

BIODIVERSITY NET GAIN DESIGN STAGE ASSESSMENT

MAY 2022

**Ormskirk Road
Knowlsey
Liverpool
L34 9EY**

**U R B A N
G R E E N**

QUALITY MANAGEMENT

Project No.:	UG45			
Project:	Ormskirk Road			
Location:	Ormskirk Road, Knowsley, Liverpool, L34 9EY			
Title:	Biodiversity Net Gain Design Stage Assessment			
Document Type:	BNG	Issue No.:	01	
Date:	24/03/2022			
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Revision Status:				
Rev:	Date:	Issue/Purpose/Comment:	Prepared:	Checked:
02	29/03/2022	Minor update to layout	MB	JH
03	07/04/2022	Update following client comment	MB	JH
04	03/05/2022	Final updates prior to issue	MB	JH
05	13/05/2022	Updates following client comment	SB	MB
06	30/05/2022	Updates following landscape changes	SB	MB

NON-TECHNICAL EXECUTIVE SUMMARY

This Biodiversity Net Gain Assessment has been prepared by Urban Green on behalf of Caddick Developments who are proposing to develop land at Ormskirk Road, Knowsley (hereafter referred to as “the site”). The proposals include the development of three industrial units, with associated hard and soft landscaping, including an attenuation pond.

Urban Green have been appointed to complete a Biodiversity Net Gain Design Stage Assessment in order to assess the change in value to the environment provided by the proposed development.

The Assessment was conducted using the Biodiversity Metric 3.0 to calculate the pre-and post-development biodiversity habitat units of the site for the proposed development. The results of this calculation are summarised in the following table:

	On-site baseline	Habitat Unit Change				On-site post development	Net change in Biodiversity	
		Retained	Lost	Enhanced	Created		Habitat units	%
Area Units	15.86	-	-12.38	+3.48	+14.44	21.84	+5.98	+37.71%
Linear Units	2.57	2.24	-0.33	-	+7.28	9.52	+6.95	+270.55%
River Units	0.24	0.24	-	-	-	0.24	0.00	0.00%

Overall, the development is assessed to provide a gain in value to the environment of 5.98 habitat units, a change of +37.71% which is line with the relevant National Planning Policy Framework and Local Planning Policies.

However, this site does not satisfy the trading rules, due to the loss of woodland, a medium distinctiveness habitat, of which no similar habitat is to be created on site. The site does provide a greater variety of habitats than was present on site pre-development and tree planting is proposed across the site to ensure that overall tree cover is maintained.

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Introduction

1.1 Background to the Scheme

This Biodiversity Net Gain Assessment has been prepared by Urban Green on behalf of Caddick Developments who are proposing to develop land at Ormskirk Road, Knowsley (hereafter referred to as “the site”). The proposals include the development of three industrial units, with associated hard and soft landscaping, including an attenuation pond.

Urban Green have been appointed to complete a Biodiversity Net Gain Design Stage Assessment in order to assess the change in value to the environment provided by the proposed development.

The author of the report is Senior Ecologist Mark Blacker, ACIEEM, MSc. Mark has experience providing ecological consulting services including Biodiversity Net Gain assessment for a range of development schemes across the UK, including residential, commercial, and large infrastructure schemes. Mark is a Suitably Qualified Ecologist to conduct Biodiversity Net Gain as defined within British Standard: BS 8683:2021.

1.2 Site Context

The site is located at National Grid Reference SJ 43756 96752 and comprises a total area of approximately 6ha (see Figure 1).



Figure 1 – Site Extent

The site is located upon the edge of an industrial estate approximately 450m north of Knowsley, and 10km to the north-east of Liverpool. The industrial estate is located within the urban rural fringe, with agricultural fields to the east and south, and industrial units to the west. Shared land use lies to the

north, comprising both industrial and agricultural land. The A580 major road directly borders the site to the north beyond which lies a small area of woodland, whilst Ormskirk Road and the B5202 road directly borders the site to the south and west.

1.3 Purpose of this Report

This report has been produced to document the methods, results and conclusions of a BNG Assessment that was undertaken on site. The advice herein is based on both desk and field-based studies and intends to fulfil the following purposes:

- Ensure the core principles of Biodiversity Net Gain including the mitigation hierarchy are applied;
- Identify the baseline habitats present on site (pre-development), assess the condition and provide an indication of the ecological value of those habitats;
- Identify the post development habitats present on site, assess the possible target condition and provide an indication of the likely importance of those habitats;
- Calculate the overall change in biodiversity score from pre- to post-development habitats (measured as habitat units);

1.4 Planning Context

BNG means leaving biodiversity in a better state than it was before. As part of the Government's 25 Year Environment Plan, this requirement is being introduced and mandated for all developments. National planning policy and several Local Plans already require developments to deliver BNG.

Currently the National Planning Policy Framework (NPPF3, 2021) details:

Paragraph 174 of the NPPF states:

Planning policies and decisions should contribute to and enhance the natural and local environment by:

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

Knowsley Council Local Plan Policy SD1 Sustainable Development

1) When considering development proposals, a positive approach will be taken, which reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. Work will be undertaken proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.

2) Planning applications that accord with the policies in this Local Plan (and any relevant policies in Neighbourhood Plans) will be approved without delay, unless material considerations indicate otherwise.

3) Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then permission will be granted unless material considerations indicate otherwise – taking into account whether:

- Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or
- Specific policies in that Framework indicate that development should be restricted.

