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Ecological Consultants

Environmental and Rural Chartered Surveyors

Biodiversity Net Gain

CROW TREES BROW, CHATBURN

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ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.

If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

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Contents

INTRODUCTION

Purpose of this Report

In April 2022, Envirotech were requested, to carry out a biodiversity assessment of Crow Tree Farm, Crow Trees Brow, Chatburn. The aim was for an ecologist with botanical expertise to carry out a site visit to map the habitat types present at the site in order to establish the biodiversity baseline.

Each habitat type was mapped using the standard habitat mapping convention using Phase 1 habitat survey (JNCC, 2010) which was subsequently converted into the UK Habitat Classification (Butcher et al., 2020) for the purposes of using the Defra metric.

Using the findings of the baseline surveys, pre-construction ecology was measured against proposed habitat changes arising from future ecological enhancements based on a proposed site layout plan (post-construction) provided by the client.

This report presents the results of this desk-based study to assess net change in biodiversity 'units' in connection with the removal of habitats for the proposed development at the site.

Ecological Context

The site was plotted onto drone imagery as being 1.75ha and *Figure 1* shows the site location.

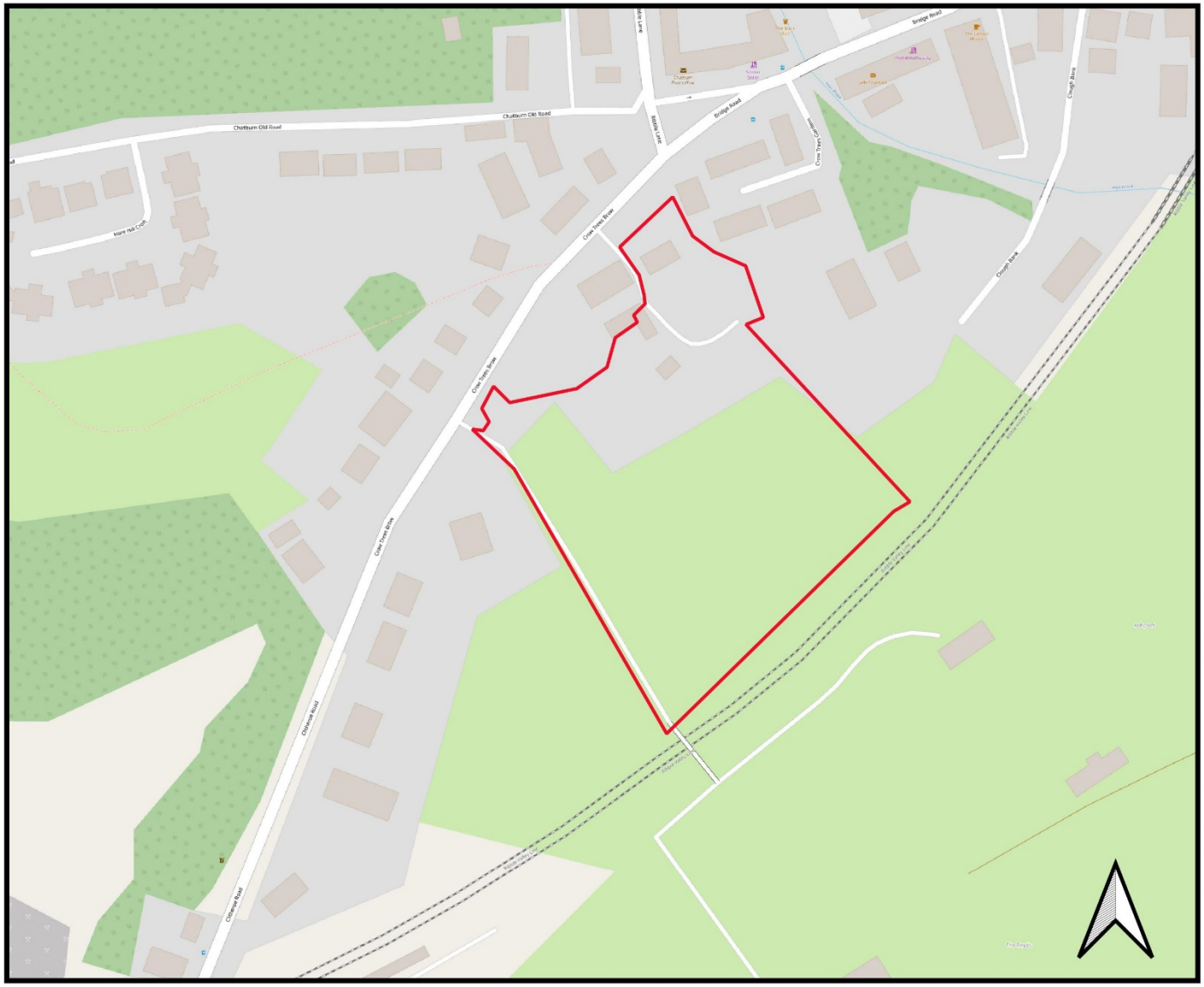

Figure 1

Site Location

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Policy context

The primary aims of Biodiversity Net Gain are to secure a measurable improvement in habitat for biodiversity, to minimise biodiversity losses and to help to restore ecological networks whilst streamlining development processes.

The National Planning Policy Framework (NPPF) makes provisions for the delivery of biodiversity net gain. Additionally, there is a proposed 10% net gain requirement in the Environment Bill. There is currently no statutory requirement to deliver mandatory 10% biodiversity net gain as the secondary legislation to do so has not yet been brought in.

METHODS

Introduction

The biodiversity metric 3.1 is designed to quantify biodiversity to inform and improve planning, design, land management and decision-making (Panks et al., 2022).

This study has been carried out as a desk-based exercise, using the results of field surveys carried out at the site by Envirotech and an Illustrative Plan provided by the client.

A map of the pre-construction habitats from the ecological appraisal is presented in *Figure 2*.

