










Health and Wellbeing Hub, Graven Hill

Technical Note – Biodiversity Net Gain Assessment

Date: April 2021**Client Name:** Apollo Capital Projects Development Ltd**Document Reference:** WIE16470-100-TN-7-3-1-BNG

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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1. Introduction

Waterman Infrastructure & Environment Ltd (Waterman) has been instructed by Apollo Capital Projects Development Ltd (the 'Applicant') to undertake a Biodiversity Net Gain (BNG) Assessment to support the preparation of a planning application. The Applicant seeks permission to create a health and wellbeing hub on land at Graven Hill, Bicester, Oxfordshire (hereafter referred to as the 'Site').

1.1 Site Setting

The Site is approximately 1 hectare (ha) in area, centred on Ordnance Survey Grid Reference SP 58885 21239. The Site once comprised the Rodney House Complex which has been subject to demolition works in 2016 (two single storey buildings) and 2020 (a boiler tower). As such, the Site now comprises a disused area of hardstanding surrounded by unmanaged areas of tall ruderal vegetation, dense scrub and scattered trees.

Assessments undertaken as part of the Preliminary Ecological Appraisal (PEA, ref: WIE16470-101-R-4-1-4-PEA) and subsequent Ecological Impact Assessment (EclA)¹ comprised an ecological data search, 'Extended Phase 1 Habitat Survey, search for common invasive plants, preliminary roost assessments, endoscope surveys, and dawn re-entry / dusk emergence survey for bats. The assessment found the Site to comprise habitats associated with the urban environment and when converted to UK HABS² were categorised as:

- Urban – Vacant / derelict land / bare ground
- Urban - Developed land; sealed surface;
- Sparsely vegetated land - ruderal;
- Heathland and shrub - mixed scrub;
- Scattered trees; and
- Line of Trees

The extent of the Site together with the location of these habitats are provided on **Figure 1**.

1.1.1 Proposed Development

In summary, the current development proposals are as follows:

- A planning application is being submitted for the construction of a single 3 storey building with associated infrastructure and car parking at the Site (hereafter referred to as the proposed 'Development').
- Two areas of land as known as 'Receptor site 3' at grid reference SP585205 approximately 0.8km south-west of the Site, within the wider Graven Hill Site, has been approved for use for biodiversity offsetting. Proposals for this off-site habitat include the planting of native trees through accelerated succession.

The proposed Development plans for the Site, both on Site through habitat creation, and off Site through succession, are shown within **Appendix A**.

Planning Policy

The following planning policies are considered relevant to this assessment:

- National Planning Policy
 - National Planning Policy Framework, 2019³
- Local Planning Policy
 - The Cherwell Local Plan 2011 – 2031 (Part 1)⁴

Refer to **Appendix B** for additional details of the above planning policies. In summary Policy ESD 10 details that Developments should target an overall net gain, and Policy Bicester 2: Graven Hill details that Graven Hill Developments should also target an overall biodiversity net gain.

¹ WIE16470-100-R-9-1-3-EclA (2021) Waterman Infrastructure & Environment

² UK Habitat Classification Working Group (2018). *UK Habitat Classification –Habitat Definitions V1.0* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>

³ Department of Communities and Local Government. (2019). *National Planning Policy Framework*.

⁴ Cherwell District Council North Oxfordshire (2016) Part 1 Adopted 20 July 2015 (incorporating policy Bicester 13 re0adopted on 19 December 2016)

2. Methodology

2.1 Baseline survey and Baseline Units

As part of the PEA and subsequent EclA an 'Extended' Phase 1 Habitat Survey of the Site was undertaken on the 29th of July 2020, using the Joint Nature Conservancy Council standard 'Phase 1' survey technique⁵. The Phase 1 Habitat Survey methodology was 'Extended' by undertaking an assessment of the Site to support protected and notable faunal species **Figure 1** details the habitats found on Site

The baseline biodiversity unit value of the Site has been determined using the Biodiversity Metric 2.0 Calculation Tool (Beta Test December 2019 Update – 2019/12/19). This calculation tool was developed to provide a standardised methodology for completing BNG.

Baseline biodiversity units have been established using the findings of:

- The 'Extended' Phase 1 Habitat Survey (converted to UK HABs);
- The accurate measurement of on-site habitats and hedgerows (treelines) in accordance with current topographical survey information; and
- Professional judgement.