Knowsley Council Local Plan Policy CS8 Green Infrastructure. Maintenance and Enhancement of Knowsley's Existing Green Infrastructure

1) Knowsley's existing Green Infrastructure and its beneficial functions will be protected, managed and/or enhanced, primarily to:

- Ensure more attractive and cleaner residential neighbourhoods;
- Sustain and promote biodiversity (including designated sites, priority habitats and protected and endangered species) in accordance with importance and contribution to ecological networks;
- Preserve the character and function of historic environments and valued landscapes;
- Mitigate the effects of climate change and flood risk;
- Mitigate air, water and noise pollution;
- Provide local opportunities for sport, recreation and allotments; and
- Provide sustainable transport linkages between residential neighbourhoods and easy access to employment and services.

2) To achieve the above, planning powers and other interventions will be used to:

- Protect and enhance strategically important areas of greenspace;
- Ensure an appropriate quantity and improved quality of locally important open spaces, including outdoor sports provision (and ancillary facilities of appropriate scale);
- Promote effective movement of wildlife through a network of strategic green links, by protecting, maintaining and improving existing and new open spaces, water courses (including water quality) and biodiversity assets;
- Protect, enhance and/or introduce biodiversity into existing areas of Green Infrastructure, through integration into the design of new development and public realm projects;
- Improve accessibility for communities to greenspace offering leisure and recreation opportunities;
- Protect and where possible improve green paths and cycleways linking residential areas, existing strategic areas of greenspace, employment locations, local community services and leisure facilities;
- Work in partnership with other districts and relevant bodies at a landscape scale to minimise the impact of development upon Knowsley's existing biodiversity and geological assets, and sustain the protection afforded to internationally important sites, including supporting habitat, for biodiversity outside of the borough; and

- Deliver new integrated and functional Green Infrastructure that helps to mitigate and adapt to climate change, such as sustainable drainage systems, carbon capture and storage, soft landscaping and green roofs.

2 Methods

2.1 Biodiversity Net Gain

Biodiversity Net Gain is defined as “development that leaves biodiversity in a better state than before”. This assessment was conducted using the Biodiversity Metric 3.0 from Natural England.

The Biodiversity Metric 3.0 uses habitat features as a proxy measure for capturing the value and importance of nature. The metric considers the size, ecological condition, distinctiveness, and location of habitats assessing ‘Area’, ‘Hedgerow’ and ‘River’ habitats units independently. The metric enables assessments to be made of the baseline and targeted post development biodiversity value of a site.

2.2 Good Practice Principles

To ensure holistic development that makes a lasting positive change to the site’s biodiversity the Good Practice Principles as detailed in Biodiversity Net Gain: Good Practice Principles for Development (Baker, et al., 2019). Key principles include:

- Following the ‘Mitigation Hierarchy’:
 - Avoid impacts on biodiversity
 - Minimise impacts on biodiversity
 - Compensate for biodiversity losses on site
 - Compensate for biodiversity loss off site
- Avoid irreplaceable habitats and losing biodiversity that cannot be offset elsewhere;
- Address risks including difficulty and time of habitat creation and enhancement;
- Make a measurable net gain contribution calculated with a suitable metric with limitation and assumptions clearly identified;
- Achieve the best outcome for biodiversity creating lasting long-term benefits that exceed current expectations;

2.3 Desk Study

A desk study was undertaken to provide information of habitat types, condition and strategic significance both on site and within the wider area. Due to the size of the site and being located within on the rural-urban fringe of Knowsley, a 1km radius was deemed an appropriate distance for the Zone of Influence. Sources of information for the desk study are displayed in Table 1.

Table 1 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
Multi-Agency Geographic Information for the Countryside (MAGIC) online database	04/03/2022	Identify statutory nature conservation designation.
Merseyside Biobank	04/03/2022	Locally designated wildlife sites within 1km of site boundary. Records of protected and notable species within 1km of the site boundary.
North Merseyside Biodiversity Action Plan	04/03/2022	Species and habitats which are given special conservation status at the local level.
Natural England Priority Habitat Inventory (England)	04/03/2022	Information regarding priority habitats within the zone of influence

2.4 Site Mapping

2.4.1 Sources of Information

Table 2 – Site Mapping Sources of Information

Source	Date Consulted	Information Sought
Preliminary Ecological Appraisal, Urban Green 2021 UG_45_ECO_PEA_02	04/03/2022	Phase 1 Habitat Survey map and description of existing habitat condition.
Arboricultural Impact Assessment (AIA), Urban Green 2022 UG_45_ECO_AIA_01	04/03/2022	Tree Root Protection Areas (RPA) for existing trees on site and details of trees scheduled for removal/retention as part of the development on site.
Landscape Strategy, Urban Green. UG_45_LAN_GA_01	04/03/2022	Habitat areas and conditions as to be included within the planning layout (post-development) for site.
The Biodiversity Metric 3.0 (JPO39) <i>Natural England Publications (hyperlink)</i>	04/03/2022	The Biodiversity Metric 3.0, including the tool itself, user guides and reference documentation associated with the tool.

2.4.2 Existing Habitat (Pre-Development)

The site was subject to a field survey on the 18th May 2021, by Senior Ecologist Katie Bird. The weather conditions were 16°C, partially cloudy (2/8 oktas) and no wind.

The methods were based on the standard 'Phase 1' habitat survey technique (JNCC, 2010) which was extended to include any relevant information on evidence or suitability for use by protected or notable species. Site habitats, extent, quality and botanical species abundance was recorded for all habitats present on site. Additionally, a tree survey was conducted on site by Urban Green Arboriculturists in March 2022, which obtained information on site trees including root protection areas (RPAs).

These habitats were subsequently mapped using ESRI ArcGIS Pro software, and habitat areas and lengths were calculated.

Habitat types were converted to UKHab classifications (The UK Habitat Classification Working Group, May 2018) using the UK Habitat Classification V1 guidance tool based on the assessor's judgment of how JNCC habitat descriptions best meet the criteria of the UKHab classification.

