



The Thomas Family and Bloor Homes Limited

**Land at Newlands Farm, Old Wokingham Road, Wokingham –  
Proposed SANG**

**ECOLOGY TECHNICAL NOTE –  
BIODIVERSITY NET GAIN CALCULATIONS**

December 2023

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## 1.0 INTRODUCTION & METHODOLOGY

### Introduction

- 1.1 The following report has been prepared by FPCR Environment and Design Ltd. (FPCR) on behalf of the Thomas family and Bloor Homes Limited and provides initial biodiversity net gain calculations for a proposed SANG on land at Pinewood, Wokingham.

### Methodology

- 1.2 National Planning Policy Framework 2023 (Paragraph 174) recommends that “*planning policies and decisions should.... minimise impacts on and provide net gains for biodiversity.*” However, the government is seeking to mandate biodiversity net gain across all future developments in England, with the Environment Bill used to make the statutory changes necessary to implement mandatory net gain. The Environment Bill was passed in November 2021 and Part 6 of the Act relating to biodiversity and biodiversity net gain is anticipated to be mandated by January 2024
- 1.3 To assess whether or not the proposals are capable of delivering a biodiversity gain, the Department for Environment, Food and Rural Affairs (DEFRA) Biodiversity Impact Assessment Calculator v4 was used. This is a transparent way to calculate the biodiversity value of the habitats and hedgerows on a site, before (based on the extended phase 1 habitat mapping) and after (based on the site masterplan) development. It is a proxy measure to determine if the development will result in an on-site habitat biodiversity net loss or gain.
- 1.4 Results are discussed in line with the SANG Framework Plan produced for the Site (**Appendix A**).
- 1.5 This submission does provide the principles which can be applied at the detailed designed stage and will be subject of a planning condition for the submission of an ecological management plan and detailed biodiversity net gain plan.

### Dual Purpose – SANG Provision and Biodiversity Net Gain (BNG)

- 1.6 The Site is to serve two purposes; to provide a SANG and to provide additional BNG units over and above those required to create a suitable SANG, to be used for future development. Given this dual purpose, a two-stage approach to the biodiversity net gain assessment and calculation is necessary.
- 1.7 The first stage of the assessment considers the habitat value of the habitats necessary to create the semi-natural environment necessary to satisfy the principles of SANG.
- 1.8 The second stage of the assessment considers the potential uplift to the habitats forming the SANG area. This second stage uplift provides the biodiversity net gain for the Site.
- 1.9 Where SANGs are proposed, a two staged approach to biodiversity net gain is necessary to avoid significant over provision of ecological mitigation. The approach taken to this application follows the Natural England and DEFRA advice to Local Authorities (LAs) this approach is advocated by the ‘Local Government Association Planning Advisory Service (PAS)’<sup>1</sup>. This advice states:

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<sup>1</sup> <https://www.local.gov.uk/pas/topics/environment/biodiversity-net-gain-local-authorities/biodiversity-net-gain-faqs> (Accessed on 26.07.2023).

*'The current position is that it is possible to use sites delivering nutrient neutrality/SANG/GCN habitat to also deliver biodiversity net gain, on the basis that:*

- *Delivery of the non-BNG outcomes via habitat creation/enhancement could contribute up to a point equivalent to no net loss of BNG (as calculated by the Biodiversity Metric) but not beyond – assuming they meet any other BNG requirements e.g. agreement type/duration etc.*
- *Additional habitat features created or enhanced on that same land beyond those delivered for the purpose of non-BNG outcomes could take you into positive BNG territory (again if measured and demonstrated using the metric) – assuming they meet any other BNG requirements e.g. agreement type/duration etc*
- *Good practice would be to illustrate BNG contributions derived from the above using a separate accounting line for transparency reasons. It is intended for this to be required in the biodiversity gain plan. Further details on this will be provided in the forthcoming BNG consultation.'*

- 1.10 The net gain proposals outlined in the following document follow the requirements of the above-mentioned guidance.

#### **Rivers and Streams - River Condition Assessment**

- 1.11 The River Condition Assessment (RCA) was completed by Vicky Fletcher BSc PhD ACIEEM who is experienced and accredited in conducting MoRPh field surveys. The field survey was undertaken on 6<sup>th</sup> October 2023, during low / normal flow conditions with weather conditions being cloudy with sunny intervals throughout the surveys. All surveys were undertaken working downstream. The desk top survey to determine river type (involving measuring the sinuosity and elevation of the watercourse) was undertaken on 9<sup>th</sup> October 2023.
- 1.12 Three watercourses within the site were surveyed as shown in **Figure 1**. Reach 1 had a single sub-reach surveyed, while Reach 2 and Reach 3 had two sub-reaches surveyed each.

## 2.0 RESULTS & DISCUSSION

### Existing Habitats/Site Baseline

- 2.1 The habitats recorded during the Extended Phase 1 Survey were arable land, improved (modified) grassland, scrub, woodland, treelines, ditches, water courses, hedgerows and individual trees.
- 2.2 Existing habitats are mapped in **Figure 2** and further details are provided within the Ecological Appraisal produced for the Site by FPCR in 2023<sup>2</sup>.

### Arable Land

- 2.3 The arable field parcels are planted with maize. Cropland is automatically assigned poor condition in the metric.

### Modified Grassland

- 2.4 The improved grassland on the Site meets the description criteria for 'modified grassland' in the UKHabs<sup>3</sup>.
- 2.5 Both grasslands are considered to be in poor condition as there are less than six species per square metre as shown in **Table 1**.

**Table 1. Condition Assessment Criteria for the Low Distinctiveness Grassland on Site**

Condition Assessment Criteria		G1	G2
1	There must be 6-8 species per m <sup>2</sup> . Note - if a grassland has 9 or more species per m <sup>2</sup> it should be classified as a moderate distinctiveness grassland habitat type. <b>NB - this criterion is non-negotiable for achieving moderate condition.</b>	Fail	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.	Fail	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.	Pass	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.	Pass	Pass
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Pass
6	Cover of bracken less than 20%.	Pass	Pass
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species <sup>1</sup> make up less than 5% of ground cover.	Pass	Pass
<b>Condition</b>		<b>Poor</b>	<b>Poor</b>
Passes 6 or 7 of 7 criteria including non-negotiable criterion 7- Good Passes 4 or 5 of 7 criteria; OR Passes 6 of 7 criteria excluding non-negotiable criterion 7- Moderate Passes 0, 1, 2 or 3 of 7 criteria-poor			

<sup>2</sup> FPCR 2023, *Land at Pinewood, Wokingham. Ecological Appraisal*. Produced for The Thompson Family & Bloor Homes Limited

<sup>3</sup> Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. 2020. UK Habitat Classification – Habitat Definitions V1.1 at <http://ukhab.org>

## Scrub

- 2.6 The scrub present along ditch 3 is bramble *Rubus fruticosus* agg. dominated. This is automatically assigned poor condition due to lack of diversity.

## Woodland

- 2.7 There are two woodlands within the Site. Both are considered to be in moderate condition as shown in **Table 2**.

