

Ecological Consultants Environmental and Rural Chartered Surveyors

# **Biodiversity Net Gain**

# **Thomas Graham Egremont**



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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.

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### INTRODUCTION

### Purpose of this Report

Envirotech were requested to carry out a biodiversity assessment of a site for Thomas Graham at Egremont. 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 an Illustrative Landscape 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 is 2.937ha and *Figure 1* shows the site location.



### 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 Landscape Plan provided by the client.

### **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 one linear habitat area.

These habitats have been input into the Defra Biodiversity Metric 3.1 calculator and indicate a total of 8.06 area units and 0.95 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 Thomas Armstrong Egremont'.

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 Landscape Plan has been used to identify that there will be no retained habitats, four enhanced habitats and six new habitats. There will be on retained terrestrial linear habitat and one created terrestrial linear habitat.

These figures have been put in to the Biodiversity Metric 3.1 and would comprise a total of 10.44 biodiversity area units and 1.41 terrestrial linear biodiversity units.

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 3- Illustrative landscape plan

### Change in Biodiversity Value

Under the current proposals set out in the Illustrative Landscape Plan there will be a GAIN of 2.37 biodiversity area units (+29.44%), and a GAIN of 0.46 terrestrial linear biodiversity units (+48.33%). This is shown in Table 1.

	Habitat units	8.06
On-site baseline	Hedgerow units	0.95
	River units	0.00
	Habitat units	10.44
On-site post-intervention	Hedgerow units	1.41
(Including habitat retention, creation & enhancement)	River units	0.00
	Habitat units	29.44%
On-site net % change	Hedgerow units	48.33%
(Including habitat retention, creation & enhancement)	River units	0.00%
	Habitat units	0.00
Off-site baseline	Hedgerow units	0.00
	River units	0.00
	Habitat units	0.00
Off-site post-intervention	Hedgerow units	0.00
(Including habitat retention, creation & enhancement)	River units	0.00
	Habitat units	2.37
I otal net unit change	Hedgerow units	0.46
(including all on-site & off-site habitat retention, creation & enhancement)	River units	0.00
	Habitat units	<b>29.44%</b>
l otal on-site net % change plus off-site surplus	Hedgerow units	48.33%
(including all on-site & off-site habitat retention, creation & enhancement)	River units	0.00%
Trading rules Satisfied?	Ye	es√

Table 1.	Change in	Biodiversity	Units	Calculation
	onunge m	Diourversity	Units	ounculation

### REFERENCES

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

Stephen Panks A, Nick White A, Amanda Newsome A, Mungo Nash A, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Clare Cashon A, Finn Goddard A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Butcher E And Dave Stone A 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England.

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

### **APPENDIX A- METRICS TABLES – BASELINE**

		Habitats and areas		Distinctivene	ess	Conditio	n	Strategic signi	ficance			Ecological baseline		F	etention ca	ategory biodi	versity value	
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	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost
1	Grassland	Modified grassland	2.076	Low	2	Poor	1	A rea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	4.15		0.083	0.00	0.17	1.99	3.99
2	Heathland and shrub	Mixed scrub	0.118	Medium	4	Moderate	2	A rea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.94		0.118	0.00	0.94	0.00	0.00
3	Woodland and forest	Other woodland; broadleaved	0.444	Medium	4	Poor	1	A rea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	1.78		0.444	0.00	1.78	0.00	0.00
4	Grassland	Other neutral grassland	0.298	Medium	4	Poor	1	A rea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	1.19		0.298	0.00	1.19	0.00	0.00
5																		
6																	<b></b>	
8																	<b></b>	
9																		
		Total habitat area	2.94					•				8.06	0.00	0.94	0.00	4.08	1.99	3.99
													Total are	a lost (exclud and Gre	ling area of een walls)	Urban trees	1.99	

