

Biodiversity Net Gain Assessment

Barnsley Road, Goldthorpe

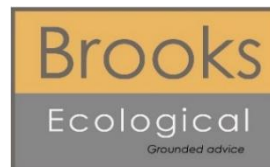
Hoober Ltd

Report Reference: ER-5805-01-B

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Report Title:	Biodiversity Net Gain Assessment Barnsley Road, Goldthorpe
Report Reference:	ER-5805-01-B
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Date:	17/05/2022

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Introduction

1. Brooks Ecological was commissioned by Hoover Ltd to complete a Biodiversity Net Gain (BNG) Assessment of the proposed development Site at Barnsley Road, Goldthorpe. The assessment applies to the parcel of land shown in Figure 1 opposite, which is being submitted as a reserved matters application for 43 units.
2. The assessment is informed by an Ecological Impact Assessment carried out by Whitcher Wildlife Ltd in September 2020 and by an updating walkover survey by Brooks Ecological in October 2021. To conform with DEFRA's Biodiversity Metric 3.0, habitats have been mapped in accordance with the UK Habitats Classification.
3. Biodiversity Accounting metrics are used to quantify the value of a Site in Biodiversity Units, which helps in assessing the ecological impacts of the proposed development on the Site. Biodiversity Units can help to inform avoidance, or on-site mitigation levels required; or as a last resort can translate to a direct monetary value where compensation (off-site) is required.
4. This assessment was made by David Lovett MBiolSci (Hons) ACIEEM. David has over 8 years' experience as a professional Ecologist and during this time has undertaken countless habitat surveys and assessments.
5. Limitations: The most recent survey was undertaken at a sub-optimal time of year for grassland habitat condition assessment. However, given the composition of grass species and the previous management regime, the grassland habitat type could still be accurately assessed.

Figure 1 Extent of BNG Assessment (red line boundary).



Pre-development Baseline

Habitats identified

6. The Site supports the following habitats:
- g4 – Modified Grassland
 - 10 Scattered Scrub
 - 16 Tall Herb
 - h3d – Bramble Scrub
 - 351 – Vacant/Derelict Land
 - u1b – Developed Land; Sealed Surface
 - h2a – Native hedgerow
 - w1g6 – Line of Trees
7. Each habitat is mapped in Figure 2 opposite.

Condition Assessment

8. The condition assessment for each habitat is based on the available criteria set out in the DEFRA (2021) Biodiversity Metric 3.0 Technical Supplement.

Habitat Score

9. The Site has been assessed as having a baseline score of 2.68 Habitat Units and 1.13 Hedgerow Units.

Figure 2 Habitat map – pre-development.



Modified Grassland

Figure 3 Approximate location and extent of this habitat.



10. This habitat covers the majority of the Site.
11. Palatable grasses are dominant throughout, with cock's-foot, Yorkshire fog, perennial ryegrass, false oatgrass, and red fescue all present. Other species are present but represent a much lower percentage of the sward. Creeping thistle, creeping buttercup, broad-leaved dock, greater plantain, common nettle, and field horsetail were all noted.
12. The Site was used for livestock grazing until approximately 2017, with the area likely sown with fast-growing palatable grasses and treated with fertilizers to promote growth. Whilst the lack of management in the past four years has allowed other species to colonise the area, the majority of

the Site is still dominated by fast-growing grasses. The associated ground flora also indicates high fertility, likely originating from when the land was managed.

13. Two secondary habitats are present, growing over the modified grassland. An area of scattered scrub is present in the south of the Site, with buddleia, goat willow, and silver birch saplings all present.
14. Areas of tall herb are found across the Site, with dense areas of common nettle, rosebay willowherb, and creeping thistle present.

Defra Metric Condition Assessment – Poor

Grassland (low distinctiveness)		
	Pass/Fail	Condition
1	Fail	6-7 including criterion 1 = Good
2	Fail	
3	Pass	6 excluding criterion 1 = Moderate
4	Pass	
5	Fail	4-5 = Moderate
6	Pass	
7	Fail	0-3 = Poor
	= Poor	



Figure 4

View of modified grassland.

Bramble Scrub

Figure 5 Approximate location and extent of this habitat.