2.2 Condition assessment

2.2.1 Habitats and Hedgerows

A condition assessment has been undertaken on the habitats and hedgerows (treelines) recorded on Site as part of the 'Extended' Phase 1 Habitat Survey using the Biodiversity Metric 2.0 – Technical Supplement⁶. This document sets out criteria and characteristics for each habitat and provides guidance on an assessment of habitat condition (which can be 'good', 'fairly good', 'moderate', 'fairly poor' and 'poor'). The assessment criteria considered is varied for each habitat but includes criteria such as the presence of undesirable species, habitat extent, habitat health and vegetation structure.

2.2.2 Proposed Habitat and Hedgerow Conditions

Proposed habitat conditions have been assigned to newly created, retained and enhanced habitats, both on and off Site. This has been achieved by reviewing the criteria characteristics for each habitat, set out in the Biodiversity Metric 2.0 – Technical Supplement and the proposed soft landscaping plans to determine a realistic, likely achievable condition once the habitats have established and been subject to appropriate management.

2.2.3 Limitations

This BNG Assessment has not accounted for habitat connectivity in line with the Biodiversity Metric Connectivity Tool⁷. However, a habitat connectivity calculation is only required for habitats of high or very high distinctiveness and no pre-development or post-development habitats on site meet

⁵ JNCC. (2010). *Handbook for Phase 1 Habitat Survey*. Joint Nature Conservancy Council

⁶ Ian Crosher, Susannah Gold, Max Heaver, Matt Heydon, Lauren Moore, Stephen Panks, Sarah Scott, Dave Stone & Nick White (2019) *The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019)*. Natural England

⁷ The Defra 2.0 Metric connectivity tool was not functioning properly at the time of the BNG assessment: we have made Defra aware of such teething issues

these criteria. As no habitats of high or very high distinctiveness are present / to be created, the interim connectivity guidance as set out within the Biodiversity Metric 2.0 – Technical Supplement has been used in this instance.

Furthermore, with regards to ‘strategic significance’ it has been assumed that all habitats are of ‘medium significance’ i.e., ‘location ecologically desirable but not in local strategy’.

3. Habitat Condition Assessment

3.1 On Site Habitat

This section refers to habitats within the red line boundary of the Site only.

3.1.1 Pre-Development Baseline Conditions

See **Figure 1** for the on-Site habitat and hedgerow baseline.

Habitats Biodiversity Value

Table 1 details the pre-development habitat biodiversity value results for the on-site habitat baseline.

Table 1: Pre-development on-site habitat baseline results

Habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Biodiversity Value
Urban – Vacant/derelict land / bare ground	0.11	Low	Low	0.22
Urban - developed land; sealed surface	0.14	Very low	N/A*	0.00
Sparsely vegetated land - Ruderal	0.28	Low	Low	1.12
Heathland and shrub - Mixed scrub	0.5	Medium	Low	2.00
Urban – Street tree**	0.08	Low	Low	0.32
Total	1.03	-	-	3.66

*condition N/A due to habitat type

**Trees on Site measured using the DEFRA BNG calculator tool for tree area⁸

Hedgerows Biodiversity Value

Table 2 details the pre-development hedgerow (treeline) biodiversity value results for the on-site hedgerow baseline.

Table 2: Pre-development on-site hedgerow baseline results

Hedgerow	Length (km)	Hedgerow Distinctiveness	Hedgerow Condition	Biodiversity Value
Line of trees	0.8	Low	Moderate	1.6
Total	0.8	-	-	1.6

3.1.2 Post-development score

Current Development plans (**Appendix A**) include the provision of the following habitats on-site:

⁸ Natural England (2019) The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE

- Urban - Amenity grassland;
- Urban - Introduced shrub;
- Urban – Developed land; sealed surface; and
- Urban - Scattered trees

Habitat

Habitat losses

Table 3 details the post-development habitat biodiversity value loss results for on-site habitat.

Table 3: Post-development on-site habitat losses biodiversity value results

Habitat	Area (ha) retained	Area (ha) lost	Habitat Distinctiveness	Habitat Condition	Biodiversity Value Lost
Urban – Vacant/derelict land / bare ground	0.00	0.11	Low	Low	0.22
Urban - developed land; sealed surface	0.00	0.14	Very low	N/A*	0.00
Sparsely vegetated land - Ruderal	0.00	0.28	Low	Low	1.12
Heathland and shrub - Mixed scrub	0.00	0.5	Medium	Low	2.00
Urban – Street tree**	0.005	0.08	Low	Low	0.30
Total	0.005	1.11			3.64

*condition N/A due to habitat type

**Trees on Site measured using the DEFRA BNG calculator tool for tree area⁹

Habitat creation

Table 4 details the post-development habitat biodiversity value results for on-site habitat creation.

