BIODIVERSITY NET GAIN DESIGN STAGE ASSESSMENT

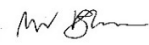## MARCH 2022

Standen Phase 5 and 6
Littlemoor Road
BB7 1HF

QUALITY MANAGEMENT

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NON-TECHNICAL EXECUTIVE SUMMARY

This Biodiversity Net Gain Assessment has been prepared by Urban Green on behalf of Taylor Wimpey to support a planning application for Littlemoor Road in Clitheroe. The proposals include the development of a residential estate in two phases, with associated hard and soft landscaping and areas of public open space (POS).

Urban Green have been appointed to complete a Biodiversity Net Gain Design Stage Assessment in order to assess the change in value to the environment provided by the proposed development.

The Assessment was conducted using the Biodiversity Metric 3.0 to calculate the pre-and post-development biodiversity habitat units of the site for the proposed development on the site. The results of this calculation are summarised in the following table:

		Habitat Unit Change				Net change in Biodiversity	
	On-site baseline	Retained	Lost	Enhanced	Created	On-site post development	Habitat units	%
Habitat (Area) Units	28.86	-	-21.02	+19.76	+10.11	29.87	+1.01	+3.48%
Hedgerow (Linear Habitat) Units	1.28	-	1.28	-	1.72	1.72	+0.44	+34.29%
River (Linear Habitat) Units	1.2	-	0.14	1.28	-	1.28	+0.08	+6.59%

Overall, this assessment does reach a net gain in biodiversity and is line with national and local planning policy specifically policy EN4.

CONTENTS

1 Introduction

## 1.1 Background to the Scheme

This Biodiversity Net Gain Assessment has been prepared by Urban Green on behalf of Taylor Wimpey to support a planning application for Littlemoor Road Clitheroe (hereafter referred to as 'the site'). The proposals include the development of a mixed-use scheme comprising offices and residential dwellings with associated car parking and hard and soft landscaping.

Urban Green have been appointed to complete a Biodiversity Net Gain Design Stage Assessment in order to assess the change in value to the environment provided by the proposed development.

The author of the report is Senior Biodiversity Consultant Maisie McKenzie, ACIEEM, MSc. Maisie has experience providing ecological consulting services including Biodiversity Net Gain assessment for a range of development schemes across the UK, including residential and commercial schemes. Maisie is a Suitable Qualified Ecologist to conduct Biodiversity Net Gain as defined within British Standard: BS 8683:2021.

1.2 Site Context

The site is located at National Grid Reference SD 74382 40702 and comprises a total area of approximately 17.2ha (see Figure 1).
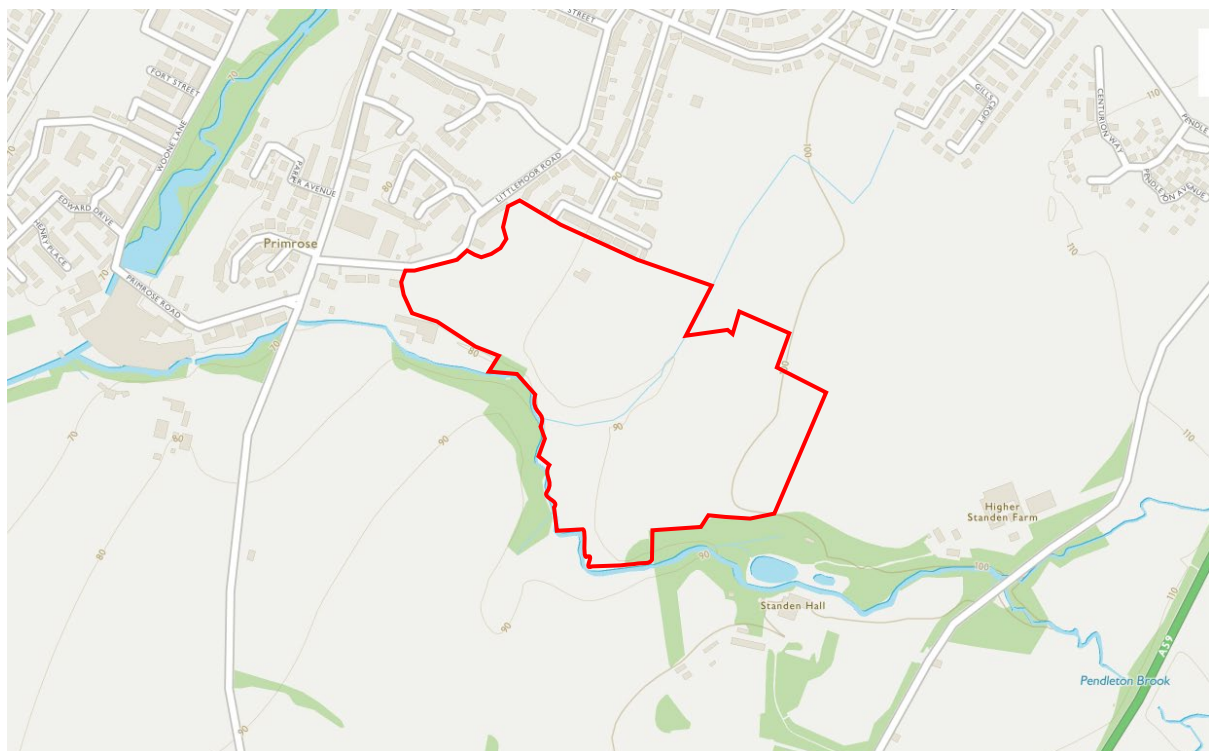
'*Contains Ordnance Survey data © Crown copyright and database right 2022*'
Figure 1 – Site Extent