15. A small area along the eastern boundary of the Site is covered by a dense patch of bramble.
16. Whilst bramble is the dominant species, others present around the edge of this habitat include creeping thistle, common nettle, broad-leaved willowherb, and cock's-foot.

Defra Metric Condition Assessment – Poor (automatically assigned)



Figure 6

View of bramble scrub.

Vacant/Derelict Land

Figure 1 Approximate location and extent of this habitat.



17. A small area of land at the entrance of the Site has been subject to previous works, with an earth mound, some previously cleared ground and part of a wall constructed.
18. The disturbance to the soil has allowed other species to colonise this area. Species present here but not found elsewhere in the Site include viper's bugloss, mugwort, bird's-foot trefoil, and black medic.
19. Some grasses are still present, with red fescue the dominant grass species in this area.

Defra Metric Condition Assessment – Poor

Urban non-priority		
	Pass/Fail	Condition
1	Fail	3, <u>including</u> requirements for Good in 2 & 3 = Good
2	Fail	
3	Pass	2, <u>or</u> 3 without requirements for Good in 2 & 3 = Moderate
		0-1 = Poor



Figure 2

View of vacant/derelict land.

Developed land; sealed surface

Figure 9 Approximate location and extent of this habitat.



20. The Site entrance is through the road access to an adjacent supermarket. This habitat includes a tarmac covered road and footpath.

Defra Metric Condition Assessment – n/a

Native Hedgerow

Figure 10 Approximate location and extent of this habitat.



- 21. Two hedgerows are present, one along the southern edge of the Site and one along the northern edge.
- 22. The southern hedge (hedgerow 1) is made up of outgrown hawthorn, with a ground flora of Yorkshire fog, cock's-foot, dandelion, cleavers, ragwort, creeping buttercup, and ribwort plantain.
- 23. The northern hedgerow (hedgerow 2) is also made up of hawthorn, again unmanaged and outgrown. The hedgerow includes bramble, as well as

dog rose and elder. The ground flora is more rank than the southern hedgerow, with common nettle, creeping thistle, and rosebay willowherb.

Defra Metric Condition Assessment – Hedgerow 1: Moderate, Hedgerow 2: Good

Hedgerow without trees			
	Hedgerow 1	Hedgerow 2	Condition
	Pass/Fail		
A1	Pass	Pass	No more than 2 failures, no more than 1 in any letter = Good
A2	Pass	Pass	
B1	Fail	Pass	
B2	Pass	Pass	No more than 4 failures, does not fail both attributes for more than 1 letter = Moderate
C1	Pass	Pass	
C2	Fail	Fail	
D1	Pass	Pass	More than 4 failures, or fails both attributes in more than 1 letter = Poor
D2	Fail	Pass	

Figure 11 View of the southern hedgerow.



Figure 12 View of the northern hedgerow.



Line of Trees

Figure 13 Approximate location and extent of this habitat.



24. A small line of cherry trees runs along part of the eastern boundary of the Site. The ground flora beneath the trees is typical of the modified grassland habitat found within the Site. Dog rose, common nettle, and poison hemlock are all present in close association with the trees.

Defra Metric Condition Assessment – Moderate

Line of trees		
	Pass/Fail	Condition
1	Pass	5 = Good 3-4 = Moderate 0-2 = Poor
2	Pass	
3	Fail	
4	Fail	
5	Pass	
= Moderate		

Figure 14 View of the line of trees.



Hedgerow Regulations Assessment

25. All on-site hedgerows have been mapped with a summary of the data collected for the Hedgerows Regulations assessment shown in Table 1 below.
26. None of the hedgerows can be defined as 'important' under the Hedgerows Regulations 1997 due to a lack of woody species diversity and associated features.
27. The two hedgerows and line of trees qualify as being a 'habitat of principle importance' under Section 41 of the NERC Act 2006.

Table 1 Summary of the hedgerow survey.