**Table 2. Condition Assessment of the Woodlands on the Site**

Indicator		Good (3 points)	Mod. (2 points)	Poor (1 point)	W1	W2
1	Age distribution of trees	Three age classes present	Two age classes present	One age class present	2	2
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland <sup>2</sup>	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland	3	3
3	Invasive plant species	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species >10% cover	3	3
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel	3	3
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	<50% of canopy trees and <50% of understory shrubs are native	3	3
6	Open space within woodland	10 – 20% has areas of temporary open space, unless <10ha	21- 40% has areas of temporary open space	More than 40% has areas of temporary open space	1	1
7	Woodland regeneration	All three classes present; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland	2	2
8	Tree health	Tree mortality <10%, no pests or diseases and no crown dieback	11-25% mortality and/or crown dieback or low risk pest or disease present	> 25% tree mortality and or any high-risk pest or disease present	2	2
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community	1	2
10	Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots	2	2
11	Veteran trees	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland	1	1
12	Amount of deadwood	50% of all survey plots within the	25-50% of all survey plots within the	< 25% of all survey plots within the	3	2

Indicator		Good (3 points)	Mod. (2 points)	Poor (1 point)	W1	W2
		woodland parcel have standing deadwood, large dead branches/stems/stumps	woodland parcel have standing deadwood, large dead branches/stems and stumps	woodland parcel have standing deadwood, large dead branches/stems and stumps		
13	Woodland disturbance	No nutrient enrichment or damaged ground evident	< 1 hectare of nutrient enrichment across woodland area and/or < 20% damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground	1	1
<b>Score (out of 39)</b>					<b>27</b>	<b>27</b>
<b>Condition</b>					<b>Mod.</b>	<b>Mod.</b>
Total score >32 (33 to 39)			Good			
Total score 26 to 32			Moderate			
Total score <26 (13 to 25)			Poor			

### Treelines

2.8 There are four treelines within the Site. These are in moderate condition as shown in **Table 3**.

**Table 3. Condition Assessment of the Treelines on the Site**

Criteria		T1	T2	T3	T4
1	At least 70% of trees are native species.	Pass	Pass	Pass	Pass
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Fail	Pass	Fail	Fail
3	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	Pass	Pass	Pass	Pass
4	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice <sup>2</sup> .	Fail	Fail	Fail	Fail
5	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Pass	Pass	Pass	Pass
<b>Condition</b>		<b>Mod.</b>	<b>Mod.</b>	<b>Mod.</b>	<b>Mod.</b>
Passes 5 criteria		Good			
Passes 3 or 4 criteria		Moderate			
Passes 2 or fewer criteria		Poor			

### Hedgerows

2.9 There are two hedgerows on the Site. They are both classed as hedgerows with trees and H1 is in moderate condition and H2 in poor condition as shown in **Table 4**.

**Table 4. Condition Assessment of the Hedgerows on the Site**

Condition Assessment Criteria	H1	H2
<b>A1. Height</b> >1.5 m average along length	Pass	Fail
<b>A2. Width</b> >1.5 m average along length	Pass	Fail
<b>B1. Gap</b> Hedge base gap between ground and base of canopy 90% of length (unless 'line of trees')	Pass	Pass
<b>B2. Gap –</b> Hedge canopy continuity. Gaps make up <5 m	Fail	Fail
<b>C1. Undisturbed ground and perennial vegetation</b> >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least)	Fail	Pass
<b>C2. Undesirable perennial vegetation</b> Plant species indicative of nutrient enrichment of soils dominate	Fail	Fail
<b>D1. Invasive and neophyte species</b> >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	Pass
<b>D2. Current damage</b> >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Fail	Fail
<b>E1 Tree class</b> There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	Fail	N/A
<b>E2 Tree Health</b> At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Pass	N/A
<b>Condition</b>	<b>Mod.</b>	<b>Poor</b>
<b>With Trees</b> No more than 2 failures in total; AND No more than 1 in any functional group. Good No more than 5 failures in total; AND Does not fail both attributes in more than one functional group Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group Poor <b>Without Trees</b> No more than 2 failures in total; AND No more than 1 in any functional group. Good No more than 4 failures in total; AND Does not fail both attributes in more than one functional group Moderate Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group Poor		

**Individual trees**

2.10 There are three areas of individual trees present within the site. Area 1 is the group close to the entrance road (comprising 19 small, 82 medium and 3 large trees), Area 2 is an individual medium sized tree within the Site, and Area 3 is a small group of three medium sized trees within the site. All individual trees are in moderate condition as shown in **Table 5**.



Table 5. Condition Assessment of Individual Trees on the Site

Criteria		1	2	3
A	The tree is a native species (or at least 70% within the block are native species).	Pass	Pass	Pass
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Fail	Pass	Fail
C	The tree is mature (or more than 50% within the block are mature).	Pass	Pass	Pass
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Fail	Fail	Fail
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Fail	Pass	Pass
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Pass	Pass	Pass
<b>Condition</b>		<b>Mod.</b>	<b>Mod.</b>	<b>Mod.</b>
Passes 5 or 6 criteria		Good		
Passes 3 or 4 criteria		Moderate		
Passes 2 or fewer criteria		Poor		

## Ditches

- 2.11 There are three ditches within the Site as shown on **Figure 1**. All are in poor condition as shown in **Table 6**.

Table 6. Condition Assessment of Ditches on the Site

Criteria		1	2	3
A	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Fail	Fail	Fail
B	A range of emergent, submerged and floating-leaved plants are present. As a guide >10 species of emergent, floating or submerged plants present in a 20 m ditch length.	Fail	Fail	Fail
C	There is less than 10% cover of filamentous algae and or duckweed <i>Lemna</i> spp. (these are signs of eutrophication).	Pass	Pass	Pass
D	A fringe of aquatic marginal vegetation is present along more than 75% of the ditch.	Pass	Fail	Fail
E	Physical damage is evident along less than 5% of the ditch, with examples of damage including: excessive poaching, damage from machinery use or storage, or any other damaging management activities.	Fail	Fail	Fail
F	Sufficient water levels are maintained - as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.	Fail	Fail	Fail
G	Less than 10% of the ditch is heavily shaded.	Fail	Fail	Fail
H	There is an absence of non-native plant and animal species <sup>1</sup> .	Pass	Pass	Pass
<b>Condition</b>		<b>Poor</b>	<b>Poor</b>	<b>Poor</b>
Passes 8 criteria		Good		
Passes 6 or 7 criteria		Moderate		
Passes 5 or fewer criteria		Poor		

## River Condition Assessment

- 2.12 There are three flowing watercourses on the Site. All of these water courses were recorded as in fairly poor condition as shown in **Tables 7 to 11**. The indices result in a moderate condition, but the river shape numbers indicate these streams are overdeep thus reducing the category to ‘fairly poor’.