The site is located on the rural-urban fringe of Clitheroe town, which is present approximately 1km north of the site. An un-named tributary of Pendleton Brook (a tributary of Mearley Brook which flows into the River Ribble) is present on site running north to south-west through the centre of the site. Pendleton Brook borders the south of the site running from east to west. The River Ribble is located approximately 1.5km west of the site, with Mearley Brook present approximately 350m west of the site.

Residential properties are located to the north, north-west and west of the site with arable grassland present on all other aspects. Areas of woodland are present within the wider area to the south of the site. The A59 is present approximately 600m east of the site.

1.3   Purpose of this Report

This report has been produced to document the methods, results and conclusions of a BNG Assessment that was undertaken on site. The advice herein is based on both desk and field-based studies and intends to fulfil the following purposes:

- Ensure the core principles of Biodiversity Net Gain including the mitigation hierarchy are applied;

- Identify the baseline habitats present on site (pre-development), assess the condition and provide an indication of the ecological value of those habitats;

- Identify the post development habitats present on site, assess the possible target condition and provide an indication of the likely importance of those habitats;

- Calculate the overall change in biodiversity score from pre- to post-development habitats (measured as habitat units);

1.4   Planning Context

BNG means leaving biodiversity in a better state than it was before. As part of the Government's 25 Year Environment Plan, this requirement is being introduced and mandated for all developments. National planning policy and several Local Plans already require developments to deliver BNG.

Currently the National Planning Policy Framework (NPPF, 2021) details:

Paragraph 174 of the NPPF states:

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;

The Ribble Valley Core Strategy 2008-2018 details:

Key Statement EN4: Biodiversity and Geodiversity

Negative impacts on biodiversity through development proposals should be avoided. Development proposals that adversely affect a site of recognised environmental or ecological importance will only be permitted where a developer can demonstrate that the negative effects of a proposed development can be mitigated, or as a last resort, compensated for. It will be the developer's responsibility to identify and agree an acceptable scheme, accompanied by appropriate survey information, before an application is determined. There should, as a principle, be no net loss of biodiversity

2   Methods

2.1   Biodiversity Net Gain

Biodiversity Net Gain is defined as "development that leaves biodiversity in a better state than before". This assessment was conducted using the Biodiversity Metric 3.0 from Natural England.

The Biodiversity Metric 3.0 uses habitat features as a proxy measure for capturing the value and importance of nature. The metric considers the size, ecological condition, distinctiveness, and location of habitats assessing 'Area', 'Hedgerow' and 'River' habitats units independently. The metric enables assessments to be made of the baseline and targeted post development biodiversity value of a site.

2.2   Good Practice Principles

To ensure holistic development that makes a lasting positive change to the site's biodiversity the Good Practice Principles as detailed in Biodiversity Net Gain: Good Practice Principles for Development (Baker, et al., 2019). Key principles include:

- Following the 'Mitigation Hierarchy':
  - o   Avoid impacts on biodiversity
  - o   Minimise impacts on biodiversity
  - o   Compensate for biodiversity losses on site
  - o   Compensate for biodiversity loss off site
- Avoid irreplaceable habitats and losing biodiversity that cannot be offset elsewhere;
- Address risks including difficulty and time of habitat creation and enhancement;
- Make a measurable net gain contribution calculated with a suitable metric with limitation and assumptions clearly identified;
- Achieve the best outcome for biodiversity creating lasting long-term benefits that exceed current expectations;

2.3   Desk Study

A desk study was undertaken to provide information of habitat types, condition and strategic significance both on site and within the wider area. Due to the size of the site and being located within the semi urban area of Standen, a 1km radius was deemed an appropriate distance for the Zone of Influence. Sources of information for the desk study are displayed in Table 1.

Table 1 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
Multi-Agency Geographic Information for the Countryside (MAGIC) online database	15/02/2022	Identify statutory nature conservation designation.
Lancashire Local Biodiversity Action Plans	15/02/2022	Locally designated wildlife sites within 1km of site boundary.
Environment Agency Main River Map	15/02/2022	Location and information regarding adjacent river habitats.
Natural England Priority Habitat Inventory (England)	15/02/2022	Information regarding priority habitats within the zone of influence

2.4   Site Mapping

2.4.1   Sources of Information

Table 2 – Site Mapping Sources of Information

Source	Date Consulted	Information Sought
Extended Phase 1 Survey - Urban Green Preliminary Ecological Appraisal 2022 UG_1451_ECO_PEA_01	24/02/2022	Phase 1 Habitat Survey map and description of existing habitat condition.
Arboricultural Impact Assessment – Urban Green UG_1451_ECO_PEA_01	24/02/2022	Tree Root Protection Areas (RPA) for existing trees on site and details of trees scheduled for removal/retention as part of the development on site.