Hedge	Dimensions			Woody sp. Count	Associated Features							PRow	Important under Hedgerow Regs	Section 41 NERC Act
	Length (m)	Height (m)	Width (m)		Bank/wall (≥50%)	Gaps (≤10%)	Tree / 50m	Ground flora (≥3)	Ditch (≥50%)	Connections (≥4)	Parallel hedge			
1	35	3-5	2-3	1	No	Yes	No	No	No	No	No	No	No	Yes
2	109	3-6	2-3	3	No	Yes	No	No	No	No	No	No	No	Yes
3	47	4-6	1-2	2	No	No	Yes	No	No	No	No	No	No	Yes

DEFRA Metric (Baseline)¹

28. This metric sets out the baseline for the Site. Proposals should seek to achieve at least a 'no net loss' situation through **Avoiding** areas of higher value, **Mitigating** any loss on-site through retention and enhancement, or habitat creation. The Local Planning Authority may require you to **Compensate** any residual loss elsewhere, either through direct works or an off-setting contribution.

Barnsley Road, Goldthorpe								
A-1 Site Habitat Baseline								
Condense / Show Columns			Condense / Show Rows					
Main Menu			Instructions					
Habitats and areas				Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
1	Grassland	Modified grassland	1.1	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	2.53
2	Heathland and shrub	Bramble scrub	0.0179	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.08
3	Urban	Vacant/derelict land/ bareground	0.0295	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	0.07
4	Urban	Developed land; sealed surface	0.0537	V Low	N/A - Other	Within area formally identified in local strategy	Compensation Not Required	0.00
5			1.20					2.68

¹ Our report provides an estimate of the sites value in Biodiversity Units. This is based on thorough assessment at the time of survey and using the information available at this time. In this assessment we have used the version 2.0 of DEFRA's Biodiversity Metric Tool as workings were originally made in this version. This assessment requires subjective judgments to be made in terms of habitat type and condition and could be open to other interpretations. Reliance on the Unit Score, or conversion of this into a monetary value, would be at the developer's own risk. Where conversion to monetary value is required, it is always advisable to get calculations checked independently.

B-1 Site Hedge Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

Baseline ref	Hedge number	UK Habitats - existing habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
		Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
1	1	Native Hedgerow	0.035	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.16
2	2	Native Hedgerow	0.109	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.75
3	3	Line of Trees	0.047	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.22
4								
5								
6								
7								
8								
			0.19					1.13

Post-development Score

Proposed Habitats

29. Habitats present on-site post-development have been based on the Landscape Masterplan DR-5805-01 (Rev C) produced by Brooks Ecological.
30. Planting types specified in the Landscape Masterplan have been assigned a UK Habitat Classification description that best fits the target habitat.
31. Habitats assigned are shown in Figure 16 overleaf.

Condition Assessment

32. The condition assessment for each proposed habitat is based on what is realistic and achievable for the Site, based on the Landscape Masterplan.

Figure 15 Landscape Masterplan – DR-5805-01.



Post-development Score

Habitat Score

33. The Site has been assessed as having a post development score of 1.49 Habitat Units and 1.11 Hedgerow Units.
34. This score is based on our interpretation of the landscape masterplan as shown opposite.
35. For areas of housing, homes and gardens have not been mapped but are assigned as 70% developed land : 30% gardens based on guidance in DEFRA 3.0 (2021). This is shown on the map as suburban mosaic of developed/natural surface.
36. Roads and pathways have been classed as developed land; sealed surface.
37. Trees planted within the Site along roads and pathways have been classed as "urban trees" of medium size.
38. Grassland areas are classed as 'other neutral grassland' on the basis that seeding can be easily rationalised in detailed planting plans to achieve this outcome.
39. A sustainable urban drainage feature has been classed accordingly, as this feature is included in the UK Habitat Classification.
40. Hedgerow scores are based on the provision of new native hedgerows.

Figure 16 Post Development Habitats as Mapped.



41. This metric sets out the predicted score for the Site following the completion of development. This is based on the Landscape Masterplan provided by the client.

B-1 Site Hedge Baseline											
Condense / Show Columns			Condense / Show Rows								
Main Menu			Instructions								
	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	Condition	Strategic significance		Total hedgerow units			
1	1	Native Hedgerow	0.035	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.16			
2	2	Native Hedgerow	0.109	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.75			
3	3	Line of Trees	0.047	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.22			
4											
5											
6											
7											
8											
			0.19					1.13			
Retention category biodiversity value											
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost						
		0.00	0.00	0.04	0.16						
0.109		0.75	0.00	0.00	0.00						
		0.00	0.00	0.05	0.22						
0.11	0.00	0.75	0.00	0.08	0.38						