**Table 7. River Condition Assessment of Reach 1**

<b>Watercourse ID:</b>		Reach 1	
<b>Watercourse Baseline Condition:</b>		Fairly Poor	
<b>Is the Watercourse Overdeep?</b>		Yes	
<b>Condition Assessment Criteria</b>		<b>RCA Index Values</b>	
<b>RCA Index ID*</b>	<b>RCA Index Name</b>	<b>Baseline Score</b>	<b>Proposed Score</b>
<b>Bank Top</b>			
B1 (+)	Bank top vegetation structure	2	2
B2 (+)	Bank top tree feature richness	2	2
B3 (+)	Bank top water-related features	0	3
B4 (-)	Bank top NNIPS cover	0	0
B5 (-)	Bank top managed ground cover	-2	0
<b>Bank face</b>			
C1 (+)	Bank face riparian vegetation structure	1	2
C2 (+)	Bank face tree feature richness	2	2
C3 (+)	Bank face natural bank profile extent	2	2
C4 (+)	Bank face natural bank profile richness	3	3
C5 (+)	Bank face natural bank material	1	1
C6 (-)	Bank face bare sediment extent	1	1
C7 (-)	Bank face artificial bank profile extent	0	0
C8 (-)	Bank face reinforcement extent	0	0
C9 (-)	Bank face reinforcement material	0	0
C10 (-)	Bank face NNIPS cover	0	0
<b>Channel Margin</b>			
D1 (+)	Channel margin aquatic vegetation	0	0
D2 (+)	Channel margin aquatic morphotype	0	0
D3 (+)	Channel margin physical feature extent	0	0
D4 (+)	Channel margin physical feature	0	0
D5 (-)	Channel Margin artificial features	-1	0
<b>Channel Bed</b>			
E1 (+)	Channel aquatic Morphotype richness	0	0
E2 (+)	Channel bed tree features richness	3	3
E3 (+)	Channel bed hydraulic features richness	1	1
E4 (+)	Channel bed nature features richness	1	1
E5 (+)	Channel bed natural features richness	1	1

E6 (-)	Channel bed material richness	3	3
E7 (-)	Channel bed siltation	0	0
E8 (-)	Channel bed reinforcement extent	0	0
E9 (-)	Channel bed reinforcement severity	0	0
E10 (-)	Channel bed artificial features severity	-2	0
E11 (-)	Channel bed NNIPS extent	0	0
E12 (-)	Channel bed filamentous algae extent	0	0
<b>Summary Description of Watercourse:</b>			
Over-deep watercourse with a baseline condition of 'fairly poor'. Poor riparian vegetation cover and marginal vegetation cover and artificial features within the channel margin and bed. Lack of non-native, invasive species, and no filamentous algae.			

Table 8. River Condition Assessment of Reach 2, Sub-reach 1

<b>Watercourse ID:</b>		Reach 2 Sub-reach 1	
<b>Watercourse Baseline Condition:</b>		Fairly Poor	
<b>Is the Watercourse Overdeep?</b>		Yes	
<b>Condition Assessment Criteria</b>		<b>RCA Index Values</b>	
<b>RCA Index ID*</b>	<b>RCA Index Name</b>	<b>Baseline Score</b>	<b>Proposed Score</b>
<b>Bank Top</b>			
B1 (+)	Bank top vegetation structure	2	2
B2 (+)	Bank top tree feature richness	2	2
B3 (+)	Bank top water-related features	0	0
B4 (-)	Bank top NNIPS cover	0	0
B5 (-)	Bank top managed ground cover	-3	0
<b>Bank face</b>			
C1 (+)	Bank face riparian vegetation structure	2	2
C2 (+)	Bank face tree feature richness	2	2
C3 (+)	Bank face natural bank profile extent	2	2
C4 (+)	Bank face natural bank profile richness	1	1
C5 (+)	Bank face natural bank material	1	1
C6 (-)	Bank face bare sediment extent	3	3
C7 (-)	Bank face artificial bank profile extent	-2	0
C8 (-)	Bank face reinforcement extent	0	0
C9 (-)	Bank face reinforcement material	0	0
C10 (-)	Bank face NNIPS cover	0	0
<b>Channel Margin</b>			
D1 (+)	Channel margin aquatic vegetation	0	0
D2 (+)	Channel margin aquatic morphotype	0	0
D3 (+)	Channel margin physical feature extent	1	1
D4 (+)	Channel margin physical feature	1	1
D5 (-)	Channel Margin artificial features	-1	0
<b>Channel Bed</b>			

E1 (+)	Channel aquatic Morphotype richness	0	0
E2 (+)	Channel bed tree features richness	3	3
E3 (+)	Channel bed hydraulic features richness	1	1
E4 (+)	Channel bed nature features richness	2	2
E5 (+)	Channel bed natural features richness	1	1
E6 (-)	Channel bed material richness	2	2
E7 (-)	Channel bed siltation	0	0
E8 (-)	Channel bed reinforcement extent	0	0
E9 (-)	Channel bed reinforcement severity	0	0
E10 (-)	Channel bed artificial features severity	-2	0
E11 (-)	Channel bed NNIPS extent	0	0
E12 (-)	Channel bed filamentous algae extent	0	0
<b>Summary Description of Watercourse:</b>			
Over-deep watercourse with a baseline condition of 'fairly poor'. Poor marginal vegetation cover and some riparian vegetation cover. Artificial feature(s) within the channel bed and an artificial bank profile. Lack of non-native, invasive species, and no filamentous algae.			

Table 9. River Condition Assessment of Reach 2, Sub-reach 2

<b>Watercourse ID:</b>		Reach 2 Sub-reach 2	
<b>Watercourse Baseline Condition:</b>		Fairly poor	
<b>Is the Watercourse Overdeep?</b>		yes	
<b>Condition Assessment Criteria</b>		<b>RCA Index Values</b>	
<b>RCA Index ID*</b>	<b>RCA Index Name</b>	<b>Baseline Score</b>	<b>Proposed Score</b>
<b>Bank Top</b>			
B1 (+)	Bank top vegetation structure	2	2
B2 (+)	Bank top tree feature richness	2	2
B3 (+)	Bank top water-related features	3	3
B4 (-)	Bank top NNIPS cover	0	0
B5 (-)	Bank top managed ground cover	-2	-2
<b>Bank face</b>			
C1 (+)	Bank face riparian vegetation structure	2	2
C2 (+)	Bank face tree feature richness	2	2
C3 (+)	Bank face natural bank profile extent	3	3
C4 (+)	Bank face natural bank profile richness	3	3
C5 (+)	Bank face natural bank material	1	1
C6 (-)	Bank face bare sediment extent	1	1
C7 (-)	Bank face artificial bank profile extent	0	0
C8 (-)	Bank face reinforcement extent	0	0
C9 (-)	Bank face reinforcement material	0	0
C10 (-)	Bank face NNIPS cover	0	0
<b>Channel Margin</b>			
D1 (+)	Channel margin aquatic vegetation	1	1

D2 (+)	Channel margin aquatic morphotype	0	0
D3 (+)	Channel margin physical feature extent	0	0
D4 (+)	Channel margin physical feature	0	0
D5 (-)	Channel Margin artificial features	-1	-1
<b>Channel Bed</b>			
E1 (+)	Channel aquatic Morphotype richness	0	0
E2 (+)	Channel bed tree features richness	1	1
E3 (+)	Channel bed hydraulic features richness	1	1
E4 (+)	Channel bed nature features richness	0	0
E5 (+)	Channel bed natural features richness	0	0
E6 (-)	Channel bed material richness	2	2
E7 (-)	Channel bed siltation	0	0
E8 (-)	Channel bed reinforcement extent	0	0
E9 (-)	Channel bed reinforcement severity	0	0
E10 (-)	Channel bed artificial features severity	-2	-2
E11 (-)	Channel bed NNIPS extent	0	0
E12 (-)	Channel bed filamentous algae extent	0	0
<b>Summary Description of Watercourse:</b>			
Over-deep watercourse with a baseline condition of 'fairly poor'. Natural bank profile extent and richness and bank top water-related features. Artificial features within the channel margin and bed. Limited marginal vegetation and some riparian vegetation cover. Lack of non-native, invasive species, and no filamentous algae.			