Source	Date Consulted	Information Sought
Soft Landscape plan Pegasus	08/03/2022	Habitat areas and conditions as to be included within the planning layout (post-development) for site.
The Biodiversity Metric 3.0 (JP029) *Natural England Publications*	24/01/2022	The Biodiversity Metric 3.0, including the tool itself, user guides and reference documentation associated with the tool.

2.4.2 Existing Habitat (Pre-Development)

The site was subject to a field survey on the 10th of February 2022 by Assistant Ecologist Jake Healy and Senior Biodiversity Consultant Maisie McKenzie. The weather conditions were 7°c, cloudy (4/8 oktas), with a wind speed of 4 on the Beaufort scale, and dry.

The methods were based on the standard 'Phase 1' habitat survey technique (JNCC, 2010) which was extended to include any relevant information on evidence or suitability for use by protected or notable species. Site habitats, extent, quality and botanical species abundance was recorded for all habitats present on site. Additionally, a tree survey was conducted on site by Urban Green in January 2022, which obtained information on site trees including root protection areas (RPAs).

These habitats were subsequently mapped using ESRI ArcGIS Pro software, and habitat areas and lengths were calculated.

Habitat types were converted to UKHab classifications (The UK Habitat Classification Working Group, May 2018) using the UK Habitat Classification V1 guidance tool based on the assessor's judgment of how JNCC habitat descriptions best meet the criteria of the UKHab classification.

2.4.3 Planning Layout (Post-Development)

The planning layout as provided by Soft Landscape plan (Pegasus, 2022) (see Appendix 2) was transferred from DWG. format into ESRI ArcGIS Pro software, and habitat areas and lengths calculated.

2.5 The Biodiversity Metric 3.0

The BNG calculation was undertaken utilising The Biodiversity Metric 3.0 from Natural England. The Biodiversity Metric 3.0 uses habitat features as a proxy measure for capturing the value and importance of nature. The metric takes into account the type, size, ecological condition and location of habitats. The metric enables assessments to be made of the present and forecast future biodiversity value of a site.

The calculation was performed by a technically competent and experienced ecologist as detailed in British Standard BS8683 - Suitably qualified person –definition in BS8683:2020.

2.6 Habitat Scoring

The Biodiversity Metric 3.0 supplies reference documents and user guides in which to accurately evaluate and assess the different habitats on site as to their condition, distinctiveness and strategic significance. A summary of the methodology for each assessment undertaken is demonstrated in the following sections.

2.6.1   Condition

The Biodiversity Metric 3.0 uses the term habitat 'condition' as one of its measures of the quality of a habitat.

'Condition Sheets' are provided for each area habitat type. These list positive indicators for each habitat and indicate how many of these indicators need to be present to meet certain thresholds of condition. These condition sheets can be found in "The biodiversity metric 3.0: habitat condition assessment sheets". Completed condition sheets for this assessment can be found in section 3.

Table 3 details the condition sheets used within this assessment.

Table 3 – Conditions sheets used for pre and post development habitat assessment

Condition Sheet	Habitats Assessed
Area Habitats	
Grassland (low)	Modified grassland
Grassland (medium, high & very high)	Grassland - Other neutral grassland
Scrub	Heathland and shrub - Bramble scrub Heathland and shrub - Mixed scrub
Urban – Non-Priority Habitat	Urban - Vacant / derelict land / bare ground Urban – Developed land; sealed surface
Urban Trees	Urban – Urban Tree
Linear (Hedgerow) Habitats	
Hedgerows	Native hedgerow
Line of Trees	Line of trees – associated with bank or ditch

2.6.2   Distinctiveness

The distinctiveness of each habitat is automatically assigned by the tool, based upon national records of the occurrence and rarity of each habitat (Biodiversity Metric 3.0 User Guide 6.3, page 43). Table 4 provides the basis of the distinctiveness assessment.

Table 4 – Distinctiveness Assessment for Habitats

Distinctiveness Categories		
Category	**Scores**	**Multiplier**
Very High	8	Priority habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action e.g. blanket bog.
High	6	Priority habitats as defined in Section 41 of the NERC Act requiring conservation action e.g. lowland fens.
Medium	4	Semi-natural habitats not classed as a Priority Habitat.
Low	2	Habitat of low biodiversity value. Temporary grass and clover ley; intensive orchard; rhododendron scrub.

| Very Low | O | Little or no biodiversity value e.g. hard standing or sealed surface. |

2.6.3   Strategic Significance

The idea of strategic significance works at a landscape scale. It gives additional unit value to habitats that are in preferred locations for biodiversity and other environmental objectives. Ideally these aspirations will have been summarised in a local strategic planning document which articulates where biodiversity is of high priority and the places where it is less so. Strategic significance utilises published local plans and objectives to identify local priorities for targeting biodiversity and nature improvement, such Nature Recovery Areas, local biodiversity plans, National Character Area 14 objectives and green infrastructure strategies.

