good example of this type of habitat;</li> </ul>	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> <li>Carry out planting according to the specification in the Landscape Plan, using seed mixes and plug planting whilst not using a sedum mat;</li> <li>Carry out planting to appropriate standards;</li> <li>Carry out planting with due diligence and do not introduce pernicious or invasive species;</li> <li>Provide appropriate levels of irrigation where required; Monitor planting to ensure correct establishment, and take remedial action if growth fails.</li> <li>Undertake annual visits during autumn, doing the following:</li> <li>Weed and remove unwanted seedlings; and,</li> <li>Clear gutters or drainage outlets;</li> </ul>
Urban – Introduced shrub	Created	Poor	1	-	Target condition is pre-set as 'poor' which is to be achieved in 1 year.	<p>To meet the pre-set target condition, it will be necessary to:</p> <ul style="list-style-type: none"> <li>Prepare ground, plant saplings, and remove undesirable species;</li> <li>Check and manage the habitat and remove any undesirable and unwanted species;</li> <li>When managing the habitat, prune any excessively long branches and any shrubs that are beginning to overhang other habitat areas. It is recommended that this process is done twice a year. Once during the colder winter months whilst the plants are in a state of growth dormancy to cut back any excessive summer growth from the previous year and secondly in early summer after the spring growth period.</li> </ul>

<sup>35</sup> ANS Global (2021). Urban Green Infrastructure Technical Guide.



Urban – Urban trees	Created	Moderate	27	Urban Tree Habitat Type	<ul style="list-style-type: none"> <li>• More than 70% of trees are native species.</li> <li>• Tree canopy is predominantly continuous with gaps in canopy cover making up &lt;10% of total area and no individual gap being &gt;5 m wide.</li> <li>• More than 50% of trees are mature or veteran.</li> <li>• There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime, so the trees retain &gt;75% of expected canopy for their age range and height.</li> <li>• Management regime has encouraged micro habitat sites for birds, mammals and insects e.g. presence of deadwood, cavities or loose bark etc.</li> <li>• Trees are immediately adjacent to other vegetation, and tree canopies are oversailing vegetation beneath.</li> </ul>	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> <li>• Carry out planting according to the specification in the Indicative habitat open space plan;</li> <li>• All plants to be fitted with rabbit protection guards;</li> <li>• Carry out planting to appropriate standards;</li> <li>• Monitor planting to ensure correct establishment, and take remedial action if growth fails.</li> </ul> <p>It is expected that the 'ornamental' trees that are to be created will achieve moderate condition</p>
Native Hedgerow	Created	Poor	1	Hedgerow Habitat Type	<p>Target condition is poor in 1 year. The condition criteria for hedgerows are as follows:</p> <ul style="list-style-type: none"> <li>• Height above 1.5 m</li> <li>• Width wider than 1.5 m along length</li> <li>• Gaps between ground and base of canopy less than 0.5 m</li> <li>• Hedge canopy continuity – gaps making up less than 10% of total length</li> <li>• Undisturbed ground and perennial vegetation</li> <li>• Undesirable perennial vegetation</li> <li>• Absence of invasive species</li> <li>• Damage</li> <li>• Tree age</li> <li>• Tree health</li> </ul>	<p>To meet target condition, it will be necessary to follow the steps recommended in the Landscape Plan, see a summary below:</p> <ul style="list-style-type: none"> <li>• Hedge to be planted in doubled staggered rows spaced at 250mm, 400mm between rows, to avoid straight lines.</li> <li>• Plant eight plants per linear meter. Arrangement of species in groups of 3-5. All plants to be fitted with tree guards.</li> <li>• Hedgerow trees to be double staked and secured with flexible looped ties. Tree protections include guards, 600mm in height, 100mm in diameter.</li> <li>• Planting pits of suitable depths to be provided.</li> </ul>

# Appendix F Biodiversity Metric 3.0 Calculation

Full metric to be included as an attachment, see summary below:

Hillingdon Hospital	<div>Return to results menu</div>	
Headline Results		
On-site baseline	Habitat units	11.30
	Hedgerow units	2.35
	River units	1.94
On-site post-intervention <small>(Including habitat retention, creation &amp; enhancement)</small>	Habitat units	19.65
	Hedgerow units	2.13
	River units	1.75
On-site net % change <small>(Including habitat retention, creation &amp; enhancement)</small>	Habitat units	74.00%
	Hedgerow units	-9.17%
	River units	-9.42%
Trading rules Satisfied?	No - Check Trading Summary	