**Table 10. River Condition Assessment of Reach 3, Sub-reach 1**

<b>Watercourse ID:</b>		Reach 3 Sub-reach 1	
<b>Watercourse Baseline Condition:</b>		Fairly poor	
<b>Is the Watercourse Overdeep?</b>		Yes	
<b>Condition Assessment Criteria</b>		<b>RCA Index Values</b>	
<b>RCA Index ID*</b>	<b>RCA Index Name</b>	<b>Baseline Score</b>	<b>Proposed Score</b>
<b>Bank Top</b>			
B1 (+)	Bank top vegetation structure	2	2
B2 (+)	Bank top tree feature richness	2	2
B3 (+)	Bank top water-related features	0	3
B4 (-)	Bank top NNIPS cover	-1	-1
B5 (-)	Bank top managed ground cover	-2	-2
<b>Bank face</b>			
C1 (+)	Bank face riparian vegetation structure	1	1
C2 (+)	Bank face tree feature richness	2	2
C3 (+)	Bank face natural bank profile extent	3	3
C4 (+)	Bank face natural bank profile richness	2	2
C5 (+)	Bank face natural bank material	1	1
C6 (-)	Bank face bare sediment extent	1	1

C7 (-)	Bank face artificial bank profile extent	0	0
C8 (-)	Bank face reinforcement extent	0	0
C9 (-)	Bank face reinforcement material	0	0
C10 (-)	Bank face NNIPS cover	-1	-1
<b>Channel Margin</b>			
D1 (+)	Channel margin aquatic vegetation	0	0
D2 (+)	Channel margin aquatic morphotype	0	0
D3 (+)	Channel margin physical feature extent	1	1
D4 (+)	Channel margin physical feature	1	1
D5 (-)	Channel Margin artificial features	-1	0
<b>Channel Bed</b>			
E1 (+)	Channel aquatic Morphotype richness	0	0
E2 (+)	Channel bed tree features richness	2	2
E3 (+)	Channel bed hydraulic features richness	2	2
E4 (+)	Channel bed nature features richness	1	1
E5 (+)	Channel bed natural features richness	1	1
E6 (-)	Channel bed material richness	2	2
E7 (-)	Channel bed siltation	-2	-2
E8 (-)	Channel bed reinforcement extent	0	0
E9 (-)	Channel bed reinforcement severity	0	0
E10 (-)	Channel bed artificial features severity	0	0
E11 (-)	Channel bed NNIPS extent	0	0
E12 (-)	Channel bed filamentous algae extent	-4	-4
<b>Summary Description of Watercourse:</b>			
Over-deep watercourse with a baseline condition of 'fairly poor'. Natural bank profile extent and richness and bank top water-related features. Artificial features within the channel margin and bed. Limited marginal vegetation and some riparian vegetation cover with a small amounts of non-native, invasive species. Large extent of filamentous algae.			

**Table 11. River Condition Assessment of Reach 3, Sub-reach 2**

<b>Watercourse ID:</b>		Reach 3 Sub-reach 2	
<b>Watercourse Baseline Condition:</b>		Fairly poor	
<b>Is the Watercourse Overdeep?</b>		Yes	
<b>Condition Assessment Criteria</b>		<b>RCA Index Values</b>	
<b>RCA Index ID*</b>	<b>RCA Index Name</b>	<b>Baseline Score</b>	<b>Proposed Score</b>
<b>Bank Top</b>			
B1 (+)	Bank top vegetation structure	1	1
B2 (+)	Bank top tree feature richness	3	3
B3 (+)	Bank top water-related features	0	3
B4 (-)	Bank top NNIPS cover	0	0
B5 (-)	Bank top managed ground cover	-2	-2
<b>Bank face</b>			

C1 (+)	Bank face riparian vegetation structure	1	1
C2 (+)	Bank face tree feature richness	3	3
C3 (+)	Bank face natural bank profile extent	3	3
C4 (+)	Bank face natural bank profile richness	3	3
C5 (+)	Bank face natural bank material	1	1
C6 (-)	Bank face bare sediment extent	1	1
C7 (-)	Bank face artificial bank profile extent	0	0
C8 (-)	Bank face reinforcement extent	0	0
C9 (-)	Bank face reinforcement material	0	0
C10 (-)	Bank face NNIPS cover	0	0
<b>Channel Margin</b>			
D1 (+)	Channel margin aquatic vegetation	0	0
D2 (+)	Channel margin aquatic morphotype	0	0
D3 (+)	Channel margin physical feature extent	1	1
D4 (+)	Channel margin physical feature	1	1
D5 (-)	Channel Margin artificial features	-1	0
<b>Channel Bed</b>			
E1 (+)	Channel aquatic Morphotype richness	0	0
E2 (+)	Channel bed tree features richness	2	2
E3 (+)	Channel bed hydraulic features richness	1	1
E4 (+)	Channel bed nature features richness	0	0
E5 (+)	Channel bed natural features richness	0	0
E6 (-)	Channel bed material richness	2	2
E7 (-)	Channel bed siltation	-2	-2
E8 (-)	Channel bed reinforcement extent	0	0
E9 (-)	Channel bed reinforcement severity	0	0
E10 (-)	Channel bed artificial features severity	0	0
E11 (-)	Channel bed NNIPS extent	0	0
E12 (-)	Channel bed filamentous algae extent	-4	-4
<b>Summary Description of Watercourse:</b>			
Over-deep watercourse with a baseline condition of 'fairly poor'. Good natural bank face profile extent and richness. Limited bank-top vegetation and riparian vegetation structure and no marginal aquatic vegetation. No non-native, invasive species and a large extent of filamentous algae.			

### Site Baseline Value

2.13 These give the Site a value of:

- **77.37 habitat units;**
- **3.19 hedgerow units;** and
- **15.59 river units.**

## Lost Habitats

- 2.14 As stage 2 is the potential uplift of the habitats created or retained in stage 1, the habitat losses are purely resulting from stage 1.

## Losses and Habitat Values

- 2.15 Paragraph 180 of the NPPF states:

*When determining planning applications, local planning authorities should apply the following principles:*

*a) If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

- 2.16 It then goes on to state in section b and c of this paragraph:

*b) Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland or ancient and veteran trees) should be refused unless there are wholly exceptional reasons and a suitable compensation strategy exists;*

*c) Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*

- 2.17 The Site will retain all of the most ecologically valuable habitats; the woodland, hedgerows and ditches. A majority of the mature trees will be retained with the exception of the 14 medium sized that will be removed to facilitate access.

- 2.18 Losses are limited to the arable land and to the modified grassland under the new woodland, the new wetland area, the new scrub areas and under the primary footpaths. This grassland has limited botanical diversity and high management levels. This habitat is not irreplaceable habitat, and the proposed SANG design will provide habitats of significantly improved ecological value.