Table 5 – Strategic Significance Assessment for Habitats

Strategic Significance Categories	
Category	**Score**
High strategic significance High potential & within area formally identified in local policy	1.15
Medium strategic significance Good potential but not in area defined in local policy	1.1
Low Strategic Significance Low potential and not in area defined in local policy	1

2.6.4   Temporal Multiplier

For post development habitat creation or enhancement, a risk multiplier will be automatically applied by the tool to account for the period of diminished ecological value while the habitat reaches the targeted post development condition. This time and therefore risk multiplier differs between habitat types, if the habitat is being created or enhanced and how the habitat is to be managed. The predetermined multiplier is based on the average time to meet targeted condition assuming good practice principles and appropriate management strategies are applied.

2.6.5   Difficulty Multipliers

For post development habitat creation or enhancement, a risk multiplier will be automatically applied by the tool to account the 'difficulty' of habitat-specific enhancement or creation. There are two separate difficulty multipliers assigned to each habitat, one for creation and one for enhancement/restoration, recognising that the technical challenges will not necessarily be the same for both.

2.7   MoRPH River Survey

Condition of the linear river habitat present on site was assessed by a Modular River Physical Survey (MoRPh Survey) undertaken by a certified ecologist. Assessment of linear river habitats condition is based on the extent and diversity of a number of physical features within in both the river channel and riparian as well as the extent and type of any human modifications. This assessment is implemented in two parts:

- A desk-based reach-scale assessment to define river type of the homogenous reach of the river to be effected by development.

- A field based sub-reach scale assessment that captures channel dimensions, physical features / habitats, vegetation structural features, and human interventions to assess the condition of the river at the development site, taking into account the type of river.

The field element of the assessment included, five MoRPh field surveys conducted on contiguous lengths (modules) of river. Each MoRPh module covers a river length that is approximately twice the river width (4m). These five contiguous modules covered a sub reach of the river 20m in length. This was repeated 2 times to a total of 10 sub reaches which covers 20% of the total river length and also ensures characterization of any notable variation in river character.

The River Condition Assessment captures information on sediments, vegetation, morphological and water-related features; and the extent and severity of physical modification within the channel, channel margins, banks and riparian zone (to 10 m from the bank tops).

2.8   Constraints to the Survey

Whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

The conclusions and recommendations detailed in this report are based upon the site redline boundary and the development proposals as outlined by the client at the time of writing. Should there be any changes to the site redline boundary or development proposals at a later stage, this assessment should be reviewed to determine whether any amendments or additional survey work is required.

Best possible effort was made during the mapping process to ensure that the habitat map accurately represents the area of habitats present on site. Some margin of error is possible due to the continuous and difficult to define nature of habitat boundaries, however this margin of error has been minimised using professional opinion of two experienced ecologists and up to date aerial imagery. As such this is not expected to be a significant constraint and affect the overall Biodiversity Net Gain Calculation provided within this report.

February is a suboptimal time for carrying out a Phase 1 Habitat Surveys due to being outside of the optimal plant growing season. Therefore, it is likely that some plants are present on the site but were not evident at the time of the survey and were not recorded. This is not considered to be a significant constraint with regards to the outcome of the BNG calculation as due to the size and location of the site and limited extent of the habitats, it is considered very unlikely that any rare or priority plant species were missed.

3   Pre-Development Habitat Assessment

Predevelopment baseline habitat condition was assessed following the methodology outlined in Section 2.6 and 2.7. Habitat descriptions and the results of this assessment are provided below. The habitats have been given reference numbers for clarity regarding in-text and the metric calculation (UG_1451_ECO_BNGCALC_01) which illustrates the numerical data. Full habitat descriptions can be found in the PEA (Urban Green, 2022).

3.1   Area Habitats

3.1.1   1) Broadleaved Woodland; Other woodland broadleaved

A strip of woodland was present running through the centre of the site from north to south-west associated with Pendleton Brook.