Table 4: Post-development on-site habitat creation results

Habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Biodiversity Value
Urban – Amenity grassland	0.02	Low	Moderate	0.07
Urban - Introduced shrub	0.12	Low	Good	0.69
Urban - Developed land; sealed surface	0.96	Very low	N/A*	0.00
Urban – Street tree**	0.445	Low	Moderate	0.68
Total	1.105	-	-	1.45

*condition N/A due to habitat type

**Trees on Site measured using the DEFRA BNG calculator tool for tree area¹⁰

⁹ Natural England (2019) The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE

¹⁰ Natural England (2019) The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE

Hedgerow

Hedgerow losses

The treeline on-site is to be retained, as such there is to be no hedgerow losses.

3.2 Off Site Habitat

This section refers to habitats within the areas designated for biodiversity off-setting, as detailed within Section 1.1.1 above.

3.2.1 Pre-Development Baseline Conditions

Habitats Biodiversity Value

Table 5 details the pre-development habitat biodiversity value results for the off-site habitat baseline.

Table 5: Pre-development off-site habitat baseline results

Habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Biodiversity Value
Grassland - Other neutral grassland	0.56	Medium	Low	2.24
Total	0.56	-	-	2.24

3.2.2 Post-development score

Current Development plans (**Appendix A**) include the provision of the following habitats off-site through succession:

- Woodland and forest; other woodland, young trees planted

Habitat losses

Table 6 details the post-development habitat biodiversity value loss results for off-site habitat.

Table 6: Post-development off-site habitat losses biodiversity value results

Habitat	Area (ha) retained	Area (ha) lost	Area succession (ha)	Habitat Distinctiveness	Habitat Condition	Biodiversity Value Lost
Grassland – Other neutral grassland	0.00	0.00	0.56	Low	Low	0.00
Total	0.00	0.00	0.56	-	-	0.00

Habitat succession

Table 7 details the post-development habitat biodiversity value results for off-site habitat succession.

Table 7: Post-development off-site habitat succession results

Habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Time to target condition (yrs)	Biodiversity Value
Woodland and forest; other woodland, young trees planted	0.56	Medium	Good	32+	4.43
Total	0.56	-	-		4.43

Biodiversity Net Gain Assessment

In line with the Defra biodiversity Metric 2.0 Calculation Tool, the BNG Assessment confirms a habitats BNG of **0.04%** and no change in hedgerow units, based on current landscape plans. Refer to **Appendix C** for the headline results. The full Defra biodiversity Metric 2.0 Calculation Tool can be provided upon request.

4. Conclusion

Current site proposals will provide a habitat biodiversity net gain of **0.04%**, and no loss in hedgerow biodiversity. It is therefore confirmed that the proposed habitat creation, succession and mitigation for the Site is compliant with local planning policy.

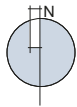
The use of off-site habitat for biodiversity offsetting in order to achieve an overall BNG, provides an added benefit to ecology at the wider Site through extending habitat of high ecological value already present, opposed to additional planting on-Site at low ecological value habitat. The inclusion of newly planted woodland, provides more suitable habitat for local BAP species and in the future will provide additional habitat to those species potentially affected by the Development such as bats (local BAP species) and other bird species. In summary, this additional off-site habitat is of greater benefit to local BAP species than additional soft landscaping on-Site.

FIGURES

Figure 1: UK HABs Map (Ref. WIE15656-102_GR_BNG_1A)



- Site Boundary
- Urban Developed Land / Sealed Surface (0.14ha)
- Sparsely Vegated Land - Ruderal (0.28ha)
- Heathland and Shrub - Mixed Scrub (0.5ha)
- Urban - Vacant Derelict Land / Bareground (0.11ha)
- Trees



Project Details	WIE16470-100: Health Hub
Figure Title	Figure 1: Habitat Features Plan
Figure Ref	WIE16470-100_GR_BNG_1A
Date	March 2021
File Location	\\s-Incs\wiel\projects\wie16470\100\graphics\pea\issued figures