- 2.19 Given the above the proposals comply with the requirements of the mitigation hierarchy (Paragraph. 180(a)). Such compliance is required when the principle of the biodiversity net gain are being applied.

- 2.20 From an ecological perspective, the loss of these habitats will not result in significant effects to biodiversity either locally or on a regional basis and the proposals fully mitigated the effects of the losses.

## Proposed Habitats

- 2.21 Proposed Habitats for the SANG are shown on **Figure 3**.

### Stage 1: SANG Creation

- 2.22 Stage one of the process includes the creation of a SANG.

- 2.23 The habitats proposed for the SANG are shown in the SANG Framework Plan (**Appendix A**) and on **Figure 3** and include grassland, native scrub, native wet woodland and ponds.



*Grassland*

- 2.24 The grassland within a SANG can be a modified grassland. The fulfil the criteria of a SANG, it does not need to pass criteria 1 in **Table 1**. Therefore, this grassland will be in poor condition.
- 2.25 The grassland on the Site will either be existing grassland retained (4.3084 ha) or created modified grassland in poor condition where arable land was present (5.1564 ha). To create the natural feel, criteria 2, 4 and 5 should be passed but without the requirement for criteria 1, this grassland is set to poor.

*Scrub*

- 2.26 Native scrub areas will be created in a habitat mosaic throughout the grassland in the east of the Site to create structural and species diversity as well as additional ‘ecotones’ between the habitat types. Further details of the habitat creation and long-term management will be provided at the detailed design stage.
- 2.27 To satisfy the requirement of the SANG, the scrub will meet criteria 1 as a good species mix would be used, also criteria 4 and 5 will be passed due to the nature of the planting and management of the grass surrounding it for the semi natural feel of the SANG. Therefore, as shown in **Table 12** it would be in moderate condition. The area has been calculated as 2.4445 ha.

**Table 12. Required Habitat Condition Assessment of Scrub for the SANG**

Criteria		SANG
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Pass
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Fail
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species <sup>1</sup> make up less than 5% of ground cover.	Fail
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Pass
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Pass
<b>Condition</b>		<b>Moderate</b>
Passes 5 of 5 criteria		Good
Passes 3 or 4 of 5 criteria		Moderate
Passes 0, 1 or 2 of 5 criteria		Poor

*Wet Woodland*

- 2.28 The newly created wet woodland has been set to poor condition. To be suitable for the SANG, they need to score 1 for all criteria in **Table 2** except criteria 4, 5, 6 and 8 where a score of 3 would be ideal. This is because the woodland should be planted with a good range of species in the first place and is primarily for screening purposes in a SANG and thus should not have too much open space and if trees are in poor health, this could reflect badly on the perception of the SANG by its users. Therefore, to reach a quality required for a SANG the woodland reach a

score of 21 which equates to poor condition. The area of created woodland has been calculated as 1.08 ha.

#### Ponds

- 2.29 To satisfy the criteria for a SANG the ponds only have to be a semi natural habitat and therefore have to fulfil criteria A, D and E. Criteria G should also be fulfilled as standard despite it not likely to impact the perception by users. This makes it in poor condition as shown in **Table 13**. The pond area has been calculated as 0.2215 ha.

**Table 13. Required Habitat Condition Assessment of Ponds for the SANG**

Criteria		SANG
A	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Pass
B	There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.	Fail
C	Less than 10% of the water surface is covered with duckweed <i>Lemna</i> spp. or filamentous algae.	Fail
D	The pond is not artificially connected to other waterbodies, e.g. agricultural ditches or artificial pipework.	Pass
E	Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams <sup>2</sup> , pumps or pipework.	Pass
F	There is an absence of listed non-native plant and animal species <sup>3</sup> .	Fail
G	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass
<b>Non woodland criteria</b>		
H	Emergent, submerged or floating plants (excluding duckweed) <sup>4</sup> cover at least 50% of the pond area which is less than 3 m deep.	Fail
I	The pond surface is no more than 50% shaded by adjacent trees and scrub.	Fail
<b>Condition</b>		<b>Poor</b>
Passes 9 criteria – poor Passes 6 to 8 criteria – moderate Passes 5 or fewer criteria - poor		

#### Urban Trees

- 2.30 A total of 143 standard trees (0.5822 ha) are proposed across the Site within the areas of scrub. These have been entered as small trees and are expected to reach moderate condition as shown in **Table 14**.

**Table 14. Expected Condition assessment criteria of new trees for the SANG**

Criteria		New Trees
A	The tree is a native species (or at least 70% within the block are native species).	Pass
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Pass
C	The tree is mature (or more than 50% within the block are mature).	Fail

Criteria		New Trees
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Fail
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Fail
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Pass
<b>Condition</b>		<b>Mod.</b>
Passes 5 or 6 criteria	Good	
Passes 3 or 4 criteria	Moderate	
Passes 2 or fewer criteria	Poor	

*Hedgerows*

2.31 It is considered likely that naturally, through the change in land use from arable to SANG, that H2 will be enhanced to moderate condition as shown in **Table 15**. It should be able to pass A1, A2 and D1 with the change in management. H1 is unlikely to change condition and remain as moderate.

**Table 15. Potential Uplift to the hedgerows through SANG Creation**

Condition Assessment Criteria	H1	H2
<b>A1. Height</b> >1.5 m average along length	Pass	Pass
<b>A2. Width</b> >1.5 m average along length	Pass	Pass
<b>B1. Gap</b> Hedge base gap between ground and base of canopy 90% of length (unless 'line of trees')	Fail	Pass
<b>B2. Gap –</b> Hedge canopy continuity. Gaps make up <5 m	Fail	Pass
<b>C1. Undisturbed ground and perennial vegetation</b> >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least)	Pass	Pass
<b>C2. Undesirable perennial vegetation</b> Plant species indicative of nutrient enrichment of soils dominate	Fail	Fail
<b>D1. Invasive and neophyte species</b> >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Pass	Pass
<b>D2. Current damage</b> >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Pass	Pass
<b>E1 Tree class</b> There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	Fail	N/A
<b>E2 Tree Health</b> At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Pass	N/A
<b>Condition</b>	<b>Mod.</b>	<b>Mod.</b>

Condition Assessment Criteria	H1	H2
<b>With Trees</b>		
No more than 2 failures in total; AND No more than 1 in any functional group.	Good	
No more than 5 failures in total; AND Does not fail both attributes in more than one functional group	Moderate	
Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group	Poor	
<b>Without Trees</b>		
No more than 2 failures in total; AND No more than 1 in any functional group.	Good	
No more than 4 failures in total; AND Does not fail both attributes in more than one functional group	Moderate	
Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group	Poor	

*Treelines*

- 2.32 The treelines will pass criteria 4 in **Table 3** through the enhancements already described. This, however, would not be sufficient for them to be good condition and thus, they remain as moderate condition.

*Ditches*

- 2.33 Ditches 1 and 2 are currently in arable land. This is considered to be major encroachment on both sides. This encroachment will be removed by the creation of a SANG. Therefore, these ditches have been inputted as lost and recreated with no encroachment as the habitats on their bank tops will now be semi natural.
- 2.34 Ditch D3 is already in pastureland and does not currently have encroachment and thus is retained.