Table 6 – Condition Assessment for Broadleaved Plantation Woodland

Phase 1 Habitat Classification	Broadleaved woodland		
UK Hab Classification	Other woodland; Broadleaved		
Condition Sheet	Woodland		
Indicator 1. Age distribution of trees	Two age class present (Moderate – 2 Points)	Indicator 8. Tree health	11-25% mortality and/or crown dieback or low risk pest or disease present (Moderate – 2 Points)
Indicator 2. Wild, domestic, and feral herbivore damage	Evidence of significant browsing pressure is present in 40% or less of whole woodland (Moderate – 2 Points)	Indicator 9. Vegetation and ground flora	No recognisable NVC community (Poor – 1 Point)
Indicator 3. Invasive plant species	No invasive species present in the woodland (Good – 3 Points)	Indicator 10. Woodland vertical structure	Two storeys across all survey plots (Moderate – 2 Points)
Indicator 4. Number of native tree species	Three to four native tree or shrub species found across woodland parcel (Moderate - 2 Points)	Indicator 11. Veteran trees	One veteran tree per hectare (Moderate – 2 Points)
Indicator 5. Cover of native tree and shrub species	50 - 80% of canopy trees and 50 -80% of understory shrubs are native (Moderate – 2 Points)	Indicator 12. Amount of deadwood	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (Poor – 1 Point)
Indicator 6. Open space within woodland	10-20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply (Good – 3 Points)	Indicator 13. Woodland disturbance	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground (Poor- 1 Point)

Indicator 7. Woodland regeneration	One to two classes only present in woodland (Moderate – 2 Points)			

Condition	Poor	Scores 25 (>26 – Poor)
Distinctiveness		Medium

3.1.2   2) Improved Grassland - Modified Grassland

The majority of the site consisted of improved grassland utilised as grazing land. These areas are heavily managed to a short sward with areas of damage visible.

Table 7 – Condition Assessment for Modified Grassland

Phase 1 Habitat Classification	Amenity Grassland				
UK Hab Classification	Modified Grassland				
Condition Sheet	Grassland (Low)				
Condition Criteria 1.	6-8 species per m²	Pass	Condition Criteria 5.	Cover of bare ground between 1 – 5%	Fail
Condition Criteria 2.	Sward height is varied	Fail	Condition Criteria 6.	Cover of Bracken <5% of ground cover	Pass
Condition Criteria 3.	Cover of scrub less than 20%	Pass	Condition Criteria 7.	Absence of invasive non-native species. Combined cover of damage and undesirable species less than 5% of total area.	Fail
Condition Criteria 4.	Physical damage evident in less than 5% of total grassland area	Fail			

Condition	Poor	Passes 3 of 7 criteria
Distinctiveness		Low

3.1.3   3) Buildings - Developed land; sealed surface

One building was present on site. These are classified as developed land; sealed surface which has a predetermined condition score of NA within the metric.

3.2   Hedgerow Habitats

3.2.1   1) Species Poor Hedgerows with Trees– Native Hedgerow with Trees

Two native hedgerows with trees were present within the western section of the site running from north to south. Both hedgerows were species poor and defunct with a number of trees associated with the hedge line.

Table 8 – Condition Assessment for Native Hedgerow

Phase 1 Habitat Classification	Species poor Intact hedgerow
UK Hab Classification	Native Hedgerow with Trees
Condition Sheet	Hedgerow

A1. Height	>1.5m average along length	Fail	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Fail
A2. Width	>1.5m average along length	Pass	D1. Invasive and neophyte species	>90% of ground free from invasive non-native and neophyte species	Pass
B1. Gap – Hedge Base	Gap between ground and base <0.5m for >90% of length	Fail	D2. Current damage	>90% of hedgerow free from damage caused by human activities	Fail
B2. Gap – Hedge canopy continuity	Gaps make up <10% of length no gap >5m	Fail	E1. Tree age	At least one mature tree per 30m stretch of hedgerow	Pass
C1. Undisturbed ground and perennial vegetation	>1m width of undisturbed ground with herbaceous perennial vegetation >90% length	Fail	E2. Tree health	At least 95% of hedgerow trees are in a healthy condition	Pass
Condition **Poor**	Passes four criteria.				
Distinctiveness	Low				

3.3 River Habitats

3.3.1 1) Stream – Other Rivers and Streams

An un-named tributary of Pendleton Brook was present on site, running through the centre from north to south-west of the site. The brook comprised rocky substrate with water flowing at a moderate speed in a north to south direction. The brook is surrounded by broadleaved woodland and is therefore fully shaded by the environment with no aquatic or semi aquatic vegetation present. One culvert and a wooden bridge were present across the tributary.

Table 9 – Condition Assessment for Other Rivers and Streams

Phase 1 Habitat Classification	Stream		
UK Hab Classification	**Other Rivers and Streams Type**		
Condition Assessment	**River MoRPH Survey**		
River Category	Other	Reach Valley Gradient	0.05
Braiding Index	1	Bedrock Reach	No
Sinuosity Index	1	Coarse Bed Material	Gravel-Pebble
Anabranching Index	1	Average Bed Material	Pebble
Level of Confinement	Unconfined	Condition Score	Fairly Poor

Condition Score	Fairly Poor
Distinctiveness	High
Extent of watercourse encroachment	Minor
Extent of riparian encroachment	Moderate

4 Retained Habitats on Site

Using the Biodiversity Metric 3.0, the habitat units of the pre development habitats to be retained were calculated.

4.1 Area Habitats

Table 10 shows the habitats, area and corresponding units to be retained on site.

