URBAN EDGE ENVIRONMENTAL CONSULTING

NATURAL PROGRESSION

Land North West of Goring Station, Goring-by-Sea, West Sussex

Biodiversity Net Gain Assessment

July 2020

URBAN EDGE ENVIRONMENTAL CONSULTING

NATURAL PROGRESSION

Land North West of Goring Station, Goring-by-Sea, West Sussex

Biodiversity Net Gain Assessment

Client:	Persimmon Homes Thames Valley	
Report No.:	UE0284_GoringBNG_0_200730	
Author: Giulia Civello MSc PIEMA Richard Bickers PhD MCIEEM	**Proofed:** Nick Pincombe MSc CEnv MIEMA MCIEEM	**Approved:** Nick Pincombe MSc CEnv MIEMA MCIEEM
Revision No.:	**Status/Comment:**	**Date:**
0	First issue to client	30 July 2020

Urban Edge Environmental Consulting Ltd is a Registered Practice of the Chartered Institute of Ecology and Environmental Management. The information, advice and opinions provided in this report are true and were prepared and provided in accordance with CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

CIEEM REGISTERED PRACTICE 2019-2020

Contents

List of Tables and Figures

Abbreviations

BNG	Biodiversity Net Gain
BU	Biodiversity Unit
DAS	Design and Access Statement
LEAP	Local Equipped Area for Play
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
SuDS	Sustainable Urban Drainage Systems
UEEC	Urban Edge Environmental Consulting

0 Executive Summary

0.1 Introduction and Purpose of the Report

0.1.1 Biodiversity Net Gain (BNG) is an approach to development which leaves the natural environment in a better state than beforehand. Defra has published a metric by which the biodiversity losses and gains associated with a particular development can be calculated.

0.1.2 Urban Edge Environmental Consulting (UEEC) has been commissioned by Persimmon Homes Thames Valley ('the Applicant') to undertake a BNG assessment using the Defra Metric 2.0 for the site of a proposed mixed use development at Land North West of Goring Station, Goring-by-Sea, West Sussex (Grid Reference: 510120, 103430). This report provides a description of the methodology applied and the results of the assessment, together with recommendations and conclusions.

0.2 Policy Background Summary

0.2.1 The requirement for BNG is set out in national and local planning policy:

0.2.2 The 2019 National Planning and Policy Framework (NPPF) advocates that planning policies and decisions should take opportunities to achieve net environmental and biodiversity gains such as developments that would enable habitat creation. It also advocates that, when making planning decisions, local planning authorities should encourage biodiversity enhancements, especially where this can secure measureable gains for biodiversity. In 2018 the Government published its '25 Year Environment Plan' which set out an ambition to embed mandatory biodiversity net gain into all development projects. This is mandated in the Draft Environment Bill which requires a minimum of 10% biodiversity net gain. Timescales for the enactment of the Bill are currently unknown.

0.2.3 Policy 13 of the Adopted Worthing Borough Core Strategy requires that development proposals should, where applicable, contribute to the enhancement of the area.

0.3 Methodology

0.3.1 The BNG assessment has been carried out using the 2019 Defra Biodiversity Metric 2.0 which uses habitats as a proxy for wider biodiversity. Pre-intervention Biodiversity Units (BUs) were calculated, informed by a walkover site visit on 13 July 2020 to establish the habitat parcels present within the development site, their size and condition. Post-intervention BUs were calculated based on the illustrative masterplan and landscaping plan for the site.

0.3.2 Given that the assessment has been undertaken in support of an outline application detailed landscaping proposals are not available at this time, and therefore a number of assumptions as to the proposed habitats have been made and are presented in the report.

0.4 Results

Pre-Intervention Biodiversity Units

0.4.1 The area habitats within the site prior to development are equivalent to 44.77 BUs. The linear habitats within the site prior to development are equivalent to 0.54 BUs.

Post-Intervention Biodiversity Units

0.4.2 Linear habitats – The existing lines of trees at the east and west boundaries of the application site will be retained in length; that to the west will be strengthened with adjacent native hedgerow planting. There will hence be no loss of linear habitats as a result of the proposed development, but just over 2km of new native hedgerow will be created under the landscape strategy. Post-intervention linear habitats within the site will therefore be equivalent to 8.99 BUs.

0.4.3 Area habitats – The narrow bands of scrub and tall ruderal vegetation along the rife, and at the east and west boundaries (associated with the tree lines) will be retained. The retained habitats form a relatively small proportion of the overall site area and no specific habitat enhancements to these areas are proposed. All other habitats are assumed to be lost during site clearance, principally arable with small sections of amenity and species-poor semi-improved grassland, tall ruderal and scrub. Proposed landscape types have been translated to the UK habitats classification (along with their expected condition) by the ecologist using professional judgement; area measurements are based on the landscape strategy plan discussions with the client team.

0.4.4 Post intervention the area habitats within the site are equivalent to 48.90 BUs.

Biodiversity Impact Assessment Score

0.4.5 By subtracting the pre-intervention units from the post-intervention BUs it is possible to calculate the Biodiversity Impact Assessment score:

- There is a calculated net gain of 8.45 BUs for linear habitats, equivalent to 1577.20%.
- There is a calculated net gain of 4.13 BUs for area habitats, equivalent to 9.22%.

0.5 Conclusions and Recommendations

0.5.1 Overall this assessment has shown that there will be no loss in linear habitats as a result of the proposed development. The existing lines of trees will be retained in their current condition. Significant native hedgerow planting is proposed which results in a 1577.20% net gain in linear habitats. The majority of baseline area habitats (mainly arable) will be lost with small sections at

the boundaries retained. Significant areas of biodiverse habitats will be created as part of the landscape strategy, resulting in an overall net gain of 9.22% in area habitats.