2.4.3 Planning Layout (Post-Development)

The planning layout as provided by Urban Green (see Appendix 2) was transferred from DWG. format into ESRI ArcGIS Pro software, and habitat areas and lengths calculated.

2.5 The Biodiversity Metric 3.0

The BNG calculation was undertaken utilising The Biodiversity Metric 3.0 from Natural England. The Biodiversity Metric 3.0 uses habitat features as a proxy measure for capturing the value and importance of nature. The metric takes into account the type, size, ecological condition, and location of habitats. The metric enables assessments to be made of the present and forecast future biodiversity value of a site.

The calculation was performed by a technically competent and experienced ecologist as detailed in British Standard BS8683 - Suitably qualified person –definition in BS8683:2020.

2.6 Habitat Scoring

The Biodiversity Metric 3.0 supplies reference documents and user guides in which to accurately evaluate and assess the different habitats on site as to their condition, distinctiveness and strategic significance. A summary of the methodology for each assessment undertaken is demonstrated in the following sections.

2.6.1 Condition

The Biodiversity Metric 3.0 uses the term habitat 'condition' as one of its measures of the quality of a habitat.

'Condition Sheets' are provided for each area habitat type. These list positive indicators for each habitat and indicate how many of these indicators need to be present to meet certain thresholds of condition. These condition sheets can be found in "The biodiversity metric 3.0: habitat condition assessment sheets". Completed condition sheets for this assessment can be found in section 3.

Table 3 details the condition sheets used within this assessment.

Table 3 – Conditions sheets used for habitat assessment

Condition Sheet	Habitats Assessed
Area Habitats	
Grassland (low)	Modified grassland
Grassland (medium, high & very high)	Grassland - Other neutral grassland
Scrub	Heathland and shrub - Mixed scrub
Urban – Non-Priority Habitat	Sparsely vegetated land - Ruderal/ephemeral Urban - Sustainable urban drainage feature Urban - Vacant / derelict land / bare ground Urban – Developed land; sealed surface
Urban	Urban – Urban Tree
Woodland and forest	Woodland and forest - Other woodland; broadleaved
Hedgerow Habitats	
Hedgerows	Native hedgerow Native species rich hedgerow
Line of Trees	Line of trees
River Habitats	
Watercourse	Ditch

2.6.2 Distinctiveness

The distinctiveness of each habitat is automatically assigned by the tool, based upon national records of the occurrence and rarity of each habitat. Table 4 provides the basis of the distinctiveness assessment.

Table 4 – Distinctiveness Assessment for Habitats

Distinctiveness Categories		
Category	Scores	Multiplier
Very High	8	Priority habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action e.g. blanket bog.
High	6	Priority habitats as defined in Section 41 of the NERC Act requiring conservation action e.g. lowland fens.
Medium	4	Semi-natural habitats not classed as a Priority Habitat.
Low	2	Habitat of low biodiversity value. Temporary grass and clover ley; intensive orchard; rhododendron scrub.
Very Low	0	Little or no biodiversity value e.g. hard standing or sealed surface.

2.6.3 Strategic Significance

The idea of strategic significance works at a landscape scale. It gives additional unit value to habitats that are in preferred locations for biodiversity and other environmental objectives. Ideally these

aspirations will have been summarised in a local strategic planning document which articulates where biodiversity is of high priority and the places where it is less so. Strategic significance utilises published local plans and objectives to identify local priorities for targeting biodiversity and nature improvement, such as Nature Recovery Areas, local biodiversity plans, National Character Area 14 objectives and green infrastructure strategies.

Table 5 – Strategic Significance Assessment for Habitats

Strategic Significance Categories	
Category	Score
High strategic significance High potential & within area formally identified in local policy	1.15
Medium strategic significance Good potential but not in area defined in local policy	1.1
Low Strategic Significance Low potential and not in area defined in local policy	1

2.6.4 Temporal Multiplier

For post development habitat creation or enhancement, a risk multiplier will be automatically applied by the tool to account for the period of diminished ecological value while the habitat reaches the targeted post development condition. This time and therefore risk multiplier differs between habitat types, if the habitat is being created or enhanced and how the habitat is to be managed. The predetermined multiplier is based on the average time to meet targeted condition assuming good practice principles and appropriate management strategies are applied.

2.6.5 Difficulty Multipliers

For post development habitat creation or enhancement, a risk multiplier will be automatically applied by the tool to account for the ‘difficulty’ of habitat-specific enhancement or creation. There are two separate difficulty multipliers assigned to each habitat, one for creation and one for enhancement/restoration, recognising that the technical challenges will not necessarily be the same for both.

2.7 Constraints to the Survey

Whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

The conclusions and recommendations detailed in this report are based upon the site redline boundary and the development proposals as outlined by the client at the time of writing. Should there be any changes to the site redline boundary or development proposals at a later stage, this assessment should be reviewed to determine whether any amendments or additional survey work is required.

Best possible effort was made during the mapping process to ensure that the habitat map accurately represents the area of habitats present on site. Some margin of error is possible due to the continuous and difficult to define nature of habitat boundaries, however this margin of error has been minimised using professional opinion of two experienced ecologists and up to date aerial imagery. As such this is not expected to be a significant constraint and affect the overall Biodiversity Net Gain Calculation provided within this report.

3 Pre-Development Habitat Assessment

Pre-development baseline habitat condition was assessed following the methodology outlined in Section 2.6. Habitat descriptions and the results of this assessment are provided below. The habitats have been given reference numbers for clarity regarding in-text and the metric calculation (UG_45_ECO_BNGCALC_01) which illustrates the numerical data. Full habitat descriptions can be found in the PEA (Urban Green, 2021).