APPENDICES

A. Soft Landscaping Plans.

On Site habitat creation (ref: 16470-WIE-100-74-XX-ZZ-100-P02_Illustrative Landscape Plan)

Off Site habitat creation through succession (ref: 16470-WIE-100-74-XX-ZZ-110)

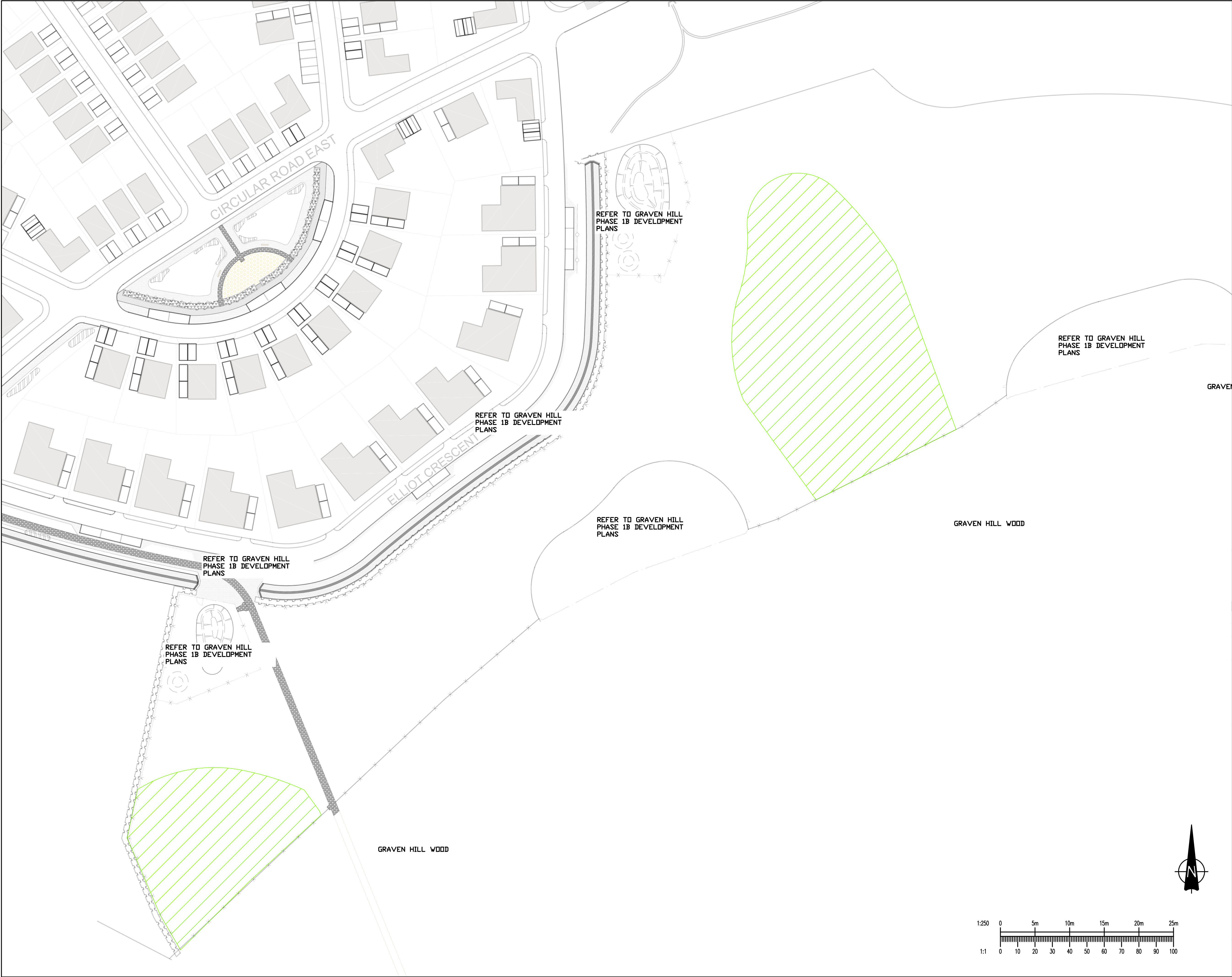


Tilia cordata 'Greenspire'
Super-semi mature or equivalent approved
to replace T14 as per AA report