Table 10– Area habitats to be retained on site

Habitat Parcel Reference	Total Area (ha)	Total Units	Area Retained (ha)	Units Retained
1) Other woodland; Broadleaved	0.57	2.28	0.37	1.48
2) Modified grassland	13.29	26.58	2.78	5.56
3) Developed land; sealed surface	0.01	0.00	0.01	0.00
Total	13.87	28.86	3.16	7.04

4.2 River Habitats

Table 11 shows the linear habitats, lengths, and corresponding units to be retained on site.

Table 11– Linear habitats to be retained on site

Habitat Parcel Reference	Total Length (km)	Total Units	Length Retained (Km)	Units Retained
1) Other Rivers and Streams	0.17	1.2	0.15	0.14

5 Lost Habitats

5.1   Area Habitats

Table 12 shows the habitat, areas and corresponding units to be lost on site along with corresponding mitigation.

Table 12 – Area habitats to be lost on site

Habitat Parcel Reference	Total Area (ha)	Total Units	Area lost (ha)	Units lost	Planned Mitigation
1) Other woodland; Broadleaved	0.57	2.28	0.2	0.8	This area is currently in poor condition with little species and age variation. The loss of this habitat is to be compensated for by the retention and enhancement of areas of woodland and the planting of native trees across the site
2) Modified grassland	13.29	26.58	10.51	21.02	This area is currently in poor condition with little species and height variation. The loss of this habitat is to be compensated for by the creation of higher quality grassland habitats on site
Total	13.86	28.86	10.53	21.1	.

5.2   Hedgerow Habitats

Table 13 shows the linear hedgerow habitats and their corresponding length (km) and units to be lost on site along with planned mitigation.

Table 13 – Linear hedgerow habitats to be lost on site

Habitat Parcel Reference	Total Length (km)	Total Units	Length lost (km)	Units lost	Planned Mitigation
1) Native hedgerow	0.32	1.28	0.32	1.28	The loss of this habitat is to be compensated for the creation of higher quality hedgerow habitats on site.

5.3   River Habitats

Table 14 shows the linear river habitats and their corresponding length (km) and units to be lost on site along with planned mitigation.

Table 14 – Linear habitats to be lost on site

Habitat Parcel Reference	Total Length (km)	Total Units	Length lost (km)	Units lost	Planned Mitigation

1) Other rivers and streams	0.17	1.2	0.02	0.14	The loss of this habitat is to be compensated for through the enhancement of other aquatic linear features on site.

6   Pre-Development Habitat Baseline

Using the Biodiversity Metric 3.0, the habitat units of the existing site habitats were calculated; the habitat units to be retained within site development were calculated; and the habitat units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in the Table 14.

Table 14: Pre-Development Biodiversity Net Gain Summary

	On-site baseline	Retained	Lost
Area Units	28.86	3.15	21.02
Hedgerow Units	1.28	-	1.28
River Units	1.2	1.06	0.14

7 Habitat Enhancement

Post development habitats as detailed within the Soft Landscape Plan (Pegasus, 2020) were assessed to establish their condition following the methodology outlined in Section 2.6 and 2.7. The habitats have been given reference numbers of the pre development habitat to be enhanced for clarity regarding in-text and the metric calculation (UG_1451_ECO_BNGCALC_01) which illustrates the numerical data. Full species lists can be found within the planting scheme (P22-0161.001A).

7.1 Area Habitats

7.1.1 1) Other woodland; Broadleaved (Poor – Moderate Condition)

Areas of retained woodland on site will be enhanced through undergrowth and shrub layer planting and ecologically sensitive management techniques including allowing deadwood to remain.

Table 15 – Condition Assessment for Broadleaved Plantation Woodland

Classification within Landscape Designs	Retained vegetation, Native shrub mix		
UK Hab Classification	Other woodland; Broadleaved		
Condition Sheet	Woodland		
Indicator 1. Age distribution of trees	Three age class present (Good – 3 Points)	Indicator 8. Tree health	11-25% mortality and/or crown dieback or low risk pest or disease present (Moderate – 2 Points)
Indicator 2. Wild, domestic, and feral herbivore damage	Evidence of significant browsing pressure is present in 40% or less of whole woodland (Moderate – 2 Points)	Indicator 9. Vegetation and ground flora	No recognisable NVC community (Poor – 1 Point)
Indicator 3. Invasive plant species	No invasive species present in the woodland (Good – 3 Points)	Indicator 10. Woodland vertical structure	Three storeys across all survey plots (Good – 3 Points)
Indicator 4. Number of native tree species	Five or more native tree or shrub species found across woodland parcel (Good - 3 Points)	Indicator 11. Veteran trees	One veteran tree per hectare (Moderate – 2 Points)
Indicator 5. Cover of native tree and shrub species	>80% of canopy trees and understory shrubs are native (Good – 3 Points)	Indicator 12. Amount of deadwood	25-50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (Moderate -2 Points)
Indicator 6. Open space within woodland	10-20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply (Good – 3 Points)	Indicator 13. Woodland disturbance	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground (Poor- 1 Point)
Indicator 7. Woodland regeneration	Three classes only present in woodland (Good – 3 Points)		

Condition	Poor	Scores 31 (26-32 Moderate)
Distinctiveness		Medium

7.1.2   2) Modified Grassland – Other Neutral Grassland (Poor – Moderate Condition)

Areas of retained grassland will be enhanced through seeding of species rich wildflower and ecologically sensitive management practices including rotational mowing.