3.1 Area Habitats

3.1.1 1) Arable - Cereal crop

Much of the site comprised an arable field. Although this field had been neglected, previous surveys found this field to be in active management as an arable field, and subsequent survey visits to the site recorded that active management of the field had resumed in 2021 (Urban Green, 2022). The edges of the field were dominated by grassland species, with more forb species present within the centre of the site, however species present were limited to undesirable species such as broadleaved dock (*Rumex obtusifolius*) and creeping thistle (*Cirsium arvense*).

This habitat type is not applicable for a condition assessment due to the intense management of this habitat type and likely nutrient improvement that takes place.

3.1.2 2) Dense Scrub -Bramble Scrub

Dense scrub dominated by bramble with occasional bracken and common nettle, and scattered silver birch and oak saplings dominated the northern aspect of the site. Bramble scrub is given a predetermined condition score of **poor** and distinctiveness score of **Medium** within the metric.

3.1.3 3) Broadleaved Woodland - Other woodland; broadleaved

An area of broadleaved woodland was present towards the north of the site, which consisted of predominantly sycamore trees interspersed with the occasional oak (*Quercus* sp.), hawthorn (*Crataegus monogyna*), crab apple (*Malus sylvestris*), birch (*Betula* spp.), cherry (*Prunus* sp.) and lime (*Tilia* spp.) tree species. The ground flora was dominated by common nettle (*Urtica dioica*), cleavers (*Galium aparine*) and red campion (*Silene dioica*), with large patches of bare ground also present.

Table 7 – Condition Assessment for Broadleaved woodland

Phase 1 Habitat Classification	Broadleaved woodland		
UK Hab Classification	Other woodland; Broadleaved		
Condition Sheet	Woodland		
Indicator 1. Age distribution of trees	One age class present (Poor – 1 Point)	Indicator 8. Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback (Good – 3 Points)
Indicator 2. Wild, domestic, and feral herbivore damage	No significant browsing damage evident in woodland (Good – 3 Points)	Indicator 9. Vegetation and ground flora	No recognisable NVC community (Poor – 1 Point)
Indicator 3. Invasive plant species	No invasive species present in the woodland (Good – 3 Points)	Indicator 10. Woodland vertical structure	One storey across all survey plots (Poor – 1 Point)

Indicator 4. Number of native tree species	Five or more native tree or shrub species across woodland parcel (Good – 3 Points)	Indicator 11. Veteran trees	No veteran trees present in the woodland (Poor – 1 Point)
Indicator 5. Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native (Good – 3 Points)	Indicator 12. Amount of deadwood	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (Poor – 1 Point)
Indicator 6. Open space within woodland	10% of woodland has areas of temporary open space, (Good – 3 Points)	Indicator 13. Woodland disturbance	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground (Poor- 1 Point)
Indicator 7. Woodland regeneration	No classes present in woodland (Poor – 1 Point)		
Condition	Poor	Scores 25 (<26 = Poor)	
Distinctiveness		Medium	

3.1.4 4) Bracken

A dense area of bracken (*Pteridium aquilinum*) was present on site along the southern border of the woodland present on site.

Areas of dense bracken is given a predetermined score of **poor** within the metric.

3.1.5 5) Developed land, sealed surface

An access road was present within the site that is currently in use as part of the farm within the site. This will be retained as part of the development. This habitat is not suitable for a condition assessment due to the negligible ecological value that it provides.

3.2 Linear Hedgerow Habitats

3.2.1 1) Species Poor Hedgerow – Native Hedgerow

Two hedgerows were located on site, bounding the eastern and western aspects of the site.

A species-poor defunct-hedgerow bound the south eastern aspect, standing approximately 1m high and wide. Dominant hedgerow species include hawthorn (*Crataegus monogyna*) with rare sycamore (*Acer pseudoplatanus*) and bramble (*Rubus fruticosus*). It becomes intact on its southern aspect, for a length of approximately 100m and was approximately 4m in height and 1-2m wide.

Table 8 – Condition Assessment for Native Hedgerow H1

Phase 1 Habitat Classification		Native Hedgerow			
UK Hab Classification		Native Hedgerow			
Condition Sheet		Hedgerow			
A1. Height	>1.5 m average along length	Fail	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length	Fail
A2. Width	>1.5 m average along length	Fail	C2. Undesirable perennial	Undesirable species <20% cover of the area of	Pass

B1. Gap – Hedge Base	Gap between ground and base of canopy <0.5 m for >90% of length	Pass	vegetation D1. Invasive Non-native species	undisturbed ground >90% of the hedgerow and undisturbed ground is free of invasive non-native species	Pass
B2. Gap – hedge canopy continuity	Gaps make up <10% of total length. No canopy gaps >5m	Fail	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Fail
Condition	Poor	Passes 3 of 8 attributes			
Distinctiveness	Low				

3.2.2 2) Species Poor Hedgerow – Native Hedgerow

A species-poor intact hedgerow bounds the western aspect, comprising of hawthorn with scattered sycamore. Its ground flora composition was similar to the eastern hedgerow. It was approximately 4m in height and 2m wide. This habitat will be retained during development and will contribute to the final linear habitat units.