Indicative Species List	
Trees	
Acer campestre	Streetwise
Acer campestre	Elegant
Acer	griseum
Liquidambar	styraciflua
Tilia cordata	'Greenspire'
Shrubs	
Lavandula	angustifolia
Cornus	Mas
Euonymus	europaeus
Viburnum	opulus
Ilex	aquifolium
Lonicer	nitida
Herbs	
Origanum	laevigatum
Origanum	vulgare
Salvia	officinalis
Salvia	rosmarinus
Thymus	vulgaris
Herbaceous	
Achillea	'Credo'
Achillea	'Inca Gold'
Allium	schoenoprasum
Centaurea	montana 'Purple Heart'
Echinacea	purpurea 'White Swan'
Echinops	'Veitch's Blue'
Euphorbia	x martinii
Gaura	lindheimeri
Iris	Black Swan
Libertia	Grandiflora
Lilium	martagon 'Arabian Night'
Nepeta	racemosa 'Walker's Low'
pulsatilla	vulgaris
Salvia	nemerosa 'Caradonna'
Sesleria	autumnalis

	SITE BOUNDARY
SOFT LANDSCAPE	
	PROPOSED TREE
	PROPOSED SPECIMEN SHRUB
	EXISTING VEGETATION TO BE RETAINED
	PROPOSED AMENITY GRASS
	PROPOSED GROUND COVER
	PROPOSED ORNAMENTAL SHRUBS
	PROPOSED NATIVE SHRUB MIX Refer to planting schedule for details
	PROPOSED HEDGE Refer to planting schedule for details
HARD LANDSCAPE	
	PT 1 - PROPOSED COLOURED TARMAC TO PARKING BAYS Light Buff ultrafine porous by Tarmac or equivalent approved
	PT 2 - PROPOSED COLOURED TARMAC TO CARRIAGEWAY Mid grey ultrafine by Tarmac or equivalent approved
	PT 3 - BOUND GRAVEL PATH
	PT 4 - GRAVEL PATH
	PT 5 - HIGH QUALITY STONE PAVERS
	PT 6 - PAVING TO SENSORY PATH
	PT 7 - CONCRETE PAVING
	PROPOSED BENCH
	PROPOSED SCULPTURE

Rev	Date	Description	By
P02	06.04.21	PLANNING	LT
P01	19.02.21	PLANNING	LT
Amendments			
Project			
Graven Hill Health Hub			
Title			
Illustrative Landscape Plan			
Client			
Merchants House Wapping Road Bristol BS1 4RW t 0117 937 8200 msh@watermangroup.com www.watermangroup.com			
Drawing Status			
PLANNING			
Designed by	LT	Checked by	TH
Drawn by	LT	Date	FEB21
Scales @ A1		1:250@A1	Work Order No
work to figured dimensions only			100
16470-WIE-100-74-XX-ZZ-100			P02



PROPOSED AREA OF NATIVE WOODLAND
0.56ha of native woodland offset to achieve BNG

P01	12.03.21	PLANNING	LT
Rev	Date	Description	By

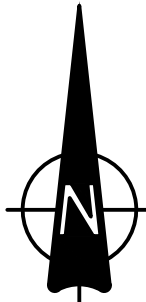
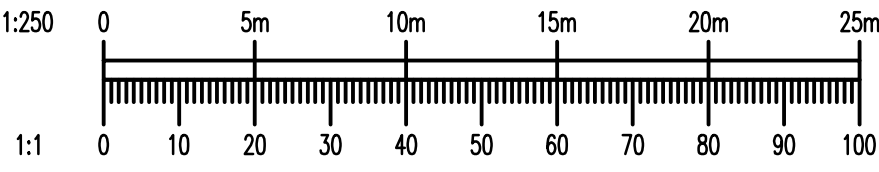
Project	
Graven Hill Health Hub	
Title	
BIODIVERSITY NET GAIN OFFSET LOCATION PLAN	
Client	



Merchants House Wapping Road Bristol BS1 4RW
t 0117 937 8200
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Drawing Status			
PLANNING			
Designed by	LT	Checked by	TH
Drawn by	LT	Date	MARCH21
Scales @ A1		1:500@A1	
work to figured dimensions only		100	

16470-WIE-100-74-XX-ZZ-110 P01



B. Planning Policy

National Planning Policy

National Planning Policy Framework, 2019

The National Planning Policy Framework¹¹ (NPPF) was revised in February 2019. Section 11 (outlined below) of the NPPF, 'Conserving and Enhancing the Natural Environment', effectively replaces former Planning Policy Statement 9: Biodiversity and Geological Conservation. However, Government Circular 06/2005¹² - Biodiversity and Geological Conservation: Statutory Obligations and Their Impact within the Planning System, remains valid and is referenced within the NPPF.

