

BIODIVERSITY NET GAIN DESIGN STAGE ASSESSMENT

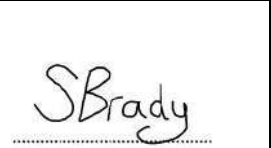
July 2022

Mercury 62,
Cronton Road,
Prescot,
Merseyside

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



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NON-TECHNICAL EXECUTIVE SUMMARY

This Biodiversity Net Gain Assessment has been prepared by Urban Green on behalf of Maro Developments Ltd to support an application for the proposed erection of a single warehouse unit (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works.

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 3.1 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	%
Habitat Units	73.71	30.22	43.49	0.00	51.39	81.61	7.9	+10.71
Hedgerow Units	0.00	-	-	-	7.75	7.75	7.75	+100
River Units	2.18	1.61	-	0.57	-	2.56	0.38	+17.35

Overall, this assessment does achieve a net gain in biodiversity, at 10.71% for area habitats, 100% for linear hedgerow habitats and 17.35% for linear river habitats. Offsite mitigation will not be necessary, and the gain is in line with the relevant national and local planning policies.

However, the scheme fails to satisfy the trading rules laid out by the metric as the units contributed by the baseline 'other neutral grassland' and 'other broadleaved woodland' habitats have not been sufficiently compensated for. To fulfil the trading rules, these habitats and their associated units must be replaced entirely with habitats of the same broad habitat type or of higher distinctiveness. In this scenario, a large proportion of the woodland is being retained and the proposed landscape layout offers a mosaic of different habitats of moderate and good condition. The post-development landscape will therefore still provide valuable habitat potential, despite not satisfying trading rules.

To ensure that habitats are maintained at the expected condition, a 30 year-management plan should be implemented post-development (Urban Green, 2022).

CONTENTS

1	Introduction.....	5
1.1	Background to the Scheme	5
1.2	Site Context	5
1.3	Purpose of this Report	6
1.4	Planning Context	6
2	Methods.....	9
2.1	Biodiversity Net Gain	9
2.2	Good Practice Principles	9
2.3	Desk Study	9
2.4	Site Mapping	10
2.5	The Biodiversity Metric 3.1	11
2.6	Habitat Scoring	12
2.7	MoRPH River Survey	14
2.8	Constraints to the Survey	14
3	Pre-Development Habitat Assessment	15
3.1	Area Habitats	15
3.2	Linear River Habitats	21
4	Retained Habitats.....	23
4.1	Area habitats	23
4.2	Linear River habitats.....	23
5	Lost Habitats	24
5.1	Area Habitats	24
6	Pre-Development Unit Summary	25
7	Enhanced Habitats	26
7.1	Area Habitats	26
7.2	Linear River Habitats	26
7	Created Habitats on Site	28
7.1	Area Habitats.....	28
7.2	Linear Habitats.....	36

8	Post-Development Summary and Conclusion	38
9	References.....	39

1 Introduction

1.1 Background to the Scheme

Maro Developments Ltd are proposing to develop land off Cronton Road in Prescott, Merseyside (hereafter referred to as 'the Site'). The applicant is seeking approval for the erection of a single warehouse (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works.

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. Mark has experience providing consulting services for a range of development schemes across the UK, including residential, commercial, and large infrastructure schemes.

1.2 Site Context

The site is located at National Grid Reference SJ 46758 89304 and comprises a total area of approximately 10.7ha (see Figure 1).