Table 9 – Condition Assessment for Native Hedgerow H2

Phase 1 Habitat Classification		Native Hedgerow			
UK Hab Classification		Native Hedgerow			
Condition Sheet		Hedgerow			
A1. Height	>1.5 m average along length	Pass	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length	Fail
A2. Width	>1.5 m average along length	Pass	C2. Undesirable perennial vegetation	Undesirable species <20% cover of the area of undisturbed ground	Pass
B1. Gap – Hedge Base	Gap between ground and base of canopy <0.5 m for >90% of length	Pass	D1. Invasive Non-native species	>90% of the hedgerow and undisturbed ground is free of invasive non-native species	Pass
B2. Gap – hedge canopy continuity	Gaps make up <10% of total length. No canopy gaps >5m	Pass	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Fail
Condition	Good	Passes 6 of 8 attributes			
Distinctiveness	Low				

3.2.3 3) Line of Trees

A line of trees was present surrounding the retained farmhouse within the centre of the site and also along the eastern border of the site. This habitat was dominated by Leyland cypress (*Cupressus x leylandii*) and is to be retained within the development.

Table 10 – Condition Assessment for Line of Trees

Phase 1 Habitat Classification	Line of Trees
UK Hab Classification	Line of Trees

Condition Sheet		Line of Trees	
Condition Criteria 1 – More than 70% of trees are native species	Fail	Condition Criteria 4 – Undisturbed strip of vegetation at least 6m on both sides	Fail
Condition Criteria 2 – Predominantly continuous canopy	Pass	Condition Criteria 5 – At least 95% of the trees are in healthy condition.	Pass
Condition criteria 3 – Includes one or more mature or veteran tree	Fail		
Condition Poor		Passes 2 of 5 attributes	
Distinctiveness		Low	

3.3 Linear River Habitats

3.3.1 1) Ditch – Ditch

Two ditches were located within the western aspect of the broadleaved woodland. They were linked via culverts and had shallow banks which were mostly made up of bare earth.

Table 11 – Condition Assessment for Ditch

Phase 1 Habitat Classification		Ditch			
UK Hab Classification		Ditch			
Condition Sheet		Ditch			
Condition Criteria 1.	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Pass	Condition Criteria 5.	Physical damage not present	Pass
Condition Criteria 2.	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of plans in a 20m ditch length.	Fail	Condition Criteria 6	Sufficient water levels are maintained	Pass
Condition Criteria 3.	There is less than 10% cover of filamentous algae and/or duckweed	Pass	Condition Criteria 7	Less than 10% of the ditch is heavily shaded	Fail
Condition Criteria 4.	A fringe of marginal vegetation is present along more than 75% of the ditch	Fail	Condition Criteria 8	Non-native plants are absent	Pass
Condition Poor		Passes 5 of 8 attributes			
Distinctiveness		Medium			

4 Retained Habitats

Using the Biodiversity Metric 3.0, the habitat units of the pre development habitats to be retained were calculated.

4.1 Area Habitats

Table 12 shows a summary of the area habitats and their corresponding area (ha) and unit score to be retained on site.

Table 12– Area habitats to be retained on site

Habitat Parcel Reference	Total Area (ha)	Total Units	Area Retained (ha)	Units Retained
2) Bramble scrub	0.94	3.76	0.53	2.12
3) Other woodland, broadleaved	1.01	4.04	0.34	1.36
Total	1.95	7.8	0.87	3.48

4.2 Linear Hedgerow Habitats

Table 12 shows the linear hedgerow habitats and their corresponding length (km) and units to be retained on site.

Table 13– Linear hedgerow habitats to be retained on site

Habitat Parcel Reference	Total Length (km)	Total Units	Length Retained (km)	Units Retained
1) Native hedgerow	0.358	0.72	0.358	0.72
2) Native hedgerow	0.227	1.36	0.172	1.03
3) Line of trees	0.245	0.49	0.245	0.49
Total	0.83	3.28	0.775	2.95

4.3 Linear River Habitats

Table 13 shows the linear river habitats and their corresponding length (km) and units to be retained on site.

Table 14– Linear river habitats to be retained on site

Habitat Parcel Reference	Total Length (km)	Total Units	Length Retained (km)	Units Retained
1) Ditch	0.06	0.24	0.06	0.24
Total	0.06	0.24	0.06	0.24

5 Lost Habitats

Using the Biodiversity Metric 3.0, the habitat units of the pre development habitats to be lost were calculated.

5.1 Area Habitats

Table 15 shows a summary of the area habitats and their corresponding area (ha) and unit score to be lost on site along with planned mitigation.

Table 15 – Area habitats to be lost on site

Habitat Parcel Reference	Total Area (ha)	Total Units	Area lost (ha)	Units lost	Planned Mitigation
1) Arable – Cereal crop	4.01	16.04	4.01	16.04	The arable cereal crop was of limited value and subject to intensive management. It will be replaced with grassland of higher ecological value throughout the site.
2) Bramble scrub	0.94	3.76	0.41	1.64	This habitat is widespread within the surrounding environment and is of limited ecological value and will be replaced by habitats of higher value
3) Other woodland, broadleaved	1.01	4.04	0.67	2.68	The area of woodland present on site is to be partially lost, with the remaining woodland to be enhanced. Additional areas of native woodland species in a range of age classes will be included within the development.
4) Bracken	0.02	0.04	0.02	0.04	This habitat is widespread within the surrounding environment and is of limited ecological value and will be replaced by habitats of higher value
Total	5.98	23.88	5.11	20.40	

5.2 Linear Hedgerow Habitats

Table 16 shows the linear hedgerow habitats and their corresponding length (km) and units to be lost on site along with planned mitigation. The majority of hedgerows associated with this development are to be retained, however some loss is necessary to facilitate the construction of a new access road for the site.