The NPPF encourages the planning system to contribute to and enhance the natural and local environment. This should be achieved by:

Inter alia

- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the government's commitment to halt the overall decline in biodiversity, including by establishing ecological networks that are more resilient to current and future pressures;*

Local Planning Policy

The Cherwell Local Plan 2011 – 2031 (Part 1)

The Adopted Cherwell Local Plan 2011-2031 (Part 1)¹³ contains strategic planning policies for development and the use of land. It forms part of the statutory Development Plan for Cherwell to which regard must be given in the determination of planning applications.

The Plan was formally adopted by the Council on 20 July 2015 with the re-adoption of previous policies on 19 December 2016. The following policies are relevant to this assessment

- Policy Bicester 2: Graven Hill

Development Area: 241 hectares

Development Description: This predominantly brownfield site to the south of Bicester is proposed for a mixed-use development of 2,100 dwellings, significant employment land providing for high quality job opportunities, associated services, facilities and other infrastructure including the potential for the incorporation of a rail freight interchange.

- *Inter alia "Development that respects the landscape setting and that demonstrates enhancement, restoration or creation of wildlife corridors, and that respects the relationship between the woodland and open areas of Graven Hill and the development through the creation of 'green fingers' leading into the development area.*
- *Biodiversity protection and enhancement measures should be implemented in any future development. Protected species surveys for bats and great crested newts will be required, and sufficient mitigation measures agreed prior to planning permission being granted*

¹¹ Department of Communities and Local Government. (2012). *National Planning Policy Framework*.

¹² Department of Communities and Local Government. (2005). *Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*.

¹³ Cherwell District Council North Oxfordshire (2016) Part 1 Adopted 20 July 2015 (incorporating policy Bicester 13 re0adopted on 19 December 2016)

- *Preservation and enhancement of protected habitats and species on site and creation and management of new habitats to achieve an overall net gain in biodiversity*
- *An Ecological and Landscape Management Plan to be provided to manage the woodland and other habitats onsite”*
- **Policy ESD 10: Protection and enhancement of Biodiversity and the Natural Environment**

Inter alia “Protection and enhancement of biodiversity and the natural environment will be achieved by the following:

 - *In considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources;*
 - *Development which would result in damage to or loss of a site of biodiversity or geological value of regional or local importance including habitats of species of principal importance for biodiversity will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site, and the loss be mitigated to achieve a net gain in biodiversity/geodiversity;*
 - *Development proposals will be expected to incorporate features to encourage biodiversity and retain and where possible enhance existing features of nature conservation value within the site. Existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity;*
 - *Relevant habitat and species surveys and associated reports will be required to accompany planning applications which may affect a site, habitat or species of known or potential ecological value;*
 - *Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be viewed favourably; and*
 - *A monitoring and management plan will be required for biodiversity features on site to ensure their long-term suitable management.*

C. Completed Defra Biodiversity Metric 2.0 Calculation Tool Headline Results

Graven hill- health hub

Headline Results

[Return to
results menu](#)

On-site baseline

<i>Habitat units</i>	3.66
<i>Hedgerow units</i>	3.20
<i>River units</i>	0.00

On-site post-intervention

(Including habitat retention, creation, enhancement & succession)

<i>Habitat units</i>	1.47
<i>Hedgerow units</i>	3.20
<i>River units</i>	0.00

Off-site baseline

<i>Habitat units</i>	2.24
<i>Hedgerow units</i>	0.00
<i>River units</i>	0.00

Off-site post-intervention

(Including habitat retention, creation, enhancement & succession)

<i>Habitat units</i>	4.43
<i>Hedgerow units</i>	0.00
<i>River units</i>	0.00

Total net unit change

(including all on-site & off-site habitat retention/creation)

<i>Habitat units</i>	0.00
<i>Hedgerow units</i>	0.00
<i>River units</i>	0.00

Total net % change

(including all on-site & off-site habitat creation + retained habitats)

<i>Habitat units</i>	0.04%
<i>Hedgerow units</i>	0.00%
<i>River units</i>	0.00%