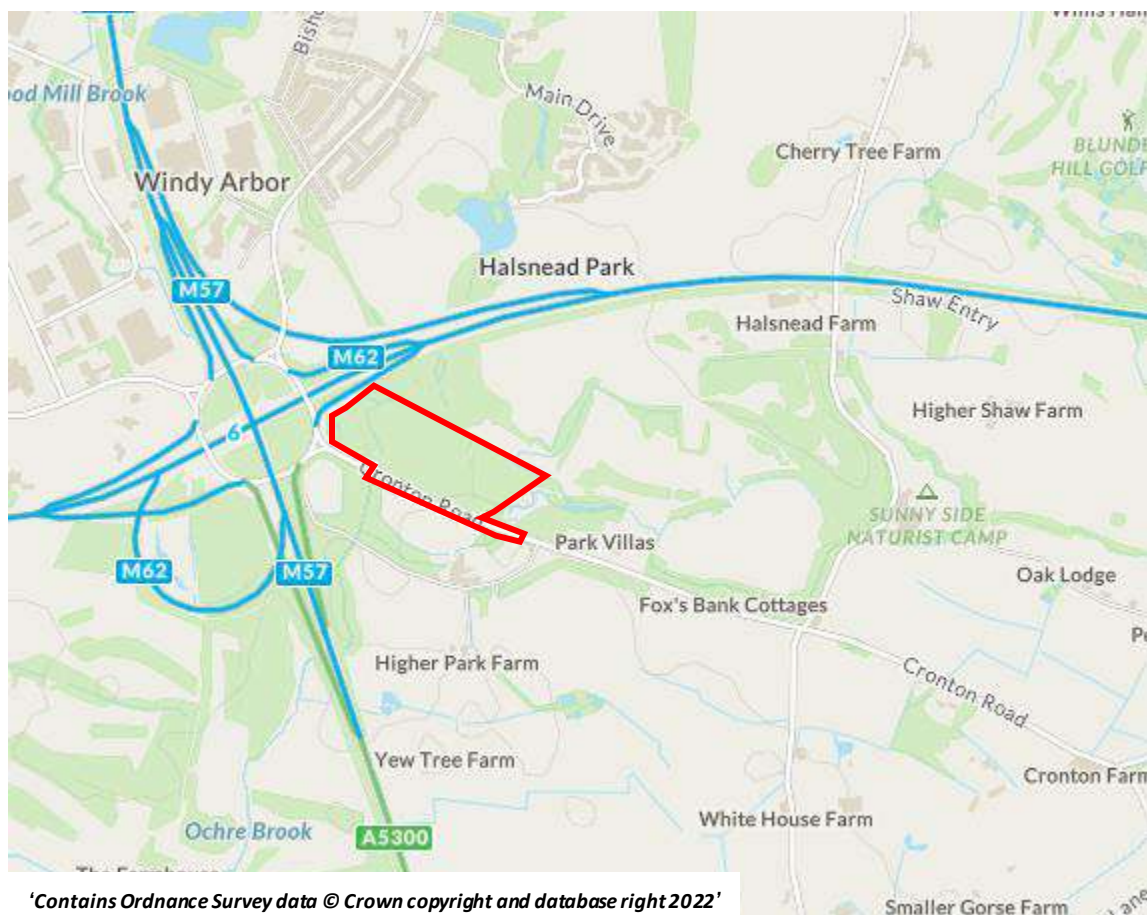


Figure 1 – Site Extent

The Site is located to the east of Junction 6 of the M62, bound by Tarbock roundabout to the west, M62 to the north, Cronton Road to the south and undeveloped land to the east. The Site is irregular in shape

and comprises approximately 10ha of undeveloped land and 0.7ha developed land which is the hard surfacing of Cronton Road.

Whilst the surrounding area is undeveloped, land adjacent to the east of the Site is subject to two large development proposals: construction of a new country park, which awaits determination (ref: 20/00578/FUL); and a hybrid application which secured full consent for the development of 15,273sqm of storage and distribution floorspace (B8) and outline consent for a further 77,629sqm of storage and distribution floorspace (B8) (ref: 20/00494/HYB) which was approved at planning committee on 10th June 2021. These developments, once brought forward in accordance with the adopted Halsnead Garden Village Masterplan SPD will inevitably change the character, use, and appearance of the area.

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 (NPPF, 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 3.1 from Natural England.