0.5.2 There will be additional ecological enhancements introduced as part of the landscaping works which cannot currently be accommodated within the Defra Metric 2.0. These include for example bat boxes, bird boxes, and habitat piles for amphibians and invertebrates, installed in suitable locations. Additional recommendations made in the accompanying protected species survey reports (UEEC, 2020a,b) should be taken into account in the development of the detailed landscaping proposals to ensure that opportunities for onsite biodiversity net gain area maximised. Should the detailed landscaping proposals alter any of the assumptions made in this assessment then the BNG calculation will need to be updated.

1 Introduction

1.1 Biodiversity Net Gain and the Defra Metric

1.1.1 Biodiversity is the variety of life on earth; it includes all living things and the places in which they live. It is essential to sustain our society, well-being and economy. Biodiversity in the UK and internationally is declining as it comes under increasing pressure from development and land management practices. Enhancing biodiversity is integral to sustainable development, and Biodiversity Net Gain (BNG) is an approach to development which leaves the natural environment in a measurably better stated than beforehand.

1.1.2 In 2019 Defra published the Biodiversity Metric 2.0 ('the Metric') (Crosher *et al.*, 2019). The metric provides a means of evaluating biodiversity losses and gains through development in a robust and consistent manner. The metric enforces the mitigation hierarchy whereby impacts to biodiversity should first be avoided, then minimised and mitigated, before being compensated where losses cannot be avoided. The Metric calculates the biodiversity value of a site before and after development to establish the change in biodiversity attributable to a particular development project.

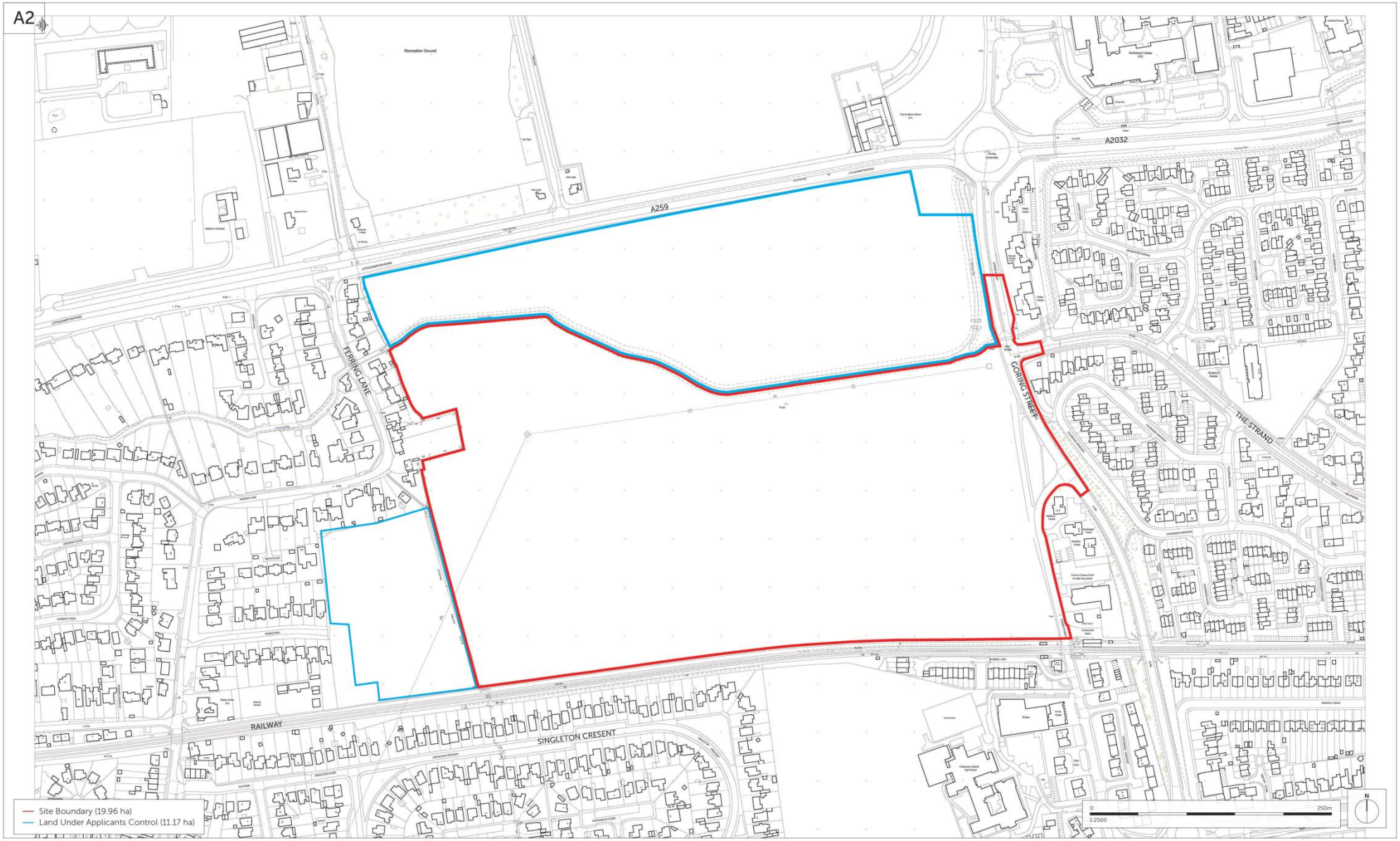
1.2 Purpose of the Report

1.2.1 Urban Edge Environmental Consulting (UEEC) has been commissioned by Persimmon Homes Thames Valley ('the Applicant') to undertake a BNG assessment using the Defra Metric for the site of a proposed mixed use development at Land North West of Goring Station, Goring-by-Sea, West Sussex (Grid Reference: 510120, 103430).