	UK Habitats - existing habitats		Habitat distinctiv	eness	Habitat con	dition	Strategic sign	ificance		Suggested action to	Ecological baseline		Retention	category b	iodiversity va	alue	
Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance Strategic position multiplier		address habitat losses	Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units Iost
1	Native Hedgerow	0.238	Low	2	Moderate	2	A rea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.95	0.216		0.86	0.00	0.02	0.09
																	(
																	(
																	(
		0.24									0.95	0.22	0.00	0.86	0.00	0.02	0.09

## APPENDIX B- METRICS TABLES – POST DEVELOPMENT

										Post d	levelopment/ post in	tervention habitats	•									
			Distinctiv	veness	Cor	ndition	Strategic signif	icance					Temporal multiplier				Difficulty multipliers	5		Hobitot	Co	nments
Broad Habitat	Proposed habitat	Area (hectares)	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	units delivered	Assessor comments	Reviewer comments
Woodland and forest	Other woodland; broadleaved	0.386	Medium	4	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	Low	Standard difficulty applied	Low	1	1.81	New planting	
Grassland	M odified grassland	0.114	Low	2	Poor	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	0.22	A menity grassland	
Urban	Introduced shrub	0.033	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	0.06		
Lakes	Ponds (Non- Priority Habitat)	0.035	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied	3	0.899	Low	Standard difficulty applied	Low	1	0.25		
Urban	Developed land; sealed surface	1.425	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	Urban Tree	0.3215	Medium	4	Moderate	2	A rea/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	0.98		
																						1
																						1
																						1
	Total habitat area	2.31																	Total Units	3.33		

	Baseline habitats	Propos	ed Habitat (Pre-populated but can be overridden)	Change in distinctiv	veness and condition				Strategic significance	Temporal risk multi	plier	Difficulty risk multipliers	Habitat	Corr	ments
Baseline ref	Baseline habitat	Proposed Broad Habitat	Proposed habitat	Distinctiveness change	Condition change	Area (hectares)	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of enhancement	units delivered	Assessor comments	Reviewer comments
1	Grassland - Modified grassland	Heathland and shrub	Mixed scrub	Low - Medium	Lower Distinctiveness Habitat - Moderate	0.083	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	5	Low	0.58	New scrub planting	
2	Heathland and shrub - Mixed scrub	Heathland and shrub	Mixed scrub	Medium - Medium	Moderate - Fairly Good	0.118	Medium	Fairly Good	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	2	Low	1.16		
3	Woodland and forest - Other woodland; broadleaved	Woodland and forest	Other woodland; broadleaved	Medium - Medium	Poor - Fairly Good	0.444	Medium	Fairly Good	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	15	Low	3.34		
4	Grassland - Other neutral grassland	Grassland	Other neutral grassland	Medium - Medium	Poor - Moderate	0.298	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	10	Low	2.03		
						0.04							7 11		

		Proposed habitats		Habitat distin	ctiveness	Habitat	condition	Strategic signific	ance				Ten	nporal multiplier				Difficulty risk m	ultipliers		Hodao unite	Comn	nents
Baseline re	New f hedge number	Habitat type	Length (km)	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 difficullty multiplier	Final difficulty of creation	Difficulty multiplier applied	delivered	Assessor comments	Reviewer comments
1	2	Native Hedgerow	0.284	Low	2	Poor	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	0.55		
2																							
3																							
4																							
5																							
6																							
			0.28																		0.55		

### **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.

Phase 1 Habitat	UK Hab				Hedge	erow C	riteria	Score				Condition	Notos
Filase i Habilat	Equivalent	A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*	Assessment	Notes
Intact Species- poor hedgerow	Native Hedgerow	F	F	Р	Р	F	Р	Р	F			Poor	Short and narrow
Kev:													

P – Criteria passed

F – Criteria failed

\* - Application to Hedgerows with trees only

Appendix Table C1: Hedgerow Condition Assessment

UK Hab	Condition			Other	Habi	tat Cr	iteria	Score	9		Total	Condition	Notes
Equivalent	Sheet	C1	C2	C3	C4	C5	C6	C7	C8	C9	Score	Assessment	
Modified Grassland	GRASSLAND: Low distinctiveness	F	F	Ρ	F	Ρ	Ρ	Ρ			4	Poor	Poached species poor
Other neutral grassland	GRASSLAND: Medium-Very High distinctiveness	F	F	Ρ	Р	F	F				2	Poor	Ruderal and scrub areas to boundary in grassland
Scrub	Scrub	Р	Р	Р	F	Р					4	Moderate	Damaged by grazing cattle
<b>Key:</b> P – Criteria passed F – Criteria failed													