Biodiversity Assessment Methods

To calculate biodiversity units for the site and assess any changes arising from the proposed development this study uses methods set out the latest Biodiversity Metric 3.1 user guide (Panks et al., 2022).

The biodiversity metric uses three core measurements:

- Habitat area
- Length of linear terrestrial habitats
- Length of linear aquatic habitats.

Consequently, a site can have three biodiversity unit values, which are assessed using the same metric, but cannot be summed together.

Habitat area is multiplied by several factors that indicate its quality: distinctiveness, condition, strategic location and connectivity, and this gives its biodiversity unit value. This can be used for existing and future created habitats. In addition, when habitats are to be enhanced or newly-created, the risk of failure is accounted for by applying multipliers for risk factors (difficulty, time to target condition, and off-site risk).

Habitat Distinctiveness

Habitats are classified using the phase 1 habitat survey methodology (JNCC 2010) or the UK habitat classification system (Butcher et al., 2020).

The metric pre-assigns each habitat type to a distinctiveness band according to its distinguishing features, i.e. species richness, rarity (at local, regional, national and international scales), and the degree to which it supports species rarely found in other habitats. On rare occasions, the habitat distinctiveness of a habitat can be altered up or down from the preassigned value. Any alterations must then be fully explained using evidence relevant to the site, e.g. an increase in distinctiveness because of rare flora or fauna or a decrease in distinctiveness because of significant damage to the habitat.

Habitat Condition

Habitat condition measures the varying quality of similar habitats against what is perceived to be their optimal state. The biodiversity metric 3.1 technical supplement (Panks et al., 2022) contains condition sheets for all habitats to which the metric can apply. The condition sheets contain a habitat description, contextual information to aid the assessment, and the assessment criteria. The criteria describe what components need to be present for a habitat to be in good, moderate or poor condition.

Strategic Location

Strategic location - sometimes called 'strategic significance' – works at a landscape scale, allowing additional value to be added to habitats in 'priority' or 'biodiversity target areas'. They include statutory and non-statutory sites and other areas with biodiversity value or potential, and they are mainly identified from local plans and objectives. If a habitat is within such a target area, a multiplier is applied to increase its value.