The Biodiversity Metric 3.1 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 limitations 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 by Urban Green in June 2022 to provide information of habitat types, condition, and strategic significance both on site and within the wider area. Due to the size and impact of the proposed development and being located within an urban/rural fringe of Merseyside, a 1 km Local Data Search was conducted as it is 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
MAGIC Website (www.magic.gov.uk)	06/06/2022	Locations of statutory designated Sites within 1km of the Site boundary. Locations of Natura 2000 Sites (Ramsar, Special Area of Conservation (SAC) and Special Protection Area (SPA)) within 5km of the Site boundary. Locations of European Protected Species Licences (EPSL) and Class Licences within 1km.
Natural England (https://designatedSites/naturalengland.org.uk/)	06/06/2022	Relevant statutory designated Site citations.
JNCC (https://jncc.defra.gov.uk/)	06/06/2022	Information on European wildlife Sites. Details of relevant Section 41 species and habitats.
Merseyside BioBank	06/06/2022	Locally designated wildlife Sites within 1km of Site boundary. Records of protected and notable species within 1km of the Site boundary.
Merseyside Local Biodiversity Action Plans	06/06/2022	Species and habitats which are given special conservation status at the local level.
Catchment Data Explorer	06/06/2022	Summary of data relating to river condition and catchment data, provided The Environment Agency (EA)

2.4 Site Mapping

2.4.1 Sources of Information

Table 2 – Site Mapping Sources of Information

Source	Date Consulted	Information Sought
Preliminary Ecological Assessment (PEA) Urban Green 2022	16/06/2022	Phase 1 Habitat Survey map and description of existing habitat condition.

Source	Date Consulted	Information Sought
Proposed Landscape Plan	14/07/2022	Habitat areas and conditions as to be included within the planning layout (post-development) for site.
The Biodiversity Metric 3.1 (JPO39)	16/06/2022	The Biodiversity Metric 3.1, 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 by Urban Green on the 6th June 2022, by Senior Ecologist Mark Blacker. The weather conditions were 15°C, overcast (7/8 oktas), with a wind speed of 1 on the Beaufort scale.

The survey was based on the standard methodology as detailed by The UK Habitat Classification User Manual (Butcher et al, 2020) and Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017). A UKHab Habitat Plan has been produced to demonstrate habitats within the proposed development and the surrounding area. The mapping techniques are based on The UK Habitat Classification User Manual (Butcher et al, 2020) guidance. The method records the habitat types present, within and immediately surrounding the site, habitat extent and quality. Plant species were also identified and recorded as target notes using the DAFOR scale. Flora species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and/or uncommon habitats, were searched for during the survey. Any invasive species, including those listed on the revised (April 2010) Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were noted during the field survey when sighted.

These habitats were subsequently mapped using ESRI ArcGIS Pro software, and habitat areas and lengths were calculated to demonstrate habitats within the proposed development and the surrounding area.

There is one non-statutory designated site present within the site boundary, and a further seven present within 1km of the site. Strettle Bog, Tarbock Local Wildlife Site (LWS) is present within the site and forms the area of broadleaves semi-natural woodland present within the western section of the site.

2.4.3 Planning Layout (Post-Development)

The proposed landscape plan, as provided by the Annabelle Langhorn Landscape Planning Ltd (2022) (see Appendix 2), was provided in DWG. format and an additional PDF document was provided detailing planting mixes and areas of different proposed habitats. These resources were used to inform the assessment.

2.5 The Biodiversity Metric 3.1

The BNG calculation was undertaken utilising The Biodiversity Metric 3.1 from Natural England. The Biodiversity Metric 3.1 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 person as detailed in British Standard BS8683 - Suitably qualified person – definition in BS8683:2020.

2.6 Habitat Scoring

The Biodiversity Metric 3.1 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 3.1 uses the term habitat ‘condition’ as one of its measures of the quality of a habitat. Habitat condition will be assessed by a competent person based on guidance provided in part 1a of ‘The Biodiversity Metric 3.1: Technical Supplement’.