*Watercourses*

Encroachment

- 2.35 Reach 2 is in arable land currently. This is considered to be major encroachment on both sides. This encroachment will be removed by the creation of a SANG. Therefore, this reach has been inputted as lost and recreated with no encroachment as the habitats on the bank tops will now be semi natural. Ditches 1 and 2 are also within the arable land and thus are inputted as lost and recreated with no encroachment.
- 2.36 Reach 1 and Reach 3 are in pastureland and do not currently have encroachment and thus are retained.

Bridges

- 2.37 Ditch 1 and two points of Reach 2 will have new footbridges installed as shown in **Appendix A**. These footbridges have been designed to minimise bank top impact and cause no in channel and no water flow impact. Therefore, these new crossing points would not impact any of the criteria in the condition assessment.
- 2.38 Therefore, Reach 1 is retained and Reach 2 is enhanced through removal of the arable encroachment. Similarly, Ditches 1 and 2 are enhanced through removal of arable encroachment. Ditch 3 is retained.

*Remaining Habitats*

- 2.39 The treelines can be retained ‘as is’ for the purposes of a SANG as they are semi natural habitats that form part of the SANG landscape.

**Stage 2: Proposed Enhancements to SANG Habitats for BNG Credits**

- 2.40 Stage 2 includes the uplift for these SANG habitats over and above that which is required for a SANG but still achievable with it’s purpose in mind. The habitats proposed for BNG are shown in **Figure 4**.

*Grassland*

- 2.41 The grassland within the SANG could be enhanced to an ‘other neutral grassland’ through scarification and over-sowing with an appropriate meadow mix. With an appropriate mowing and botanical monitoring regime, the grassland areas should be able to reach good condition as shown in **Table 16**. However, due to the public access, the condition is not certain and has been set to moderate as a precaution. The enhancement from modified grassland in poor condition (for the SANG) to ‘other neutral grassland’ in moderate condition will be used to achieve biodiversity net gain.

**Table 16. Potential Uplift to the Grasslands Within the SANG for Stage 2**

Criteria		Uplift
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. <b>NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.</b>	Pass
2	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Pass
<b>Additional Criteria for Non Acid types</b>		
6	There are greater than 9 species per metre squared. <b>NB - This criterion is essential for achieving good condition (non-acid grassland types only).</b>	Pass
<b>Condition</b>		<b>Good</b>
Passes 5 of 6 criteria, including essential criterion 1 and 6.		Good
Passes 3 or 4 of 6 criteria, including essential criterion 1.		Moderate
Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6		Poor

*Scrub*

- 2.42 It is assumed the scrub areas will reach good condition with appropriate management shown in **Table 17**. Therefore, the enhancement from moderate condition (for the SANG) to good condition will be used to achieve biodiversity net gain.

**Table 17. Potential Uplift to the Condition of the Scrub Within the SANG for Stage 2**

Criteria		Uplift
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Pass
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Pass
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species <sup>1</sup> make up less than 5% of ground cover.	Pass
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Pass
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Pass
<b>Condition</b>		<b>Good</b>
Passes 5 of 5 criteria		Good
Passes 3 or 4 of 5 criteria		Moderate
Passes 0, 1 or 2 of 5 criteria		Poor

*Woodland*

- 2.43 Within the 27 years (set as the time to achieve target condition), with appropriate management, the created woodland could score 2 (improved from 1) in criteria 1, 2, 7, 10, 12 and 13 in **Table 2** and score 3 (improved from 1) in criteria 3. This would enhance the score to 29, making it moderate condition. The enhancement from poor to moderate condition will be used to achieve biodiversity net gain.

*Ponds*

- 2.44 The ponds, with appropriate planting and subsequent management could pass all assessment criteria as shown in **Table 18** but due to the public access, and likelihood of dogs entering these water bodies, criteria F cannot be guaranteed and thus condition has been set to moderate. The enhancement from poor to moderate condition will be used to achieve biodiversity net gain.

**Table 18. Potential Uplift to the Condition of the Ponds Within the SANG for Stage 2**

Criteria		Uplift
A	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Pass
B	There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.	Pass
C	Less than 10% of the water surface is covered with duckweed <i>Lemna</i> spp. or filamentous algae.	Pass
D	The pond is not artificially connected to other waterbodies, e.g. agricultural ditches or artificial pipework.	Pass

Criteria		Uplift
E	Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams <sup>2</sup> , pumps or pipework.	Pass
F	There is an absence of listed non-native plant and animal species <sup>3</sup> .	Fail
G	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass
Non woodland criteria		
H	Emergent, submerged or floating plants (excluding duckweed) <sup>4</sup> cover at least 50% of the pond area which is less than 3 m deep.	Pass
I	The pond surface is no more than 50% shaded by adjacent trees and scrub.	Pass
<b>Condition</b>		<b>Moderate</b>
Passes 9 criteria – good Passes 6 to 8 criteria – moderate Passes 5 or fewer criteria - poor		

#### *Individual Trees*

- 2.45 No further trees will be created for biodiversity net gain purposes. Numbers and conditions remain as is for stage 1.

#### *Hedgerows*

- 2.46 The hedgerows, with appropriate management and gapping up of H1, could pass all assessment criteria, with the possible exception of C2 and E1, making them in good condition. This enhancement from moderate condition (for the SANG) to good condition will be used to achieve biodiversity net gain.

#### *Ditches and Water Courses*

##### Removal of bunds

- 2.47 Reach 3 will have bunds removed to allow flooding and over topping of banks and make the water course more natural within the floodplain. This will result in this reach becoming not over deep and will therefore automatically be enhanced from fairly poor to moderate condition.

##### Other Potential Enhancements

- 2.48 There are many other criteria in the River Condition Assessment that will be improved through creation of a SANG as shown in **Table 7 to 11**. The primary enhancement is the creation of wetlands and water features as well as increasing the diversity of vegetation types on the bank top.
- 2.49 Additionally, large wood could be used to create more in channel features and add to the diversity of these features within the water course and invasive species will be removed and controlled. These enhancements alone do not increase the scores by enough to achieve a higher condition band.

## Biodiversity Net Gain Calculations

### Stage 1: SANG Creation

2.50 The SANG will create:

- 5.16 ha modified grassland in poor condition;
- 0.22 ha ponds in poor condition;
- 1.08 ha wet woodland in poor condition;
- 2.44 ha mixed native scrub in moderate condition; and
- 143 individual small sized trees in moderate condition.

2.51 It will retain:

- 4.096 ha of modified grassland in poor condition;
- 1.3 ha wet woodland in moderate condition;
- 0.464 ha other woodland in moderate condition;
- Ditch 3 in poor condition;
- Reach 3 in 'fairly poor' condition;
- Hedgerow H1 in moderate condition;
- All treelines in moderate condition; and
- All but 14 trees in moderate condition.

2.52 It will enhance:

- H1 (0.346 km) to moderate condition;
- 0.317 ha bramble to mixed scrub in moderate condition;
- Ditch 1 and Ditch 2 will be 'recreated/enhanced' with no arable encroachment; and
- Watercourse Reach 2 will be 'recreated/enhanced' with no arable encroachment.