Difficulty of Creation and Restoration

The risks associated with creating new or enhancing existing habitats, are known as difficulty factors; for example, where habitats fail to establish owing to natural changes in local conditions, incorrect management or for unknown reasons. The biodiversity metric 3.1 contains default values for each habitat based on the average difficulty of creating or enhancing a habitat. Occasionally, under exceptional circumstances, these can be modified, but any deviation from the default value must be fully justified.

Time to Target Condition

There is often a lag between a habitat being removed and the new compensation habitats achieving their target condition. This gives reduced biodiversity value for a time. The biodiversity metric 3.1 preassigns the time to target condition based on good practice and typical conditions, and assigns a multiplier based on the number of years required to achieve it.

Using bespoke techniques under unique conditions, or creating compensation habitats prior to impacts taking place, the time to target condition can be adjusted. Any changes must again be fully justified.

Off-site Risk

Sometimes it is not possible to compensate adequately for loss of biodiversity within the site boundary, so off-site compensation is required. If the off-site compensation is a significant distance from the development site, then there will be a local loss of biodiversity and a multiplier is applied to any off-site compensation.

BIODIVERSITY ASSESSMENT

Biodiversity Baseline

The phase 1 habitat survey map (Figure 2) has been used to identify four habitat areas and two linear habitat areas.

These habitats have been input into the Defra Biodiversity Metric 3.1 calculator and indicate a total of 3.83 area units and 2.27 terrestrial linear units. The results of the calculations are presented in Appendix A. It should be noted that these represent screenshots from the calculator; the full biodiversity assessment calculation can be found in the Excel document 'BNG Crow Trees Brow'.

The condition assessments for each of the linear and area habitats are presented in Appendix C. No deviations have been made from the default methods for baseline habitats assessment.

Post-development Habitat Creation and Enhancement

The Illustrative layout has been used to identify that there will be two retained habitats, two enhanced habitats and one created habitat.

These figures have been put in to the Biodiversity Metric 3.1 and would comprise a total of 4.61 biodiversity area units and 2.37 terrestrial linear biodiversity units.

The enhanced habitat area will consist of 0.243 ha of modified grassland enhanced to neutral grassland in moderate condition.

This will be planted with wildflower seed and managed by extensive cutting and removal of risings in order to improve condition.

A traditional orchard will receive supplemental planting of new orchard trees with a similar management regime and over sowing of grassland as above.

13 urban trees will be planted as heavy standards, these will achieve a mix of small and medium size in moderate condition.

Existing hedgerow with trees will be retained, a small section will be removed. A species poor beech hedge to the South is lost with a new native hedge planted to the East.

There are no changes to default values for post development habitats. Details of the assumptions made to achieve the proposed conditions are found in Appendix D.

Figure 2

Phase 1 Habitat Survey

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Change in Biodiversity Value

Under the current proposals set out in the layout, Figure 3, there will be a GAIN of 0.78 (+20.39%) biodiversity area units, and a GAIN of 0.10 (+4.53%) terrestrial linear biodiversity units. This is shown in Table 1.

Table 1. *Change in Biodiversity Units Calculation*

On-site baseline	*Habitat units*	**3.83**
	Hedgerow units	**2.27**
	River units	**0.00**
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	**4.61**
	Hedgerow units	**2.37**
	River units	**0.00**
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	**20.39%**
	Hedgerow units	**4.53%**
	River units	**0.00%**
Off-site baseline	*Habitat units*	**0.00**
	Hedgerow units	**0.00**
	River units	**0.00**
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	**0.00**
	Hedgerow units	**0.00**
	River units	**0.00**
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	**0.78**
	Hedgerow units	**0.10**
	River units	**0.00**
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	**20.39%**
	Hedgerow units	**4.53%**
	River units	**0.00%**
Trading rules Satisfied?	**Yes ✓**	