Table 16 – Linear hedgerow habitats to be lost on site

Habitat Parcel Reference	Total Length (km)	Total Units	Length lost (km)	Units lost	Planned Mitigation
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2) Native hedgerow	0.227	1.36	0.06	0.33	The loss of this habitat is to be compensated for by the creation of extensive native hedgerows within the site.
Total	0.227	1.36	0.06	0.33	

6 Pre-Development Unit Summary

Using the Biodiversity Metric 3.0, the habitat units of the existing site habitats were calculated; the habitat units to be retained within site development were calculated; and the habitat units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in the Table 17.

Table 17: Pre-Development Unit Summary

	On-site baseline	Retained	Lost
Area Units	15.86	3.48	12.38
Linear Hedgerow Units	2.57	2.24	0.33
Linear River Habitats	0.24	0.24	-

7 Post Development Habitat Enhancement

Post development habitats as detailed within the Soft Landscape Plan (UG_45_LAN_SL_DRW_01) were assessed to establish their condition following the methodology outlined in Section 2.6. The habitats have been given reference numbers of the pre development habitat to be enhanced for clarity regarding in-text and the metric calculation (UG_45_ECO_BNGCALC_01) which illustrates the numerical data. Full species lists can be found within the planting scheme (UG_45_LAN_SL_DRW_GA).

7.1 Area Habitats

7.1.1 2) Bramble Scrub (Poor) – Mixed scrub (Good)

The area of bramble scrub to the north of the site will be enhanced from “Poor” to “Good” condition to contain a greater variety of native species such as hawthorn, holly, hazel, blackthorn, and guelder rose. This habitat will be bordered by species rich grassland planting to create a gradual edge habitat that provides a range of sheltering opportunities.

Table 18 – Condition Assessment for Mixed Scrub

Classification within Landscape Designs	Enhanced native scrub planting				
UK Hab Classification	Mixed Scrub				
Condition Sheet	Scrub				
Condition Criteria 1.	Habitat is representative of UKHab description. There are at least three woody species, with no one species comprising more than 75% of the cover.	Pass	Condition Criteria 4.	Well-developed edge with tall grassland/herbs present between scrub and adjacent habitats	Pass
Condition Criteria 2.	Diverse age range with seedlings, young shrubs, and mature shrubs.	Pass	Condition Criteria 5.	Clearings, glades and rides present within the scrub, providing sheltered edges.	Pass
Condition Criteria 3.	Absence of invasive non-native species and undesirable species make up 5% of ground cover	Pass			
Condition	Good	Passes 5 of 5 criteria			
Distinctiveness	Medium				

7.1.2 3) Other woodland, broadleaved (Poor) – Other woodland, broadleaved (Moderate)

The area of broadleaved woodland retained within the design will be enhanced from “Poor” condition through improved ecologically sensitive management techniques, including allowing dead wood to remain in the woodland due to the habitat benefits it provides. Enhanced areas are expected to reach a “Moderate” condition.

Table 19 – Condition Assessment for Broadleaved woodland

Classification within Landscape Designs		Retained Broadleaved woodland	
UK Hab Classification		Other woodland; Broadleaved	
Condition Sheet		Woodland	
Indicator 1. Age distribution of trees	Two age classes present (Moderate – 2 Points)	Indicator 8. Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback (Good – 3 Points)
Indicator 2. Wild, domestic, and feral herbivore damage	No significant browsing damage evident in woodland (Good – 3 Points)	Indicator 9. Vegetation and ground flora	No recognisable NVC community (Poor – 1 Point)
Indicator 3. Invasive plant species	No invasive species present in the woodland (Good – 3 Points)	Indicator 10. Woodland vertical structure	Two storeys across all survey plots (Moderate – 2 Points)
Indicator 4. Number of native tree species	Five or more native tree or shrub species across woodland parcel (Good – 3 Points)	Indicator 11. Veteran trees	No veteran trees present in the woodland (Poor – 1 Point)
Indicator 5. Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native (Good – 3 Points)	Indicator 12. Amount of deadwood	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (Poor – 1 Point)
Indicator 6. Open space within woodland	20% of woodland has areas of temporary open space, (Good – 3 Points)	Indicator 13. Woodland disturbance	Less than 20% of the woodland has evidence of nutrient enrichment (Moderate- 2 Points)
Indicator 7. Woodland regeneration	Two age classes present in woodland (Moderate – 2 Points)		
Condition	Moderate	Scores 29 (Moderate= 26 -32	
Distinctiveness		Medium	

8 Created Habitats on Site

8.1 Area Habitats

8.1.1 Developed Land; Sealed Surface (N/A Condition)

This habitat type encompasses all areas of hardstanding to be created on site such as car parks, access roads, and pedestrian walkways. It also includes the footprint of new buildings to be built on site. A condition score is not applicable for this habitat type due to the negligible ecological value it provides.

8.1.2 Modified Grassland

Areas of more heavily managed grassland are to be created within the site in areas likely to be subject to higher levels of pedestrian usage. These areas will be heavily managed and mown regularly although it is to be seeded with native grass species.

Table 19 – Condition Assessment for Modified Grassland

Classification within Landscape Designs	Amenity Grass				
UK Hab Classification	Modified Grassland				
Condition Sheet	Grassland (Low)				
Condition Criteria 1.	6-8 species per m²	Fail	Condition Criteria 5.	Cover of bare ground between 1 – 5%	Pass
Condition Criteria 2.	Sward height is varied	Fail	Condition Criteria 6.	Cover of Bracken <5% of ground cover	Pass
Condition Criteria 3.	Cover of scrub less than 20%	Pass	Condition Criteria 7.	Absence of invasive non-native species. Combined cover of damage and undesirable species less than 5% of total area.	Pass
Condition Criteria 4.	Physical damage evident in less than 5% of total grassland area	Fail			
Condition	Moderate	Passes 4 of 7 criteria			
Distinctiveness	Low				
Time to Target Condition	4				
Difficulty of Creation	Low				

8.1.3 Mixed scrub

Areas of native scrub are to be created in the western section of the site, adjacent to the woodland that is being retained to create a greater variety of habitats and provide a greater level of species diversity within the site.