Table 16 – Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs	Species rich meadow				
UK Hab Classification	Other Neutral Grassland				
Condition Sheet	Grassland (Med-High)				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type	Fail	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub less than 5%	Pass
Condition Criteria 2.	Sward height is varied	Pass	Condition Criteria 5.	Absence of invasive non-native species. Combined cover of damage and undesirable species less than 5% of total area.	Pass
Condition Criteria 3.	Cover of bare ground between 1% and 5%	Pass			

Condition	Moderate	Passes 4 of 5 criteria
Distinctiveness		Medium

7.2   River Habitats

7.2.1   1) Stream – Other Rivers and Streams

The un named tributary on site is to be enhanced through management methods including pollution control and removal of dominant scrub vegetation to provide areas with lower levels of shade providing opportunities for aquatic and semi aquatic vegetation.

Table 17 – Condition Assessment for Other Rivers and Streams

Phase 1 Habitat Classification	Stream		
UK Hab Classification	Other Rivers and Streams Type		
Condition Assessment	River MoRPH Survey		
River Category	Other	Reach Valley Gradient	0.05
Braiding Index	1	Bedrock Reach	No
Sinuosity Index	1	Coarse Bed Material	Gravel-Pebble

Anabranching Index	1	Average Bed Material	Pebble
Level of Confinement	Unconfined	Condition Score	Moderate

Condition Score	Moderate
Distinctiveness	High
Extent of watercourse encroachment	Minor
Extent of riparian encroachment	Moderate

8   Habitat Creation

8.1   Area Habitats

8.2   C1 and C2) Developed Area (N/A and Poor Condition)

Following guidance in the Biodiversity Metric 3.0 Technical Supplement (Natural England Joint Publication, 2021) the developed residential area of the site including houses and gardens has been classified as 70% developed land; sealed surface and 30% vegetated garden. Vegetated gardens are given a predetermined condition of Poor and Developed land; sealed surface is N/A.

8.2.1   C3) Mixed Scrub (Moderate Condition)

Areas of mixed scrub are to be created around the periphery of the developed area to provide a green buffer for retained and protected habitats on site specifically the woodland and aquatic habitats. Species will include a diverse mix native shrub species and management will include ecologically sensitive practices including reduced rotational pruning.

Table 18 – Condition Assessment for Mixed Scrub

Phase 1 Habitat Classification	Dense scrub				
UK Hab Classification	Mixed Scrub				
Condition Sheet	Scrub				
Condition Criteria 1.	Habitat is representative of UKHab description. There are at least three woody species, with no one species comprising more than 75% of the cover.	Fail	Condition Criteria 4.	Well-developed edge with tall grassland/herbs present between scrub and adjacent habitats	Pass
Condition Criteria 2.	Diverse age range with seedlings, young shrubs, and mature shrubs.	Pass	Condition Criteria 5.	Clearings, glades and rides present within the scrub, providing sheltered edges.	Pass
Condition Criteria 3.	Absence of invasive non-native species and undesirable species make up 5% of ground cover	Pass			
Condition	**Moderate**	Passes 4 of 5 criteria			
Distinctiveness	Medium				

8.2.2   C4 & C5) Sustainable Urban Drainage Feature (Moderate Condition)

Two Suds are to be created on site. These are to be seeded with a wet meadow seed mix and will hold water for periods of time throughout the year.

Table 19 – Condition Assessment for SUDS

Classification within Landscape Designs	Attenuation basin, Wet Meadow				
UK Hab Classification	Vacant / derelict land / bare ground				
Condition Sheet	Urban				
Condition Criteria 1.	Vegetation structure is varied, providing opportunities for wildlife. A single ecotone should not account for more than 80% of the total habitat area	Pass	Condition Criteria 3.	Schedule nine none native invasive species cover less than 5% of vegetated area	Pass
Condition Criteria 2.	There is a diverse range of flowering plants and pollen sources including non-native species beneficial to wildlife	Pass.	Condition Criteria 4b. (Only applicable to Bioswale and SUDs habitat types)	The water table is at or near the surface throughout the year.	Fail
Condition	Moderate	Passes 3 of 4 criteria			
Distinctiveness	Low				

8.2.3   C6) Urban Tree (Moderate)

Urban trees will be planted lining the roads and POS throughout the site.