1.2.2 The development site occupies 19.96ha of land to the west of the village of Goring-by-Sea, currently dominated by arable fields bordered with semi-improved and amenity grassland, scrub, tall ruderal vegetation, scattered trees and the Ferring Rife. The development site boundary is shown at Figure 1.1.

1.2.3 The assessment accompanies an outline planning application for a mixed use development comprising up to 475 dwellings along with associated access, internal roads and footpaths, car parking, public open space, landscaping, local centre (uses including A1, A2, A3, A4, A5, D1, D2) with associated car parking, car parking for the adjacent railway station, undergrounding of overhead HV cables and other supporting infrastructure and utilities. The indicative masterplan for the development is shown on Figure 1.2.

1.2.4 This reports documents the BNG assessment which has been undertaken in support of the outline planning application including methodology, results of the assessment and conclusions and recommendations.



Romsey Office
Building 300, The Grange,
Romsey Road,
Michelmersh, Romsey,
Hampshire, SO51 0AE.
T:01794 367703 F:01794 367276

Portishead Office
Unit 5, Middle Bridge Business Park,
Bristol Road,
Portishead,
Bristol, BS20 6PN.
T:01275 407000 F:01794 367276

www.thrivearchitects.co.uk

Rev	Description	Date	Au	Ch
P1	Preliminary Issue	03.02.20	PM/dr	--/--
P2	Revised Redline	12.02.20	PM/dr	--/--
P3	Revised Redline	29.06.20	MB/aa	MB/--
P4	Revised Redline	14.07.20	MB/aa	MB/--
P5	Adjustment to Area Totals	15.07.20	MB/aa	MB/--

Figure 1.1: Site location plan

Project	Goring Station		
Drawing	Site Location Plan - 02		
Client	PERSIMMON (THAMES VALLEY)		
Job no.	PERS190227PJ	Date	03.02.20
Dwg no.	SLP-02	Rev.	P5
Author	PM/dr Checked -/-	Scale	1:2500@A2
Status	PRELIMINARY	Office	Romsey
Client ref.	-		

thrive. architects

Figure 1.2: Indicative masterplan

2 Policy Background

2.1.1 The requirement for BNG is set out in national and local planning policy.

2.2 National Planning Policy

2.2.1 The revised National Planning and Policy Framework (NPPF; MHCLG, 2019) advocates biodiversity and environmental gains[1] in the following paragraphs:

- Paragraph 118: *"Planning policies and decision should a) encourage multiple benefits from both urban and rural land … and taking opportunities to achieve net environmental gains - such as developments that would enable new habitat creation..."*
- Paragraph 170: *"Planning policies and decisions should contribute to and enhance the natural and local environment by d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."*
- Paragraph 171: *"Plans should…plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries"*
- Paragraph 174: *"To protect and enhance biodiversity and geodiversity, plans should b)… pursue opportunities for securing measurable net gains for biodiversity."*
- Paragraph 175: *"When determining planning applications, local planning authorities should apply the following principles d)… opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity."*

2.2.2 The Government's '25 Year Environment Plan' (HMG, 2018) set out a policy ambition to consult on mandatory BNG for development and to embed environmental net gain principle into the planning system. A Defra consultation on mandatory BNG, advocating a minimum of 10% BNG for all development, took place in December 2018[2] with the responses published in July 2019[3].

2.2.3 The Draft Environment Bill proposes to mandate a minimum of 10% BNG for all development. Timescales for the enactment of the Bill are currently unknown.

[1] Environmental gains extend beyond biodiversity gains to also include social, economic, amenity and natural capital gains,

[2] Defra (2018): *Net Gain – Consultation proposals*. Available online: https://consult.defra.gov.uk/land-use/net-gain/

[3] Defra (2019): *Net Gain – Summary of responses and government response*. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf

2.3 Local Planning Policy

2.3.1 Policy 13 of the Adopted Worthing Borough Core Strategy (2011) states, among other things, that *"All new development will respect the biodiversity and natural environment that surrounds the development and will contribute to the protection and, where applicable the enhancement of the area. New development along the seafront will be designed to incorporate measures which will limit any adverse impacts on the coastal and marine environment."*

2.3.2 Policy CP19 of the Draft Worthing Borough Local Plan (October 2018) states that "*a) All development should ensure the protection, conservation, and where possible, enhancement of biodiversity, including nationally and locally designated sites, Biodiversity Opportunity Areas (BOAs), marine habitats and other Biodiversity Action Plan (BAP) priority habitat areas, wildlife corridors and stepping stones, and protected and priority species. If significant harm cannot be avoided (by locating development on an alternative site with less harmful impacts), then such harm should be adequately mitigated. Where it cannot be adequately mitigated then such harm must be compensated for. Where it cannot be compensated for, then planning permission should be refused. This process is referred to below as the mitigation hierarchy.*" It goes on to state "*f) Major development should take account of and incorporate biodiversity features at the design stage and where possible environmental net gains should be achieved."*

3 Methodology

3.1 Overview

3.1.1 The BNG assessment has been carried out using the 2019 Defra Biodiversity Metric 2.0 and accompanying User Guide (Crosher *et al.*, 2019). The Metric uses habitats as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity value. This value is then adjusted depending on the condition and location of the habitat, to calculate 'Biodiversity Units' (BU) for the specific development site. Pre-intervention BUs are subtracted from the post-intervention BUs to determine the change in biodiversity value attributable to the development.