2.53 This, along with the habitats lost, results in a site value of:

- **87.54 habitat units;**
- **3.53 hedgerow units;** and
- **17.91 water course units.**

2.54 This is a gain of:

- **10.17 habitat units** (13.15%);
- **0.34 hedgerow units** (10.55%); and
- **2.32 water course units** (14.89%).



## Stage 2: Proposed Enhancements to SANG Habitats for BNG Credits

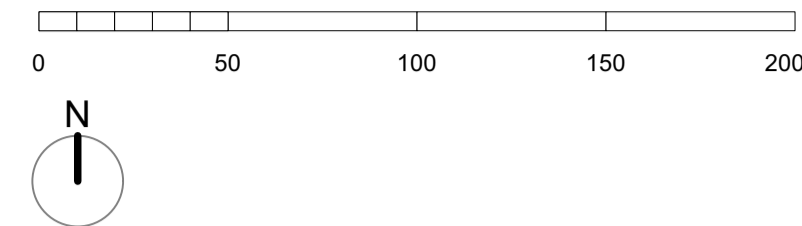
- 2.55 To enhance these habitats for additional BNG credits on the Site, the development will enhance:
- 9.47 ha of modified grassland in poor condition (retained and created for SANG) to neutral grassland in moderate condition;
  - 0.22 ha ponds in poor condition to moderate condition;
  - 2.757 ha mixed native scrub (newly created or enhanced bramble scrub for SANG) in moderate condition to good condition;
  - 1.08 ha of wet woodland in poor condition to moderate condition;
  - All hedgerows in moderate condition to good condition; and
  - Reach 3 will be enhanced to moderate condition through bund removal.
- 2.56 This results in a site value of:
- **137.40 habitat units;**
  - **4.25 hedgerow units;** and
  - **19.83 Water course units.**
- 2.57 This is a gain of:
- **60.04 habitat units (78.5%);**
  - **1.06 hedgerow units (33.08%);** and
  - **4.24 water course units (27.22%).**
- 2.58 Therefore, the available BNG credits (minus those achieved through SANG creation) are:
- **49.87 habitat units;**
  - **0.72 hedgerow units;** and
  - **1.92 water course units.**

## 3.0 CONCLUSION

- 3.1 These calculations show that the Site is capable of providing habitats suitable for use as a SANG that can also be enhanced further to enable the development to achieve additional biodiversity net gain units.
- 3.2 The additional biodiversity net gain units are to be made available to sell.
- 3.3 A detailed Landscape and Ecology Management Plan (LEMP) which details how the habitats will be managed over a 30 year period to ensure they achieve the conditions set out here, has been produced to go alongside this report<sup>4</sup>.

<sup>4</sup> FPCR 2023, Land at Newlands Farm, Old Wokingham Road, Wokingham – Proposed SANG. Landscape and Ecology Management Plan. Produced for The Thomas Family & Bloor Homes Limited












- KEY**
- Site Boundary (16.37 ha)
  - Main site vehicular access point
  - Existing trees
  - Existing Wet woodland within site
  - Wet woodland planting
  - Dry woodland scrub planting
  - Flower rich grassland - dry seed mix
  - Flower rich grassland - wet seed mix
  - Dry Woodland tree planting
  - Wet Woodland tree planting
  - Ponds with wetland planting (see typical detail for excavation)
  - Scrapes with wet grass seed (see typical detail for excavation)
  - Carpark (see detailed proposal)
  - View corridor
  - Floodzone
  - Spoil area
  - Bund removal
  - Boardwalk path route - 2m wide
  - Self-binding gravel / hoggin 2m wide with 1m wide mown edges
  - Mown grass paths 1.5m wide
  - Existing track
  - Existing footbridges replaced
  - Proposed new footbridges
  - Public Right Of Way (PROW)
  - Existing Contours
  - Close Board Fence
  - Post and wire with stock proof fence
  - Car Park Fence Gates
  - Pedestrian path East
  - Paving across track
  - Agriculture access
  - Mown Grass path
  - Areas of Existing vegetation to be removed (refer to Arboricultural Survey)

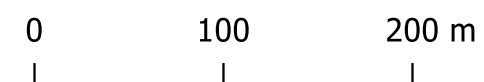
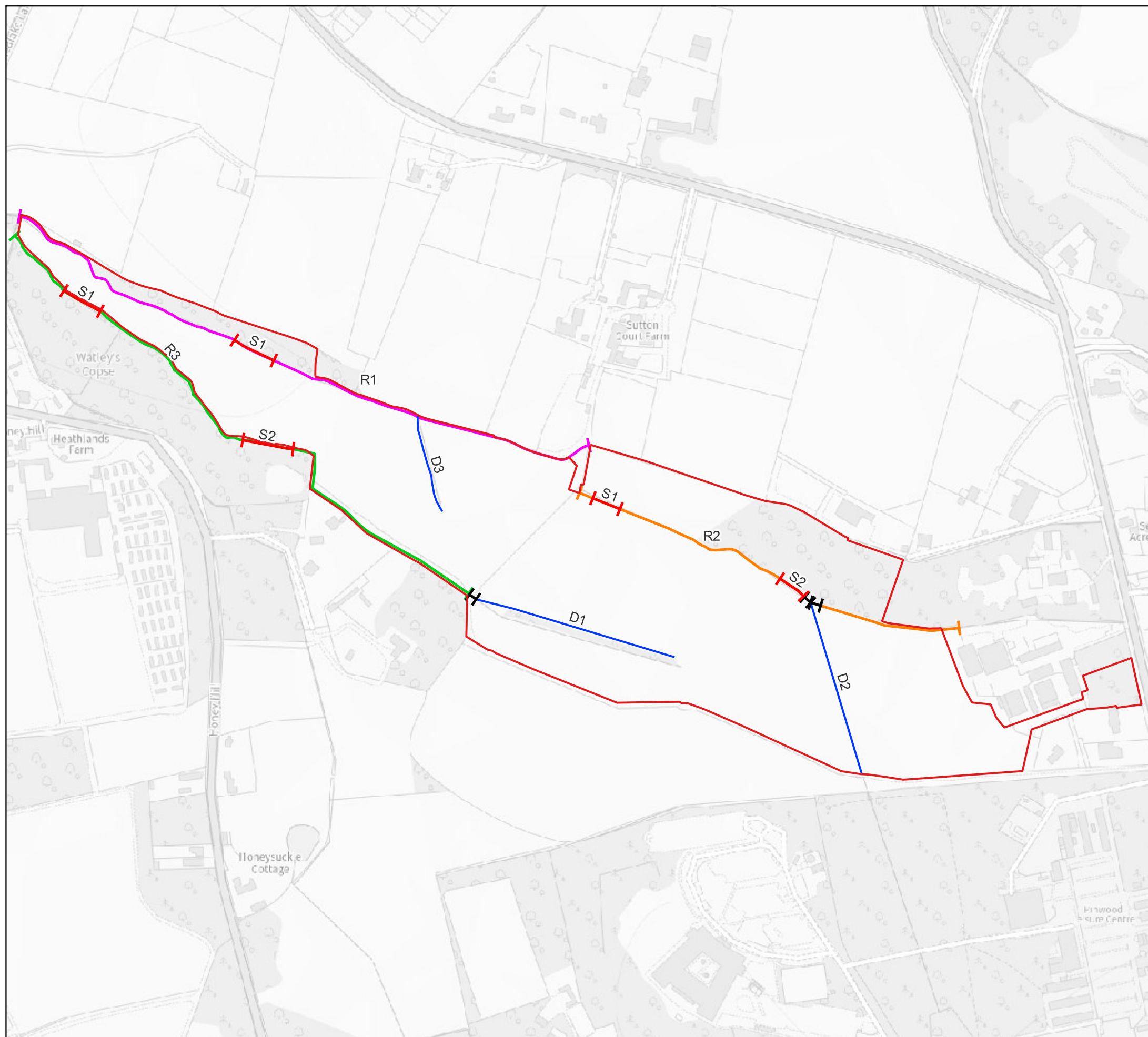


