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Ecological Consultants
Environmental and Rural Chartered Surveyors

Biodiversity Net Gain

Upper Hoyland Road, Barnsley



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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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Author	Andrew Gardner	Date	29 th March 2022
Checked by	Andrew Gardner	Date	29 th March 2022
Report Version	1		
Field data entered	<input type="checkbox"/>		
Report Reference	7461		

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INTRODUCTION

Purpose of this Report

In March 2022, Envirotech were requested to carry out a biodiversity assessment of land at Upper Hoyland Road, Barnsley. 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.

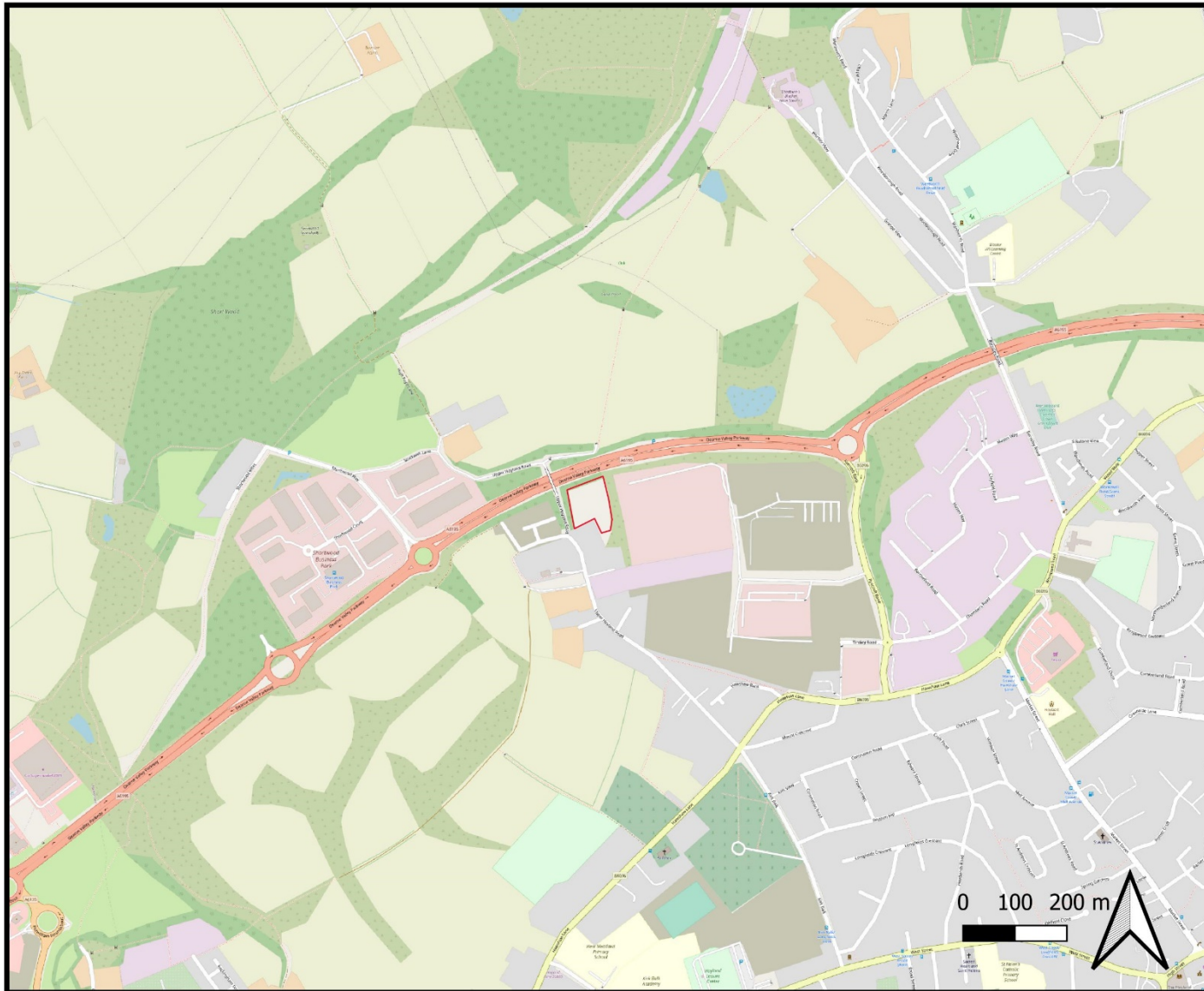
Each habitat type was mapped using the standard habitat mapping convention using Phase 1 habitat survey (JNCC, 2010) which was subsequently converted into the UK Habitat Classification (Butcher et al., 2020) for the purposes of using the Defra metric.

Using the findings of the baseline surveys, pre-construction ecology was measured against proposed habitat changes arising from future ecological enhancements based on an outline 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 is 0.627ha and *Figure 1* shows the site location.



Key
□ Boundary

Figure 1
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 3.0 is designed to quantify biodiversity to inform and improve planning, design, land management and decision-making (Panks et al., 2021).