#### Appendix Table C2: Condition Assessment for Area Habitats

Phase 1	UK Hab	Condition					Ot	ther H	abitat	Crite	eria Sc	ore				Total	Condition	Natao
Habitat	nt	Sheet	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	Score	Assessment	NOTES
Semi-natural broadleaved woodland	Other woodland	WOODLAND AND FOREST	2	1	3	2	3	2	1	1	1	2	1	1	1	21	Poor	No regeneration, damaged by grazing cattle
Key to woodlan 3 (points) = Goo 2 (points) = Mod 1 (point) = Poor	<b>id condition ass</b> d erate	sessment:																

Total score >32 – Good Total score 26 – 32 – Moderate **Total score <26 – Poor** 

Appendix Table C3: Woodland Condition Assessment

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### **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.

Phase 1 Habitat	UK Hab Equivalent				Hedg	erow C	riteria	Score		Condition	Notos		
		A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*	Assessment	Notes
Intact Species- poor hedgerow	Native Hedgerow	F	F	Р	Р	F	Р	Ρ	F			Poor	Hedges within or on edge of built environment
Key:													
P – Criteria passed													
F – Criteria failed													
* - Application to Hedgerows with trees only													
Appendix Table	D1: Hedgerow 0	Condit	ion As	ssessr	nent								

UK Hab	Condition		ľ	Other	Habi	tat Cr	iteria	Score	Э		Total	Condition	Notes	
Equivalent	Sheet	C1	C2	C3	C4	C5	<b>C</b> 6	C7	C8	C9	Score	Assessment		
Modified Grassland	GRASSLAND: Low distinctiveness	F	F	Ρ	Ρ	F	Ρ	Ρ			4	Poor	Amenity grassland	
Other neutral grassland	GRASSLAND: Medium-Very High distinctiveness	Р	Ρ	F	Р	Р	F				4	Moderate	Enhanced grassland	
Pond	Pond	Р	F	Ρ	Р	Р	Р	Р	Ρ	Ρ	8	Moderate	New Pond	
Scrub	Scrub	Р	Р	Р	F	Ρ					4	Moderate	New scrub planting	
Scrub	Scrub	Ρ	Р	Р	F/ P	Р					4/5	Fairly Good	Existing scrub enhanced with reduction in livestock grazing/ damage and edge planting but will be adjacent built area = Fairly Good	
Developed Land; Sealed Surface	Not assessed										-	-		
Introduced shrub	Not assessed										-	-		
Urban trees	URBAN TREES	Р	Ρ	F	Р	F	Р				4	Moderate	Urban trees -Small	
Key:														

P – Criteria passed

F – Criteria failed

#### Appendix Table D2: Condition Assessment for Area Habitats

Phase 1 Habitat	UK Hab Equivale nt	Condition Sheet		Other Habitat Criteria Score													Condition	Notes
			C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	Score	Assessment	Notes
Semi-natural broadleaved woodland	Other woodland	WOODLAND AND FOREST	3	3	3	2	3	3	3	2	2	3	1	1	3	32	Fairly Good	Existing woodland will take time to regenerate so will be between moderate and good condition.
Semi-natural broadleaved woodland	Other woodland	WOODLAND AND FOREST	2	3	3	2	3	3	2	2	2	2	1	1	3	29	Moderate	Existing woodland will take time to regenerate so will be moderate condition.

Key to woodland condition assessment:

3 (points) = Good 2 (points) = Moderate 1 (point) = Poor

Total score >32 – Good Total score 26 – 32 – Moderate **Total score <26 – Poor** 

Appendix Table D3: Woodland Condition Assessment

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