Table 20 – Condition Assessment for Mixed Scrub

Classification within Landscape Designs	Native tree and shrub mix
UK Hab Classification	Mixed Scrub
Condition Sheet	Scrub

Condition Criteria 1.	Habitat is representative of UKHab description. There are at least three woody species, with no one species comprising more than 75% of the cover.	Pass	Condition Criteria 4.	Well-developed edge with tall grassland/herbs present between scrub and adjacent habitats	Pass
Condition Criteria 2.	Diverse age range with seedlings, young shrubs, and mature shrubs.	Pass	Condition Criteria 5.	Clearings, glades and rides present within the scrub, providing sheltered edges.	Pass
Condition Criteria 3.	Absence of invasive non-native species and undesirable species make up 5% of ground cover	Pass			
Condition	Good	Passes 5 of 5 criteria			
Distinctiveness	Medium				

8.1.4 Ornamental Groundcover and Shrub mix

Areas of ornamental ground cover and ornamental shrub planting are to be created throughout the development. These areas of planting will contain a mix of native and non-native plants with known value to invertebrates and the environment. This habitat type is automatically assigned a “Poor” condition and is expected to take 1 year to reach this condition.

8.1.5 Other neutral grassland (wet meadow)

A wet meadow is to be created on the western section of the site which will form part of the drainage strategy for the site. This area will be regularly inundated and contain species which are suited to this habitat type. This habitat will also contain patches of marginal wetland vegetation which will provide a greater variety of habitat structure and greater species richness within this habitat type.

This area will also be subject to an ecologically sensitive management including reduced mowing to allow plants to naturally set seed. Created areas of this habitat are expected to reach a “good” condition.

Table 20 – Condition Assessment for Other Neutral Grassland

Classification within Landscape designs	Wet Meadow mix				
UK Hab Classification	Other Neutral Grassland				
Condition Sheet	Grassland (Med-High)				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub less than 5%	Pass

Condition Criteria 2.	Sward height is varied	Pass	Condition Criteria 5.	Absence of invasive non-native species. Combined cover of damage and undesirable species less than 5% of total area.	Pass
Condition Criteria 3.	Cover of bare ground between 1% and 5%	Pass			
Condition	Good	Passes 5 of 5 criteria			
Distinctiveness	Medium				
Time to Target Condition	10				
Difficulty of Creation	Low				

8.1.6 Other neutral grassland (species rich)

Around the site areas of species rich other neutral grassland will be created through the planting of native wildflower species and ecologically sensitive management including reduced mowing to allow plants to naturally set seed. Created areas of this habitat are expected to reach a “good” condition.

Table 21 – Condition Assessment for Other Neutral Grassland

Classification within Landscape designs		Wildflower meadow mix				
UK Hab Classification		Other Neutral Grassland				
Condition Sheet		Grassland (Med-High)				
Condition Criteria 1.		The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub less than 5%	Pass
Condition Criteria 2.		Sward height is varied	Pass	Condition Criteria 5.	Absence of invasive non-native species. Combined cover of damage and undesirable species less than 5% of total area.	Pass
Condition Criteria 3.		Cover of bare ground between 1% and 5%	Pass			
Condition	Good	Passes 5 of 5 criteria				
Time to Target Condition		10				
Difficulty of Creation		Low				
Distinctiveness		Medium				

8.1.7 Urban Trees

205 trees will be planted throughout the site, providing an enhanced natural border between the on site development and areas of greenbelt present to the east of the site. Species to be planted will include field maple (*Acer campestre*), alder (*Alnus glutinosa*), silver birch (*Betula pendula*), beech (*Fagus sylvatica*), and wild cherry (*Prunus avium*). New areas of tree planting are expected to reach a moderate condition.

Table 22 – Condition Assessment for Urban Trees

Classification within Landscape designs		Trees				
UK Hab Classification		Urban Trees				
Condition Sheet		Urban Trees				
Condition Criteria 1.		More than 70% of trees are native	Pass	Condition Criteria 4.	Little evidence of adverse impact on tree health due to anthropogenic activities.	Pass
Condition Criteria 2.		Tree canopy is predominantly continuous	Fail	Condition Criteria 5.	Management regime has encouraged micro habitats.	Pass
Condition Criteria 3.		More than 50% of trees are mature or veteran	Fail	Condition Criteria 6	Trees are immediately adjacent to other vegetation.	Pass
Condition	Moderate	Passes 4 of 6 criteria				
Time to Target Condition		27				
Difficulty of Creation		Low				
Distinctiveness		Medium				

8.2 Linear Hedgerow Habitats

8.2.1 Native hedgerow (species rich)

Native hedgerows will be planted throughout the site, providing a natural border between areas of development and habitat areas. The hedgerows created throughout the site will be planted with a mix of species, comprising hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), holly (*Ilex aquifolium*), guelder rose (*Viburnum opulus*), wild privet (*Ligustrum vulgare*). These hedgerows will be present throughout the site, however they will contain the same species mix and be subject to the same management regime and have therefore been assessed as a whole.