3.1.2 There are four key steps to using the Metric which are illustrated in Figure 3.1 and described further in the following sections.

Figure 3.1: Key Steps to Apply the Defra Metric

3.2 Project Planning

3.2.1 The development site for which the BNG assessment has been undertaken includes the red line boundary shown on Figure 1.1.

3.2.2 The outline masterplan for the development is shown on Figure 1.2. The outline planning application seeks permission for a mixed use development comprising up to 475 dwellings along with associated access, internal roads and footpaths, car parking, public open space, landscaping, local centre (uses including A1, A2, A3, A4, A5, D1, D2) with associated car parking, car parking for the adjacent railway station, undergrounding of overhead HV cables and other supporting infrastructure and utilities.

3.2.3 The existing habitats within the development site include both area and linear habitats, namely tree lines, and therefore both components of the Metric have been applied as discussed further in section 3.4.

3.3 Data Collection & Fieldwork

2015 Habitat and Species Surveys – White Young Green

3.3.1 An Extended Phase 1 Habitat Survey was undertaken by White Young Green on 03 April 2013 (WYG, 2015a) and included an assessment of the site's suitability for a range of protected species. Based on its findings a number of protected species surveys were carried out during 2013 and 2014, as listed below. For details on the methods, limitations and personnel applicable to the surveys refer to each WYG report.

- Aquatic Invertebrate Survey (WYG, 2015b)
- Bat Activity Survey (WYG, 2015c)
- Otter and Water Vole Survey (WYG, 2015d)
- Reptile Survey (WYG, 2015e)

3.3.2 The Phase 1 survey included a desk study based on a 2km search radius which established the presence of designated sites of nature conservation interest, or records of protected/notable habitats/species within the site and its surrounding area based on published information and biological records from within the search area. This information was collected from the following sources:

- The 'MAGIC' (Multi-agency Geographic Information for the Countryside) website: www.magic.gov.uk; and
- Sussex Biological Records Centre (SxBRC).

2018-2020 Protected Species Surveys – Urban Edge Environmental Consulting

3.3.3 Subsequent to the earlier surveys, UEEC was appointed to undertake a series of updated protected species surveys as part of the outline application preparation:

- Protected species surveys for foraging and commuting bats, badger *Meles meles*, otter *Lutra lutra*, water vole *Arvicola amphibius* and reptiles were undertaken during August to October 2018 (UEEC, 2020a);
- Wintering bird surveys were undertaken between December 2019 and February 2020 (TSA Ecology, 2020); and

- Breeding bird surveys were undertaken between April and June 2020 (UEEC, 2020b).

2020 Site Walkover – Urban Edge Environmental Consulting

3.3.4 UEEC undertook a further survey of the development site in order to update the classification, extent and condition of habitats reported in the 2015 Phase 1 survey.

3.3.5 The BNG baseline was calculated based on the results of a walkover survey carried out by an experienced ecologist on 13 July 2020. Weather conditions were mild (c.18°) and overcast, with a light breeze (Beaufort Scale 1-2) and no precipitation. The survey area was the same as that used for the 2018-2020 protected species surveys (i.e. the blue line on Figure 1.1).

3.3.6 The walkover survey broadly followed the methodology for Phase 1 Habitat Survey (Joint Nature Conservation Council, 2010), which allows rapid visual assessment of the extent and distribution of different habitat types. The site was divided into land parcels, based on the different habitats present, including linear habitats such as hedgerows, lines of trees and watercourses. For each habitat, lists of plant species were also recorded, as well as an indication of their relative frequency and abundance (using the DAFOR[4] scale). The condition of each habitat present was also noted, with reference to The Biodiversity Metric 2.0 Technical Supplement (Crosher *et al.*, 2019). Areas and habitats which presented particular opportunities for habitat enhancement or creation were also identified.

3.3.7 Annotated field maps were then digitised in ArcGIS 10.7 to produce the Phase 1 habitats plan shown at Appendix I. Each habitat polygon and linear feature was then clipped to the red line planning application boundary, and its area/length then calculated in GIS and exported to MS Excel for use in BNG baseline calculations. The size of each habitat parcel was recorded in hectares (ha) or kilometres (km) for linear habitats. Phase 1 habitats were translated to the UK Habitats Classification System[5] with reference to the translation table provided with The Biodiversity Metric 2.0 Calculation Tool. Each habitat parcel/length was assigned a condition score of Low, Medium or High, informed by the Condition Assessment Sheets within the Technical Supplement to the Metric[6].

Proposed development

3.3.8 The expected effects of habitat changes and interventions on existing habitats were established based on the landscape strategy plan provided in Appendix II together with conversations with the landscape architect and wider design team. The landscape strategy plan was imported to GIS and each proposed landscape polygon/line was approximately over-traced to determine the total area/length of each proposed landscape type for use in BNG post-development calculations.

[4] D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare.