B-2 Site Hedge Creation										
Condense / Show Columns			Condense / Show Rows							
Main Menu			Instructions							
Proposed habitats				Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multiplier	Hedge units delivered
Baseline ref	New hedge number	Habitat type	Length km	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
1		Native Hedgerow	0.159	Low	Poor	Within area formally identified in local strategy	Standard time to target condition applied	1	Low	0.35
2										
3										
4										
5										
6										
			0.16							0.35

Net Gain Assessment

42. This exercise identifies an overall Net Loss of 1.19 Habitat Units (-44.24 %), and a Net Loss of 0.02 Hedgerow Units (-2.15 %).
43. Calculations for the change in Habitat Units have been based on the entire Site being cleared of existing vegetation and land reprofiled, which results in the loss of all 2.68 Habitat Units present pre-development. Post-development calculations include Habitat Units gained through the creation of private gardens and planting within Public Open Space (POS) which includes wildflower grassland, a sustainable urban drainage feature, and tree planting.
44. The loss of Hedgerow Units is a result of the removal of the line of trees along the Site's eastern boundary and hedgerow from along the southern boundary. Retaining good condition hedgerow along the northern boundary of the Site and the planting of new mixed native species hedgerows within the Site result in the overall loss being small.
45. The client has been provided with a copy of the Biodiversity Metric 3.0 Calculation Tool Excel spreadsheet. This can be made available for review if required.

Barnsley Road, Goldthorpe

Headline Results

Return to results menu

On-site baseline	Habitat units	2.68
	Hedgerow units	1.13
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	1.49
	Hedgerow units	1.11
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	Habitat units	-44.24%
	Hedgerow units	-2.15%
	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	-1.19
	Hedgerow units	-0.02
	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	-44.24%
	Hedgerow units	-2.15%
	River units	0.00%

References

DEFRA (2021) Biodiversity Metric 3.0 Auditing and accounting for biodiversity
Calculation tool

DEFRA (2021) Biodiversity Metric 3.0 Technical Supplement

DEFRA (2021) Biodiversity Metric 3.0 User Guide

Hedgerows Regulations 1997
<<http://www.legislation.gov.uk/uksi/1997/1160/regulation/1/made> viewed
on 08.12.2021

Defra (2007) Hedgerow Survey Handbook – A Standard Procedure for Local
Surveys in the UK (2nd Edition).

Appendix 1 List of species recorded

bird's-foot trefoil	<i>Lotus corniculatus</i>
black medick	<i>Medicago lupulina</i>
blackthorn	<i>Prunus spinosa</i>
bramble	<i>Rubus fruticosus</i> agg.
broadleaf plantain	<i>Plantago major</i>
broad-leaved dock	<i>Rumex obtusifolium</i>
broad-leaved willowherb	<i>Epilobium montanum</i>
buddleja	<i>Buddleja davidii</i>
cleavers	<i>Galium aparine</i>
cock's-foot	<i>Dactylis glomerata</i>
common nettle	<i>Urtica dioica</i>
cow parsley	<i>Anthriscus sylvestris</i>
creeping buttercup	<i>Ranunculus repens</i>
creeping thistle	<i>Cirsium arvense</i>
dandelion	<i>Taraxacum officinale</i> agg.
dog rose	<i>Rosa canina</i>
false oat-grass	<i>Arrhenatherum elatius</i>
field horsetail	<i>Equisetum arvense</i>
goat willow	<i>Salix caprea</i>
hawthorn	<i>Crataegus monogyna</i>
mugwort	<i>Artemisia vulgaris</i>
perennial ryegrass	<i>Lolium perenne</i>
poison hemlock	<i>Conium maculatum</i>
ragwort	<i>Senecio jacobaea</i>
red fescue	<i>Festuca rubra</i>
ribwort plantain	<i>Plantago lanceolata</i>
rosebay willowherb	<i>Chamaenerion angustifolium</i>
silver birch	<i>Betula pendula</i>
spear thistle	<i>Cirsium vulgare</i>
sycamore	<i>Acer pseudoplatanus</i>

teasel	<i>Dipsacus fullonum</i>
viper's bugloss	<i>Echium vulgare</i>
wild cherry	<i>Prunus avium</i>
Yorkshire fog	<i>Holcus lanatus</i>