Pringle Homes - Crow Trees Farm, Chatburn Accommodation Schedule					
House Reference	Type	Bedroom	Floor Area (ft²)	Quantity	Total Floor Area (ft²)
BRI - Bristow_GF	Apartment	1	512	4	2048
BRI - Bristow_FF	Apartment	1	613	4	2452
RU - Ruxton	Semi-Bungalow	2	719	2	1438
RU - Ruxton	Detached Bungalow	2	719	1	719
HA - Hastings	Semi-Bungalow	2	744	2	1488
MA - Marsden	Mews House	2	795	4	3180
MA - Marsden	Semi-House	2	795	8	6360
RA - Raleigh	Mews House	3	927	2	1854
BRA - Bransfield	Mews House	3	951	2	1902
BRA - Bransfield	Semi-House	3	951	6	5706
WA - Wainwright	Semi-House	4	1079	4	4316
Total				**39**	**31463**

0m 25m 50m
Scale 1:500

Revision Notes:

CLIENT	Pringle Homes				
PROJECT	Proposed Residential Development at				
	Crow Trees Farm, Crow Trees Brow, Chatburn, Clitheroe, Lancashire, BB7 4AA				
DRAWING	Proposed Site Layout				
DRAWN	ASL	DATE	10/08/22	NUMBER	21/139/P01
SCALE	1:500	SHEET	A1	REVISION	-

LMP ARCHITECTS

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Figure 3. *Site layout*

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Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020), UK Habitat Classification – Habitat Definitions V1.1 at http://ukhab.org

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JNCC. (2010), Handbook for Phase 1 Habitat Survey (revised). JNCC, Peterborough.

APPENDIX A – DEFRA METRIC TABLES – BASELINE

	Habitats and areas			Distinctiveness		Condition		Strategic significance				Ecological baseline
Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier	Suggested action to address habitat losses	Total habitat units
1	Grassland	Modified grassland	1.295	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	2.59
2	Grassland	Traditional orchards	0.169	High	6	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	1.01
3	Urban	Vegetated garden	0.104	Low	2	Condition Assessment N/A	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same distinctiveness or better habitat required ≥	0.23
4	Urban	Developed land; sealed surface	0.184	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00
5												
6												
7												
8												
9												
		Total habitat area	1.75									3.83

Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comments	
Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost		Assessor comments	Reviewer comments
	0.243	0.00	0.49	1.05	2.10		Main grass fields to neutral grassland	
	0.169	0.00	1.01	0.00	0.00		Orchard to rear of farm to be enhanced	
0.104		0.23	0.00	0.00	0.00		Gardens	
0.184		0.00	0.00	0.00	0.00		Roads and buildings	
0.29	0.41	0.23	1.50	1.05	2.10			

Total area lost (excluding area of Urban trees and Green walls)	1.05

	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		Total hedgerow units
1	1	Native Hedgerow with trees	0.083	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.00
2	2	Native Hedgerow	0.07	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.42
3	3	Native Hedgerow	0.095	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.57
4	4	Native Hedgerow	0.143	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.29
5												
6												
7												
8												
9												
			0.39									2.27

Retention category biodiversity value						Comments	
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
0.074		0.89	0.00	0.01	0.11	Central hedge	
0.07		0.42	0.00	0.00	0.00	North hedge to orchard	
0.095		0.57	0.00	0.00	0.00	Hedge to North	
		0.00	0.00	0.14	0.29	Hedge to South	
0.24	0.00	1.88	0.00	0.15	0.39		

APPENDIX B – DEFRA METRIC TABLES – POST-DEVELOPMENT

Post development/ post intervention habitats																							
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Strategic significance			Temporal multiplier						Difficulty multipliers				Habitat units delivered	Comments	
			Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
Urban	Developed land; sealed surface	0.735	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00		
Urban	Vegetated garden	0.315	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.61		
Urban	Urban Tree	0.2808	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	27	0	0	Standard time to target condition applied	27	0.382	Low	Standard difficulty applied	Low	1	0.86		
	Total habitat area	1.33																	Total Units	1.47			