[5] UK Habitat Classification: http://ecountability.co.uk/ukhabworkinggroup-ukhab/ (Accessed 08/08/2020)

[6] http://publications.naturalengland.org.uk/publication/5850908674228224

3.4 Calculation Tool

3.4.1 The Metric is accompanied by a Calculation Tool which uses a number of input fields in order to calculate pre and post-intervention biodiversity units, including:

- Habitat types.
- Area of habitats (length of linear habitats).
- Habitat condition: Parcels of habitat will be in different ecological conditions. In addition, interventions to improve habitats will not always involve taking a habitat in poor condition and improving it to good condition. The metric therefore takes account of variants in habitat condition.
- Habitat connectivity: The relationship of a particular habitat patch to other surrounding similar or related semi-natural habitats. These help facilitate flows of species and ecosystem services increasing habitat resilience. The 2.0 version of the Metric uses a default value of 'low' except for high or very high distinctiveness habitats which are scored as 'Medium.
- Strategic significance: The idea of strategic significance works at a landscape scale. It gives additional unit value to habitats that are located in preferred locations for biodiversity and other environmental objectives as set out in published local plans.

3.4.2 Habitat type, area / length and condition were established via the site walkover described in section 3.3.4. Connectivity was scored as Low, Medium or High. Version 2.0 of the Metric calculation tool (used here) recommends assigning a default 'Low' connectivity score except for high or very high distinctiveness habitats which should be scored as 'Medium'[7].

3.4.3 The development site is not located within any designated ecological sites and therefore 'Low Strategic Significance' has been applied for all habitat parcels.

3.4.4 The Calculation Tool also includes a number of pre-assigned fields which are automatically populated based on habitat type inputs:

- Habitat distinctiveness: Based on an assessment of the distinguishing features of a habitat or linear feature, including the consideration of species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats.
- Risk multipliers (Post-intervention only): Three different risks are recognised in the Metric: difficulty of habitat creation and restoration; temporal risk i.e. the time it takes for a newly created habitat to reach target condition; and off-site risk which accounts for decreasing ecosystem services provided to the local community with compensation provided further from the development site.

Calculation of Biodiversity Units

3.4.5 Using the factors described above, equivalent BU were calculated for the development site pre and post-intervention. No offsite habitat creation or enhancement is currently proposed.

[7] Defra have advised that a forthcoming update to the tool will enable a more sophisticated approach to connectivity to be used.

3.4.6 The following formula was used to calculate the change in BU as a consequence of the proposed development:

POST-INTERVENTION BIODIVERSITY UNITS – PRE-INTERVENTION BIODIVERSITY UNITS = CHANGE IN BIODIVERSITY UNITS

3.4.7 Where the resulting score is negative there is a net loss in biodiversity. If the score is zero there is no net loss in biodiversity. Where the resulting score is positive, there is a net gain in biodiversity.

3.5 Assumptions and Limitations

- In line with the Defra Biodiversity Metric 2.0 User Guide a default 'Low' connectivity score was assigned to all habitats except for those with high or very high distinctiveness which were scored as 'Medium'.
- The assessment supports an outline planning application (all matters reserved) and therefore the post-intervention habitat components are based on an indicative masterplan and landscaping scheme. If at the reserved matter stages, the details of the landscaping scheme alter any of the assumptions made in this assessment then the BNG calculations will need to be updated.
- CAD measurements for proposed landscape types were not available. Instead the landscape strategy plan was imported to GIS and each proposed landscape polygon/line was approximately over-traced to determine the total area/length of each proposed landscape type for use in BNG post-development calculations. The specific habitat types assumed are set out in section 4.3.
- It has been assumed that narrow bands of scrub and tall ruderal vegetation along the rife, and at the east and west boundaries and their associated linear habitats (lines of trees) will be retained as described in section 4.3. The remainder of the site has been assumed to be cleared prior to construction and new habitat creation.

4 Results

4.1 Baseline Habitats

4.1.1 Those habitats present on the development site during the walkover survey are shown in Appendix I. Data collection records, including habitat type, area/length and condition score for those falling within the red line boundary are provided in Table 4.1 and Table 4.2. No irreplaceable habitats[8] were identified at the development site.

Table 4.1: Baseline Area Habitat Data Collection Table

Baseline habitat		Area (ha)	Condition score
Phase 1 classification	***UK Habitats classification***		
Dense scrub	Heathland and shrub - Mixed scrub	0.3315	Moderate
Poor semi-improved	Grassland - Modified grassland	0.6394	Fairly Poor
Tall ruderal	Sparsely vegetated land - Ruderal/Ephemeral	0.9916	Moderate
Hard-standing	Urban - Developed land; sealed surface	0.6262	N/A - Other
Arable	Cropland - Cereal crops	18.0808	N/A -Agricultural
Amenity	Urban - Amenity grassland	0.0383	Poor

Table 4.2: Baseline Linear Habitat Data Collection Table

Baseline habitat	Length (km)	Condition score
Line of Trees	0.134	Moderate

4.2 Pre-Intervention Biodiversity Units

4.2.1 Using the Metric Calculation tool, it has been established that the area habitats within the site prior to development are equivalent to 44.77 BUs. The linear habitats within the site prior to development are equivalent to 0.54 BUs.

4.3 Post-Intervention Biodiversity Units

Linear Habitats

4.3.1 The existing lines of trees at the east and west boundaries of the application site will be retained in length; that to the west will be strengthened with adjacent native hedgerow planting. There will hence be no loss of linear habitats as a result of the proposed development, but just over 2km of new native hedgerow will be created under the landscape

[8] Habitats that cannot be recreated within a specified time frame (typically, the timescale of the project)

strategy. Post-intervention linear habitats within the site will therefore be equivalent to **8.99 BUs.**

Area Habitats

4.3.2 **Baseline habitats to be retained and enhanced** – The narrow bands of scrub and tall ruderal vegetation along the rife, and at the east and west boundaries (associated with the tree lines) will be retained. The retained habitats form a relatively small proportion of the overall site area and no specific habitat enhancements to these areas are proposed. Changes to baseline habitat are set out in Table 4.3.