‘Condition Sheets’ are provided for each area habitat type. These list positive indicators for each habitat, question whether the condition has been achieved 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 3.1: Habitat Condition Assessment Sheets”. Table 3 identifies the habitat condition sheets used to assess both pre and post-development habitats and completed condition sheets for this assessment can be found in section 3. Ochre Brook, which is categorised as ‘other rivers and streams’, was assessed using the MoRPH River Survey method.

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 and Very High)	Other Neutral Grassland
Urban	Ruderal/Ephemeral, Urban Trees
Heathland and Shrub	Mixed Scrub
Woodland	Other Woodland, Broadleaved
Ditch	Ditch
Pond	Pond (Non-Priority Habitat)
Hedgerow	Native Species Rich Hedgerow, Native Hedgerow

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 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 MoRPH River Survey

Condition of the linear river habitat present on site was assessed by a Modular River Physical Survey (MoRPh Survey) undertaken by a certified ecologist. Assessment of linear river habitats condition is based on the extent and diversity of a number of physical features within in both the river channel and riparian as well as the extent and type of any human modifications. This assessment is implemented in two parts:

- A desk-based reach-scale assessment to define river type of the homogenous reach of the river to be affected by development.
- A field based sub-reach scale assessment that captures channel dimensions, physical features / habitats, vegetation structural features, and human interventions to assess the condition of the river at the development site, taking into account the type of river.

The field element of the assessment included, five MoRPh field surveys conducted on contiguous lengths (modules) of river. Each MoRPh module covers a river length that is approximately twice the river width (10m). These five contiguous modules covered a sub reach of the river 50m in length. Due to the small length of the river present within the redline boundary and the small overall length of the river, it was not necessary to survey more than one subreach to assess the condition of the river.

The River Condition Assessment captures information on sediments, vegetation, morphological and water-related features; and the extent and severity of physical modification within the channel, channel margins, banks, and riparian zone (to 10m from the bank tops).

2.8 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.

ESRI ArcGIS Pro software was utilised to produce the pre-development habitat map, with the best possible effort 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

Predevelopment 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_1602_ECO_BNG_CALC_01) which illustrates the numerical data. Full habitat descriptions can be found in the Preliminary Ecological Appraisal (Urban Green, 2022).

3.1 Area Habitats

3.1.1 1) Grassland – Other Neutral Grassland

The largest habitat area on-site was other neutral grassland, which showed evidence of heavy machinery using the site, with deep wheel ruts evident. At the time of survey this habitat was damp, although no evidence of standing water was observed within the site. This habitat was observed to be more species rich than agricultural land, although none of the species present were notable and likely to be common within the surrounding area.

Yorkshire fog (*Holcus lanatus*) was present abundantly within this habitat. Species present frequently within this habitat comprised cock's foot (*Dactylis glomerata*), common sorrel (*Rumex acetosa*), creeping cinquefoil (*Potentilla reptans*), creeping thistle (*Cirsium arvense*), and marsh thistle (*Cirsium palustre*). Species present occasionally within this habitat included field horsetail, creeping bent (*Agrostis stolonifera*), hard rush, wild angelica, hogweed, common vetch (*Vicia sativa*), northern marsh orchid (*Dactylorhiza purpurella*), glaucous sedge (*Carex flacca*), field forget-me-not (*Myosotis arvense*). Square-stalked St John's-wort (*Hypericum tetrapterum*) was present rarely

Table 6 – Condition Assessment for Other Neutral Grassland

UK Hab Classification	Grassland				
Condition Sheet	Grassland medium, high & very high				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches the 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.	Fail	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%	Pass
Condition Criteria 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	Condition criteria 5.	There is an absence of invasive non-native species (as listed in Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access or any other damaging	Fail

				management activities) accounts for less than 5% of total area.	
Condition Criteria 3.	Cover of bare ground between 1% and 5% including localised areas, for example, rabbit warrens	Pass	Condition Criteria 6 (non-acid types only).	There are greater than 9 species per metre squared.	Pass
Condition	Poor	Passes 4 of 6 criteria but fails essential criteria 1			
Distinctiveness	Medium				



Photograph 1 – Neutral grassland present within the majority of the site



Photograph 2 - Neutral grassland present within the majority of the site

3.1.2 2) Grassland – Other Neutral Grassland (marshy grassland)

Two areas of marshy grassland were present within the site. This habitat was mostly dominated by soft rush (*Juncus effusus*) and reed canary-grass (*Phalaris arundinacea*), with occasional hairy willowherb and rare wild angelica (*Angelica sylvestris*) present.