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### Key

-  Site Boundary
-  Culvert
-  Ditch
-  Subreach
-  Reach 1
-  Reach 2
-  Reach 3



client  
The Thomas Family & Bloor Homes  
Limited  
project  
Land at Newland Farms, old  
Wokingham Road, Wokingham  
drawing title  
RIVER CONDITION ASSESSMENT PLAN



scale @ A3  
1:4000  
drawing / figure number  
**Figure 1**

drawn  
DL / VF  
issue date  
19/12/2023  
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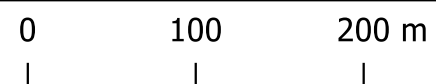
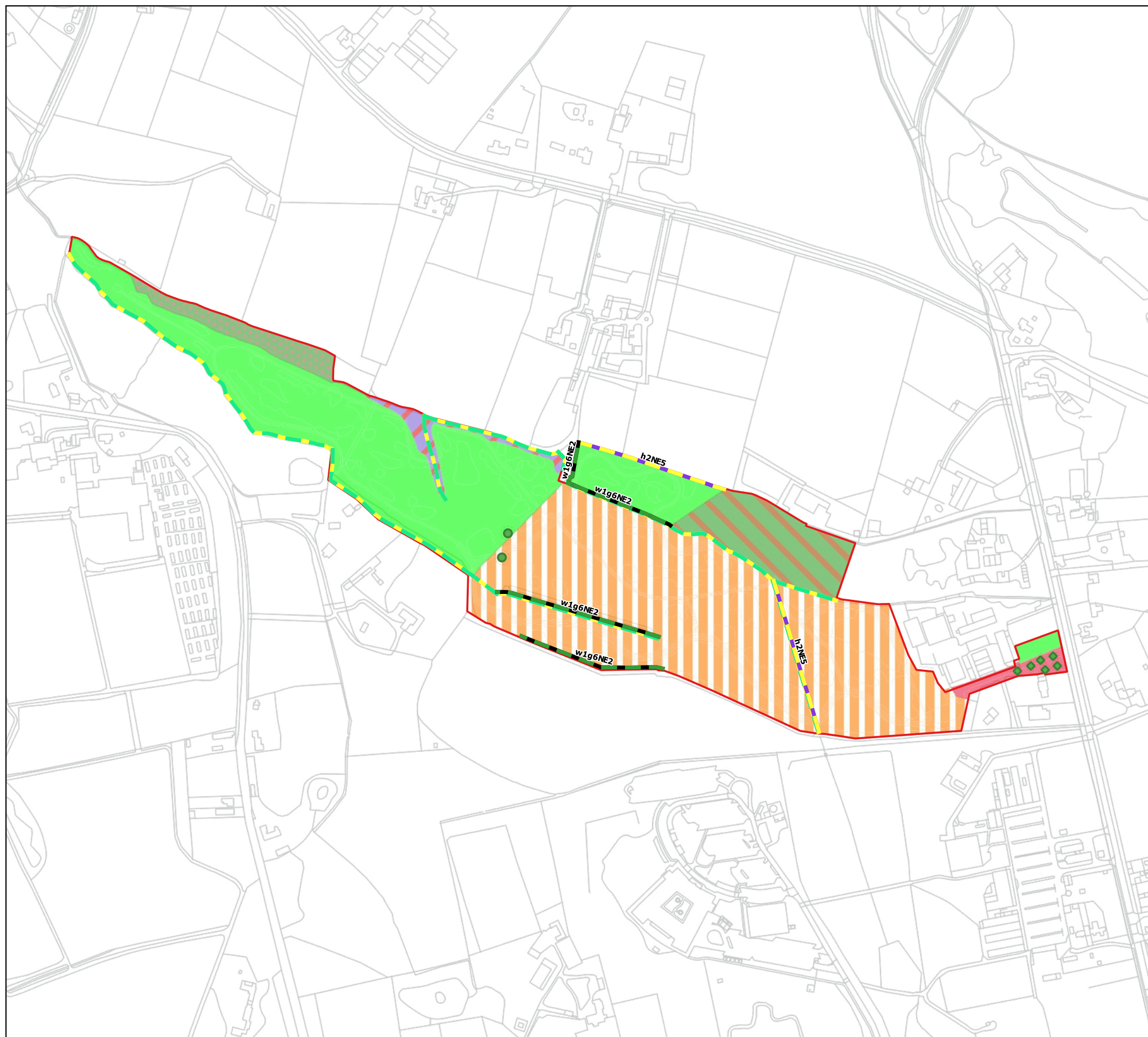
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### Key

- Site Boundary**
- Baseline Habitats**
- Mixed scrub**
- Modified grassland**
- Other woodland; broadleaved**
- Temporary grass and clover leys**
- Vacant or derelict land**
- Wet woodland**
- Baseline Hedgerows**
- Line of trees**
- Native hedgerow**
- Watercourse Baseline**
- Watercourse**
- Baseline Trees**
- ◆ **Small urban tree**
- **Small rural tree**



client  
The Thomas Family & Bloor Homes Limited

project  
Land at Newlands Farm, Wokingham

drawing title  
**BASELINE HABITATS**

scale @ A3  
1:4500

drawn  
LG / VF

issue date  
19/12/2023

drawing / figure number  
**Figure 2**

rev  
-



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## Key

 Site Boundary

### Proposed Habitats

 Developed land; sealed surface

 Mixed scrub

 Modified grassland

 Other woodland; broadleaved

 Ponds (non-priority habitat)

 Wet woodland

### Proposed Hedgerows

 Line of trees

 Native hedgerow

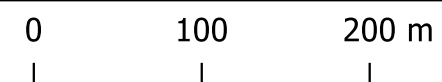
### Proposed Watercourse

 Watercourse

### Proposed Trees

 Small urban tree

 Small rural tree





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## Key

 Site Boundary

### Proposed Habitats

 Developed land; sealed surface

 Mixed scrub

 Modified grassland

 Other neutral grassland

 Other woodland; broadleaved

 Ponds (non-priority habitat)

 Wet woodland

### Proposed Hedgerows

 Line of trees

 Native hedgerow

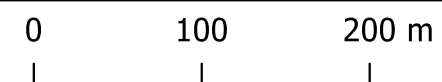
### Proposed Watercourse

 Watercourse

### Proposed Trees

 Small urban tree

 Small rural tree



client  
The Thomas Family & Bloor Homes Limited

project  
Land at Newlands Farm, Wokingham

drawing title  
**PROPOSED HABITATS FOR BNG CREDITS**

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drawing / figure number  
**Figure 4**

rev  
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