4.3.3 **Baseline habitats lost** – All other habitats are assumed to be lost during site clearance, principally arable with small sections of amenity and species-poor semi-improved grassland, tall ruderal and scrub. These losses are set out in Table 4.3.

4.3.4 **Habitats to be created** – Proposed landscape types have been translated to the UK habitats classification (along with their expected condition) by the ecologist using professional judgement; area measurements are based on the landscape strategy plan provided in Appendix II and discussions with the client team. All habitats created as part of the proposed development are set out in Table 4.4 together with their target condition.

4.3.5 Post intervention the area habitats within the site are equivalent to **48.90 BUs**.

Table 4.3: Change to baseline habitats as a result of the proposed development

Baseline habitat (Phase 1)	Baseline area (ha)	Baseline condition score	Area enhanced	Target condition	Area lost
Dense scrub	0.3315	Moderate	-	-	0.19
Poor semi-improved	0.6394	Fairly Poor	-	-	0. 6394
Tall ruderal	0.9916	Moderate	-	-	0.02
Hard-standing	0.6262	N/A - Other	-	-	0. 6262
Arable	18.0808	N/A -Agricultural	-	-	18.0808
Amenity	0.0383	Poor	-	-	0.0383

Table 4.4: Habitats created as part of the proposed development

Habitat created		Area created (ha)	Target condition
Landscape habitats	*UK Habitats*		
Structural tree planting mix	Woodland and forest - Other woodland; Young Trees planted	1.1	Poor
Thicket mix	Heathland and shrub - Mixed scrub	0.1	Moderate
Proposed avenue trees	Urban - Street Tree	0.2374	Moderate
Proposed street / ornamental trees	Urban - Street Tree	1.0662	Moderate

Habitat created		Area created (ha)	Target condition
Landscape habitats	***UK Habitats***		
Proposed native trees	Urban - Street Tree	0.0077	Moderate
Multi-stem tree	Urban - Street Tree	0.0235	Moderate
Amenity grass	Urban - Amenity grassland	4.5	Moderate
Wildflower meadow	Grassland - Other neutral grassland	3.2	Good
Bulb planting	Urban - Introduced shrub	0.0084	Poor
SuDS features	Urban - Sustainable urban drainage feature	0.25	Moderate
Development parcels	Urban - Developed land; sealed surface	9.0968	N/A - Other

4.4 Biodiversity Impact Assessment Score

4.4.1 Linear habitats – Taking account of the short lines of trees currently present which are to be retained, and the significant proposed hedgerow planting under the development proposals, there is a calculated net gain of 8.45 BUs for linear habitats, equivalent to 1577.20%.

4.4.2 Area habitats – Some relatively small sections of baseline habitats within the site will be retained as part of the development proposals, while most others will be removed during site clearance. A combination of new urban and biodiverse habitats will however be created as part of the proposed development. Overall there is a calculated net gain of 4.13 BUs for area habitats, equivalent to 9.22%.

4.4.3 The headline results from the Metric Calculation Tool are provided in Appendix III.

5 Conclusions and Recommendations

5.1.1 Overall this assessment has shown that there will be no loss in linear habitats as a result of the proposed development. The existing lines of trees will be retained in their current condition. Significant native hedgerow planting is proposed which results in a 1577.20% net gain in linear habitats.

5.1.2 The majority of baseline area habitats (mainly arable) will be lost with small sections at the boundaries retained. Significant areas of biodiverse habitats will be created as part of the landscape strategy, resulting in an overall net gain of 9.22% in area habitats.

5.1.3 Each of the habitats retained or created as part of the proposed development have been assigned a 'condition' score informed by the Condition Assessment Sheets within the Technical Supplement to the Metric[9]. In order to ensure that the habitats are maintained in this condition for the lifetime of the development, an ecological management plan will need to be produced to accompany the reserved matters application.

5.1.4 There will be additional biodiversity enhancements provided as part of the proposed development including the provision of bat boxes, bird boxes, and habitat piles for amphibians and invertebrates, in suitable locations. However, these are currently not accounted for in version 2.0 of the Defra Metric.

5.1.5 It should be noted that this assessment has been carried out in support of an outline application and therefore there is no detailed landscaping scheme available with details of specific habitat provisions for the proposed development at this time. Therefore the assessment has made a series of assumptions based on the illustrative masterplan. When detailed landscaping proposals are developed at the detailed design stage, if these alter the assessment as presented in this report then the BNG calculations will need to be updated.

5.1.6 The accompanying protected species survey reports (UEEC, 2020a,b) set out a series of ecological enhancements for the site to contribute to an overall net gain for biodiversity. We would recommend these are taken into account in the development of the detailed landscaping proposals in liaison with UEEC's ecologists to ensure that onsite biodiversity net gains are maximised as far as possible within the parameters of the proposed development.

[9] http://publications.naturalengland.org.uk/publication/5850908674228224

References and Bibliography

Baker J, Hoskin R & Butterworth T (2019): *Biodiversity Net Gain – Good Practice Principles for Development. Part A: A Practical Guide*. CIRIA C776a, in partnership with CIEEM and IEMA.

Botanical Society of the British Isles (2004): *UK Plant List*.

British Standards Institution (BSI; 2013): *BS42020:2013 Biodiversity – Code of practice for planning and development*. BSI Standards Limited, London.