Table 23 – Condition Assessment for Native Hedgerow to be created on site

Classification within Landscape designs	Native Hedgerow				
UK Hab Classification	Native Hedgerow				
Condition Sheet	Hedgerow				
A1. Height	>1.5 m average along length	Pass	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length	Fail
A2. Width	>1.5 m average along length	Pass	C2. Undesirable perennial vegetation	Undesirable species <20% cover of the area of undisturbed ground	Pass
B1. Gap – Hedge Base	Gap between ground and base of canopy <0.5 m for >90% of length	Pass	D1. Invasive Non-native species	>90% of the hedgerow and undisturbed ground is free of invasive non-native species	Pass

B2. Gap – hedge canopy continuity	Gaps make up <10% of total length. No canopy gaps >5m	Pass	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Fail
Condition	Good	Passes 6 of 8 attributes			
Time to Target Condition	12				
Difficulty of Creation	Low				
Distinctiveness	Medium				

9 Post Development Unit and Conclusion

Using the Biodiversity Metric 3.0, the habitat units of the planned enhanced and created habitats were calculated; the habitat units to be retained within site development were calculated; and the habitat units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in the Table 24.

Table 24: Post Development Biodiversity Net Gain Calculation

	Habitat Unit Change					On-site post development	Net change in Biodiversity	
	On-site baseline	Retained	Lost	Enhanced	Created		Habitat units	%
Area Units	15.86	-	-12.38	+3.48	+14.44	21.84	+5.98	+37.71%
Linear Units	2.57	2.24	-0.33	-	+7.28	9.52	+6.95	+270.55%
River Units	0.24	0.24	-	-	-	0.24	0.00	0.00%

As illustrated in Table 24, based on the current landscape design the site, the development is assessed to provide an overall gain in value to the environment of 5.98 habitat units, a change of +37.71% and is in line with the relevant National Planning Policy Framework and Local Planning Policies.

However, this site does not satisfy the trading rules, due to the loss of woodland, a medium distinctiveness habitat, of which no similar habitat is to be created on site. The site does provide a greater variety of habitats than was present on site pre-development and tree planting is proposed across the site to ensure that overall tree cover is maintained.

The site does provide a large gain in terms of hedgerow habitats, providing 6.95 additional hedgerow units, a change of +270.55%.

The ditches present on site are to be retained within the site, within the area of woodland to be retained and will therefore not lead to any change in condition as a result of this development.

To ensure that the habitats proposed as part of the post development design of this site reach the condition detailed within this report and the full gain in value to the environment is achieved by this site, a long-term management plan (30 years) is required. This length of management plan is required due to the complex nature of the habitats to be enhanced/created on site and the high value they will provide to the environment.

10 References

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- eCountability Ltd. (2018). UK Habitat Classification (Professional Edition).
- JNCC (2010). Handbook for Phase One Habitat Survey – 2010 Edition. England Field Unit, Nature Conservancy Council. Reprinted JNCC.
- Stace, C. (2010). New Flora of the British Isles. 3rd ed. Cambridge: Cambridge University Press.

Appendix 1 – Pre- Development Habitat Map

U R B A N
G R E E N

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- Bare ground
- Bare ground
- Bracken
- Defunct species-poor hedgerow
- semi-improved grassland
- Intact species-poor hedgerow
- Dense Scrub
- Static Detector
- Target Note
- Coniferous trees
- Running Water
- Semi-natural broadleaved woodland
- Red Line Boundary
- Hard Standing



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Project: **Ormskirk Road, Knowsley**

Title: **Phase 1 Habitat Map**

Issue: **Planning**

Drawn: CL	Checked: MB	Approved: MB
Project: UG45	Scale @ A3: 1:1500	Date: 07/04/2022
Dwg No: UG_45_ECO_HM_01		Revision: 03

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Appendix 2 - Soft Landscape Plan

U R B A N
G R E E N



KEY

Hard Works

Vehicular macadam
to vehicular areas. Black colour.

Pedestrian macadam
to pavements. Black colour.

Concrete block paving
to parking bays. Charcoal colour.

Concrete block paving
to pavements. Natural granite colour.

Crushed gravel
to PROW footpath. Natural colour.

Acoustic fencing, 1.8m high
To engineer's specification.

Acoustic fencing, 2.0m high
To engineer's specification.

Acoustic fencing, 2.5m high
To engineer's specification.

Timber post and rail fencing, 1.1m high
To engineer's specification.

Paladin fencing, 2.4m high
To engineer's specification.

Metal pedestrian gate,
to match fence height
To engineer's specification.

Metal vehicular gate,
to match fence height
To engineer's specification.

Retaining Wall
To engineer's specification.

Timber bench
Specification etc.

Amenity Seating/Tables
Specification etc.

Cycle storage
To architect's specification.

Bin store
To architect's specification.

Soft Works

Existing trees and hedges
to be retained.

Proposed avenue tree planting
Heavy standard.

Proposed native tree planting
Select standard.

Proposed multistem tree planting
Standard. Ornamental species.

Proposed climbing plant
to acoustic fences.

Proposed native tree &
shrub mix planting.

Proposed native hedgerow
planting.

Ornamental shrub mix planting.

Enhanced native scrub planting
Existing scrub area to be retained and enhanced.

Proposed ornamental groundcover
mix planting.

Proposed marginal planting
to pond area.

Proposed wet meadow
seed mix.

Proposed seeded grass
to amenity areas.

Proposed species-rich
grassland seed mix.

Proposed seasonal bulb planting
Planted in amenity grass.

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Notes:-

P04	30/05/22	Layout updated	RS	SA
P03	29/04/22	Benches added and layout updated	RS	SA
P02	29/03/22	Trees added and layout updated	RS	SA
P01	15/03/22	Draft planning issue	RS	SA
REV.	DATE	DESCRIPTION	DRAWN	CHK'D

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Issue:	PLANNING		
Drawn:	RS	Checked:	SA
Project:	UG45	Scale @ A0:	1:500
Dwg No:	UG_45_LAN_GA_DRW_01	Date:	15/03/22
		Revision:	P04