Table 20 – Condition Assessment for Urban Tree

Phase 1 Habitat Classification	Scattered Tree				
UK Hab Classification	Urban Tree				
Condition Sheet	Urban Tree				
Condition Criteria 1.	More than 70% of the trees are native species	Pass	Condition Criteria 4.	Little to no evidence of an adverse impact on tree health by anthropogenic activities.	Pass
Condition Criteria 2.	Tree canopy is predominantly continuous	Fail	Condition Criteria 5.	Management regime has encouraged micro habitat sites	Pass
Condition Criteria 3.	More than 50% of the trees are mature or veteran	Pass	Condition Criteria 6.	Trees are immediately adjacent to other vegetation	Fail
Condition	Moderate	Passes 4 of 6 criteria			
Distinctiveness	Medium				

8.3 Hedgerow Habitats

8.3.1 C1) Native Species Rich Hedgerow (Moderate)

A series of species rich hedgerow will be planted around the periphery of POS on site.

Table 21 – Condition Assessment for Native Hedgerow

Classification within Landscape Designs	Native Species Rich Hedgerow				
UK Hab Classification	Native Species Rich Hedgerow				
Condition Sheet	Hedgerow				
A1. Height	>1.5 m average along length	Pass	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length	Pass
A2. Width	>1.5 m average along length	Fail	C2. Undesirable perennial vegetation	Undesirable species <20% cover of the area of undisturbed ground	Pass
B1. Gap – Hedge Base	Gap between ground and base of canopy <0.5 m for >90% of length	Pass	D1. Invasive Non-native species	>90% of the hedgerow and undisturbed ground is free of invasive non-native species	Pass
B2. Gap – hedge canopy continuity	Gaps make up <10% of total length. No canopy gaps >5m	Pass	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Fail
Condition **Moderate**		Fails 2 attributes			
Distinctiveness		Medium			

8.3.2 C2) Ornamental Hedgerows

A series of non native ornamental hedgerows are to be planted across developed areas on site. Ornamental hedgerows are given a predetermined condition of Poor.

9   Post-Development Summary and Conclusion

Using the Biodiversity Metric 3.0, the habitat units of the planned enhanced and created habitats were calculated; the habitat units to be retained within site development were calculated; and, the habitat units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in the Table 19.

Table 22: Post Development Biodiversity Net Gain Calculation

	On-site baseline	Habitat Unit Change				On-site post development	Net change in Biodiversity	
		Retained	Lost	Enhanced	Created		Habitat units	%
Habitat (Area) Units	28.86	-	-21.02	+19.76	+10.11	29.87	+1.01	+3.48%
Hedgerow (Linear Habitat) Units	1.28	-	1.28	-	1.72	1.72	+0.44	+34.29%
River (Linear Habitat) Units	1.2	-	0.14	1.28	-	1.28	+0.08	+6.59%

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As illustrated in Table 19 the total Biodiversity Net Gain for the site, based on the current landscape design, is +3.48% of area habitats, +34.29% of hedgerow habitats and +6.59% river habitats. Overall, it demonstrates that the post development habitats on site will provide more ecological benefit to local wildlife species than the habitats currently found on site and is line with the relevant National Planning Policy Framework and Local Planning Policies.

To ensure that the habitats proposed as part of the post development design of this site reach the condition detailed within this report and the full gain in value to the environment is achieved by this site, a long-term management plan (usually 30 years) has been produced (Urban Green, 2022). This length of management plan is required due to the complex nature of the habitats to be enhanced/created on site and the high value they will provide to the environment.

10 References

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eCountability Ltd. (2018). UK Habitat Classification (Professional Edition).

JNCC (2010). Handbook for Phase One Habitat Survey – 2010 Edition.   England Field Unit, Nature Conservancy Council. Reprinted JNCC.

Stace, C. (2010). New Flora of the British Isles. 3rd ed. Cambridge: Cambridge University Press.

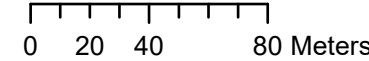# Appendix 1 – Pre- Development Habitat Map and Target Notes

Legend

N

◻ Red Line Boundary
I Improved Grassland
■ Broadleaved Woodland
■ Building
- - - Defunct Hedge
— Running Water
● Scattered Broad-leaved Tree

TN1 - Pendleton Brook

0 20 40   80 Meters

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Client:		
Taylor Wimpey		
Project:		
Standen Phase 5 & 6		
Title:		
Phase One Habitat Map		
Issue:		
02		
Drawn:	Checked:	Approved:
AB	**JH**	**JH**
Project:	Scale @ A3:	Date:
UG1451	**1:2,550**	**24/02/2022**
Dwg No:		Revision:
UG1451_ECO_HM_02		**02**

B1

TN1

Maxar, Microsoft, OS, Esri, HERE, Garmin, Geotechnologies, Inc.

Appendix 2 – Soft Landscape Plan

SHEET LOCATION PLAN 1:5000

A	070322	VR	Minor amends
Rev	Date	By	Note

**Detailed Landscape Proposals
Sheet 3**
Standen, Phase 5 & 6

Client: Taylor Wimpey   REV: A

DRWG No: P22-0161.003   Approved by: KC

Drawn by : VR

Date: 04/03/2022

Scale: 1:250   @ A0

N

0   10   20   30 m

Pegasus
Environment