Chartered Institute of Ecology and Environmental Management (CIEEM, 2017a): *Guidelines for Ecological Report Writing*. 2nd Edition, CIEEM, Winchester.

CIEEM (2017b): *Guidelines for Preliminary Ecological Appraisal*. 2nd Edition, CIEEM, Winchester.

CIEEM (2018): *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. CIEEM, Winchester. Version 1.1, updated September 2019.

IAN CROSHER A, SUSANNAH GOLD B, MAX HEAVER D, MATT HEYDON A, LAUREN MOORE D, STEPHEN PANKS A, SARAH SCOTT C, DAVE STONE A & NICK WHITE A. 2019. The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019). Natural England [A – Natural England, B – Imperial College, University of London, C – Environment Agency, D – Department for Environment, Food and Rural Affairs].

IAN CROSHER A, SUSANNAH GOLD B, MAX HEAVER D, MATT HEYDON A, LAUREN MOORE D, STEPHEN PANKS A, SARAH SCOTT C, DAVE STONE A & NICK WHITE A. 2019. The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019). Natural England [A – Natural England, B – Imperial College, University of London, C – Environment Agency, D – Department for Environment, Food and Rural Affairs].

Gunnel K., Grant, G. and Williams, C. (2012): *Landscape and Urban Design for Bats and Biodiversity*. Bat Conservation Trust.

Gunnel K, Murphy B, Williams C (2013): *Designing for biodiversity: A technical guide for new and existing buildings*. RIBA Publishing and Bat Conservation Trust.

HM Government (2018): *A Green Future: Our 25 Year Plan to Improve the Environment*.

Joint Nature Conservation Committee (2010): *Handbook for Phase 1 Habitat Survey. A Technique for Environmental Audit*, Joint Nature Conservation Committee, Peterborough.

Maddock A. (ed.) (2008): *UK Biodiversity Action Plan: Priority Habitat Descriptions*. UK Biodiversity Reporting and Information Group. Updated December 2011.

Ministry for Housing, Communities & Local Government (MHCLG; 2019): *National Planning Policy Framework*.

Multi-agency Geographic Information for the Countryside (MAGIC) (www.magic.gov.uk)

Rodwell J.S. (2006): *National Vegetation Classification: Users' Handbook*. Joint Nature Conservation Committee, Peterborough.

Rose F., revised and updated by O'Reilly C. (2006): *The Wild Flower Key*. Penguin, London.

TSA Ecology (2020): *Land North West of Goring Station, Goring-by-Sea, West Sussex: Winter Bird Report*.

Urban Edge Environmental Consulting (2020a): *Land North West of Goring Station, Goring-by-Sea, West Sussex: Protected Species Surveys*.

Urban Edge Environmental Consulting (2020b): *Land North West of Goring Station, Goring-by-Sea, West Sussex: Breeding Bird Survey*.

White Young Green (WYG; (2015a): *Land at Goring Station: Extended Phase 1 Habitat Survey*.

WYG (2015b): *Land at Goring Station: Aquatic Invertebrate Survey*.

WYG (2015c): *Land at Goring Station: Bat Activity Survey – DRAFT*.

WYG (2015d): *Land at Goring Station: Otter and Water Vole Survey*.

WYG (2015e): *Land at Goring Station: Reptile Survey*.

Appendix I: Phase 1 Habitats Plan 2020

Please see insert.

Land North West of Goring Station

- Ecological survey area
- Site boundary
- Land under applicant's control
- Scattered tree
- Hard standing
- Dense scrub
- SI — Semi-improved grassland
- Tall ruderal information
- A — Arable
- A A — Amenity
- Rife

0 100 200

Meters

N

Scale: 1:3,000 **Created by:** AD

Date: Jul 2020 **Reviewed by:** NP

Drawing number:

UE0284ECO-Phase1_200723

URBAN EDGE ENVIRONMENTAL CONSULTING

Tel: 01273 686 766
Email: hello@ueec.co.uk
Web: www.ueec.co.uk

Appendix II: Landscape Strategy Plan

Please see insert.

1. Landscape Setting and Character

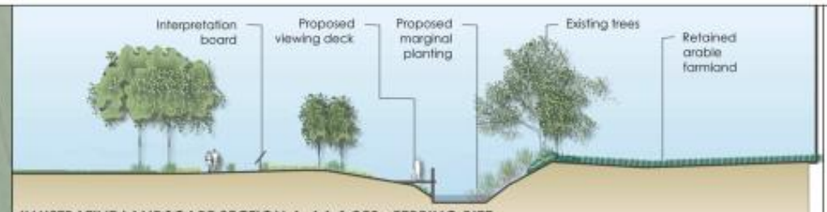
The Site is not covered by any statutory, or non-statutory designations for landscape character or quality. The Site's character is influenced by its proximity to the surrounding urban areas, which border the site on three sides, to the coastal railway line, and by Littlehampton Road which lies a short distance to the north. It forms part of the extensive urban area which extends along the low lying coastal plain, between the English Channel and the South Downs National Park.