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 layout Plan provided by the client. It should be noted that the application is outline and as such the layout, density and number of units on site is likely to vary.

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 3.0 user guide (Panks et al., 2021).

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 3.0 technical supplement (Panks et al., 2021) 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.

Connectivity

Connectivity aims to consider a habitat in relation to surrounding similar or associated habitats. The connectivity of a habitat is calculated by inputting GIS layers of habitats and the site boundary into the connectivity tool, which then produces an output with the connectivity value. Full details of how the connectivity tool works can be found within the published guidance (Panks et al., 2021). Currently high and very high distinctiveness habitats should be processed through the biodiversity metric 3.0 connectivity tool, all other habitats are given a default low connectivity multiplier.

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 3.0 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 3.0 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 one habitat area..

This habitat has been input into the Defra Biodiversity Metric 3.0 calculator and indicates a total of 1.44 area 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 Upper Hoyland Road'.

The condition assessment for the area habitat is presented in Appendix C.

Post-development Habitat Creation and Enhancement

The Illustrative layout has been used to identify that there will be no retained habitats, no enhanced habitats and two new habitats.

These figures have been put in to the Biodiversity Metric 3.0 and would comprise a total of 0.79 biodiversity area units.

The created habitat will consist of 0.354Ha of Vegetated garden and 0.273Ha of Hard standing and buildings.

There will be extensive new hedgerow planting but as the baseline hedgeline length is ZERO, the gain is infinite and as such can not be calculated as a %.

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.



- Boundary
- Scrub - Dense/continuous
- Woodland - Broad-leaved Plantation
- Improved Grassland

Figure 2
Phase 1 Habitat Survey



Change in Biodiversity Value

Under the current proposals set out in the Illustrative Masterplan there will be a LOSS of 0.66 biodiversity area units or 45%. This is shown in Table 1.

There is the potential for reducing the number of units on site, increasing the POS areas, green roofs, bioswales and enhancing the boundary scrub and woodland. This would all result in a reduced loss but the scheme is outline and no landscape plan or strategy has been developed. This will be undertaken at the RM application stage.

Table 1. Change in Biodiversity Units Calculation

On-site baseline	<i>Habitat units</i>	1.44
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.79
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	-45.52%
	<i>Hedgerow units</i>	0.00%
	<i>River units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-0.66
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-45.52%
	<i>Hedgerow units</i>	0.00%
	<i>River units</i>	0.00%
Trading rules Satisfied?	No - Check Trading Summary	

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, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Butcher E And Dave Stone A 2021. *Biodiversity metric 3.0: Auditing and accounting for biodiversity - User Guide*. Natural England.

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

APPENDIX A – DEFRA METRIC TABLES – BASELINE

Ref	Habitats and areas			Distinctiveness		Condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value					
	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier		Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost
1	Grassland	Modified grassland	0.627	Low	2	Poor	1	Within area formally identified in local strategy	High strategic significance	1.15	Same distinctiveness or better habitat required	1.44			0.00	0.00	0.63	1.44
2																		
3																		
4																		
5																		
			0.63									1.44	0.00	0.00	0.00	0.00	0.63	1.44

APPENDIX B – DEFRA METRIC TABLES – POST-DEVELOPMENT

Broad Habitat	Proposed habitat	Area (hectares)	Post development/ post intervention habitats																	Comments			
			Distinctiveness		Condition		Strategic significance			Temporal multiplier			Difficulty multipliers				Habitat units delivered						
			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			
Urban	Vegetated garden	0.354	Low	2	Poor	1	Within area formally identified in local strategy	High strategic significance	1.15	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.79			
Urban	Developed land; sealed surface	0.273	V.Low	0	N/A - Other	0	Within area formally identified in local strategy	High strategic significance	1.15	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00			
	Total area	0.63																		Total Units	0.79		

APPENDIX C – BASELINE DETAILED CONDITION ASSESSMENTS

This appendix presents the assessment of the post-development habitats against the condition sheets in the biodiversity metric 3.0 technical supplement published by Panks et al., 2021 Any deviations from the published guidance is explained and justified.

Condition Sheet: Grassland - Modified grassland		Site Condition	Pass/ Fail
1	There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	Species poor	Fail
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Sward all very short	Fail
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	No scrub	Pass
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Extensive poaching	Fail
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Extensive bare ground	Fail
6	Cover of bracken less than 20%.	No bracken	Pass
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Extensive thistle	Fail
Passes 6 or 7 of 7 criteria including non-negotiable criterion 7	Good (3)		
Passes 4 or 5 of 7 criteria; OR Passes 6 of 7 criteria excluding non-negotiable criterion 7	Moderate (2)		
Passes 0, 1, 2 or 3 of 7 criteria	Poor (1)		X

APPENDIX D – POST-DEVELOPMENT DETAILED CONDITION

Vegetated garden and hardstanding are in default poor and N/A condition.