	Baseline habitats										Proposed Habitat (Pre-populated but can be overridden)		Change in distinctiveness and condition		Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance			Temporal risk multiplier						Difficulty risk multipliers				Habitat units delivered
Baseline ref	Baseline habitat	Total habitat area (hectares)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed Broad Habitat	Proposed habitat	Distinctiveness change	Condition change						Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of enhancement	Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied	
1	Grassland - Modified grassland	1.295	Low	2	Poor	1	Low Strategic Significance	1	2.59	Same distinctiveness or better habitat required 2	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat - Moderate	0.243	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10	0	0	Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	1.51
2	Grassland - Traditional orchards	0.169	High	6	Poor	1	Low Strategic Significance	1	1.01	Same habitat required =	Grassland	Traditional orchards	High - High	Poor - Moderate	0.169	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	0	Standard time to target condition applied	15	0.586	Medium	Standard difficulty applied	Medium	0.67	1.41
															0.41																		2.92

APPENDIX C – BASELINE DETAILED CONDITION ASSESSMENTS

This appendix presents the assessment of the post-development habitats against the condition sheets in the biodiversity metric 3.1 technical supplement published by Panks et al., 2022 Any deviations from the published guidance is explained and justified.

Appendix C - Condition Assessment Tables

Phase 1 Habitat	UK Hab Equivalent	Hedgerow Criteria Score										Condition Assessment	Notes
		A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*		
Intact Species-poor hedgerow	Native Hedgerow	P	P	P	P	P	P	P	P	F	P	Good	
Intact Species-poor hedgerow	Native Hedgerow	P	F	P	P	P	P	P	P			Good	
Intact Species-poor hedgerow	Native Hedgerow	P	P	P	P	P	P	P	P			Good	
Intact Species-poor hedgerow	Native Hedgerow	F	F	O	O	F	O	O	F			Poor	

Key:
P – Criteria passed
F – Criteria failed
* - Application to Hedgerows with trees only

Appendix Table C1: Hedgerow Condition Assessment

UK Hab Equivalent	Condition Sheet	Other Habitat Criteria Score									Total Score	Condition Assessment	Notes
		C1	C2	C3	C4	C5	C6	C7	C8	C9			
Modified Grassland	GRASSLAND: Low distinctiveness	F	P	P	P	P	P	F			2	Poor	
Orchard	Orchard	F	P	F	F	F	F	F	F		1	Poor	
Developed Land; Sealed Surface	Not assessed												
Garden	Not assessed												

Key:
P – Criteria passed
F – Criteria failed

Appendix Table C2: Condition Assessment for Area Habitats

APPENDIX D – POST DEVELOPMENT DETAILED CONDITION ASSESSMENTS

This appendix presents the assessment of the post-development habitats against the condition sheets in the biodiversity metric 3.1 technical supplement published by Panks et al., 2022 Any deviations from the published guidance is explained and justified.

Appendix D - Condition Assessment Tables

Phase 1 Habitat	UK Hab Equivalent	Hedgerow Criteria Score										Condition Assessment	Notes
		A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*		
Intact Species-poor hedgerow	Native Hedgerow	P	P	P	P	P	P	P	P			Good	

Key:
P – Criteria passed
F – Criteria failed
* - Application to Hedgerows with trees only

Appendix Table D1: Hedgerow Condition Assessment

UK Hab Equivalent	Condition Sheet	Other Habitat Criteria Score									Total Score	Condition Assessment	Notes
		C1	C2	C3	C4	C5	C6	C7	C8	C9			
Other neutral grassland	GRASSLAND: Medium-Very High distinctiveness	P	P	P	P	P	F				5	Moderate	
Orchard	Orchard	F	P	P	F	P	P	P	P		6	Moderate	
Developed Land; Sealed Surface	Not assessed												
Garden	Not assessed												
Urban trees	URBAN TREES	P	P	F	P	F	P				4	Moderate	

Key:
P – Criteria passed
F – Criteria failed

Appendix Table D2: Condition Assessment for Area Habitats