The site layout and landscape strategy has been designed to respond to the Site's location at the edge of the settlement. The following key layout and landscape principles have informed the proposed development:

- Proposed development to be set back to the south of Ferring Rife, and the agricultural field to the north to remain in productive arable use;
- HV pylons and cables to be undergrounded;
- New wildlife and bio-diversity, and recreational enhancements to be undertaken within the open space alongside Ferring Rife;
- Landscaping within the open space to the north of the Site to provide an attractive setting for the new homes and soften views of built development from the north;
- Green Corridors to break-up development parcels, and provide wildlife and recreational linkages across the Site;
- New play areas to be locate within the open spaces;
- New sustainable drainage features to be landscaped to form an integral part of the open space network; and
- Lower density development located at the northern edge of the site, with higher density development alongside the railway line and adjacent to the station;

2. Ferring Rife and Public Open Space

The wide drainage ditch, Ferring Rife, provides the focus for the proposed public park which extends alongside the watercourse. The rife forms a logical extent to the proposed development area, with the new homes set back some distance to the south. The existing overhead pylons will be undergrounded within the open space. The proposed open space will have a semi-natural character, with extensive areas of species rich grassland creation, new tree and shrub planting, and landscape and bio-diversity enhancements along the route of the water course. There is also an opportunity to restore / recreate sections of field boundary hedgerows. The proposals will allow public access to the water course, and there will be opportunities for passive and active recreation within the new open spaces.



ILLUSTRATIVE LANDSCAPE SECTION A-AA 1:250 : FERRING RIFE
Positioning of proposed built form is indicative and subject to detailed design.

3. Green Corridors

The proposed development parcels will be broken up by a series of Green Corridors. These will be provide recreational links across the Site, linking the new open spaces to the existing public rights of way network and surrounding facilities. New tree planting and soft landscaping will soften views of the built development, and will provide an attractive outlook for the new homes.

4. Play Strategy

New play areas will be provided within the new open spaces, catering for both informal and formal play. A new play area will be provided within the open space alongside Ferring Rife. This will be designed to have a more 'natural' character, with timber and natural play elements. It will be designed to serve a range of age groups. A more formal play area will be provide within the green corridor between the development parcels. This will be designed primarily for younger children (up to 8 years).

5. Green Streets, Public Realm and Access

The proposed development will be set back from the new access off Goring Street, with space to provide a landscaped gateway at the entrance to the site. The new buildings will frame the open space and access road, with new avenue tree planting and hard and soft landscaping providing an attractive frontage to the adjacent highway.

The principal distributor road forms a loop within the development. This street will be characterised by a largely continuous built frontage, set back with roadside verges providing opportunities for regular tree planting. Planting will have a more formal character, with avenue and street trees and clipped hedgerows. At the edges of the development, housing will be lower density and the proposed landscaping will have a more informal character. Native hedging will be used to define private driveways adjacent to open spaces, particularly at the periphery of the development. Tree planting will incorporate native species and native cultivars, and shrub species will be selected which have known wildlife benefits.

7. Wildlife and Biodiversity

Check with Eco recommendations

ILLUSTRATIVE LANDSCAPE SECTION C-CC 1:250 : GREEN CORRIDOR
Positioning of proposed built form or landform is indicative and subject to detailed design.

6. Sustainable Drainage Features

Surface runoff water will be captured in drainage basins which will be located within the open space across the Site. These basins will be designed to form an integral part of the open space, and will include areas of species rich grassland, trees and shrub planting tolerant of periodic wet conditions, and areas of aquatic and marginal planting.

ILLUSTRATIVE LANDSCAPE SECTION B-BB 1:250 : SOUTHERN BOUNDARY
Positioning of proposed built form or landform is indicative and subject to detailed design.

LEGEND

- Application Boundary
- Land in applicant's control

Existing

- Existing trees / vegetation
- Trees / vegetation removed
- Existing public footpath
- Existing pylons (overhead cables to be grounded through the Site)

Proposed

- Structural Tree Planting Mix
- Thicket Mix
- Proposed Avenue Trees
- Proposed Street / Ornamental Trees
- Proposed Native Trees
- Multi-stem tree
- Native hedge planting
- Amenity grass
- Wildflower meadow
- Bulb Planting
- SuDS features
- Recreational footways
- Mown paths
- Section of public footpath to be diverted
- Natural Play Area
- Formal Play Area
- Informal seating (benches, picnic tables etc.)

N

Rev	Date	By	Description
A	15/07/20	PH	Updated to match layout

CSA environmental
Glades Barns, High Street,
Ashwell, Hertfordshire SG7 5NT
t 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project	Goring Station, Goring
Title	Landscape Strategy Plan
Client	Persimmon Homes Thames Valley
Scale	1:2000 @ A1
Drawn	PH
Date	July 2020
Checked	CA
Drawing No.	CSA/3304/118
Rev	A

Appendix III: Defra Metric Headline Results

Land North West of Goring Station

Headline Results

Return to results menu

On-site baseline	*Habitat units*	44.77
	Hedgerow units	0.54
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	48.90
	Hedgerow units	8.99
	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 & succession)	*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)	*Habitat units*	4.13
	Hedgerow units	8.45
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	9.22%
	Hedgerow units	1577.20%
	River units	0.00%

Urban Edge Environmental Consulting Ltd

Unit 5 | Westergate Business Centre | Brighton | BN2 4QN

T: 01273 68 67 66 | E: enquiries@ueec.co.uk

www.ueec.co.uk | @UrbanEdgeEnviro | IEMA CIEEM REGISTERED

Urban Edge Environmental Consulting Ltd

Unit 5 | Westergate Business Centre | Brighton | BN2 4QN

T: 01273 68 67 66 | E: enquiries@ueec.co.uk

www.ueec.co.uk | @UrbanEdgeEnviro

URBAN EDGE ENVIRONMENTAL CONSULTING

NATURAL PROGRESSION

CIEEM REGISTERED PRACTICE 2019-2020