Table 7 – Condition Assessment for Other Neutral Grassland

UK Hab Classification	Grassland				
Condition Sheet	Grassland medium, high & very high				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type	Fail	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%	Pass

	are very clearly and easily visible throughout the sward.				
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7%) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Condition criteria 5.	There is an absence of invasive non-native species (as listed in Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition 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.	Fail
Condition Criteria 3.	Cover of bare ground between 1% and 5% including localised areas, for example, rabbit warrens	Pass	Condition Criteria 6 (non-acid types only).	There are greater than 9 species per metre squared.	Fail
Condition	Poor	Passes 3 of 6 criteria but fails essential criteria 1			
Distinctiveness		Medium			



Photograph 3 – Marshy Grassland present within the eastern section of the site



Photograph 4 – Marshy Grassland present within the western section of the site.

3.1.3 3) Other Woodland, Broadleaved

Other woodland, broadleaved is present within the Site towards the western section of the site which forms the area designated as Strettles Bog, Tarbock LWS. There are also linear areas of woodland stretching along the north-east, south-east and south-west boundaries of the site. The trees within the woodland are covered by a Tree Preservation Order (TPO) which extends as the woodland continues to

grow. The species present in the canopy comprised sycamore (*Acer pseudo-platanus*), pedunculate oak (*Quercus robur*), ash (*Fraxinus excelsior*), silver birch (*Betula pendula*) and hawthorn. Fallen deadwood was present within this woodland, with the ground covered in a dense layer of leaf litter throughout. Evidence of woodland regeneration was present with some sycamore and oak saplings present within the ground layer. No evidence of management practices was observed within the woodland. Some mature trees were present to the western extent of the woodland, but none qualified as being veteran

Table 8 – Condition Assessment for other woodland, broadleaved

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	Ancient woodland flora indicators present (Good – 3 Points)
Indicator 3. Invasive plant species	Rhododendron or laurel not present, Himalayan balsam covers less than 10% (Moderate – 2 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	One veteran tree per hectare (Moderate – 2 Points)
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	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (Good – 3 Points)
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	All three classes present in woodland (Good – 3 Points)		
Condition	Good	Scores 33 (>32 = Good)	
Distinctiveness		Medium	



Photograph 5 – Broadleaved semi-natural woodland with bramble ground layer present within the western section of the site.



Photograph 6 – Broadleaved semi-natural woodland present within the western section of the site.

3.1.4 4) Heathland and Shrub– Mixed Scrub

Dense scrub exists along the southern boundary of the site and is also present as a well-established edge layer around the broadleaved semi-natural woodland. Species present within this scrub comprised frequent hawthorn (*Crataegus monogyna*), goat willow (*Salix caprea*), and blackthorn (*Prunus spinosa*), with common gorse (*Ulex europeaus*) present rarely on the soil mounds present within the site.

Table 9 – Condition Assessment for Heathland and Shrub

UK Hab Classification	Heathland and shrub				
Condition Sheet	Scrub				
Condition Criteria 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)	Fail	Condition Criteria 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
Condition Criteria 2.	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Pass	Condition criteria 5.	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Pass
Condition Criteria 3.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Fail			

Condition	Moderate	Passes 3 of 5 criteria
Distinctiveness		Medium

3.1.5 5) Grassland – Modified Grassland

A small area of tall ruderal vegetation had developed around a mound that had been created within the centre of the site, possibly from where excavated material had been deposited. Plant species present within this habitat included occasional hairy willowherb (*Epilobium hirsutum*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), bramble (*Rubus fruticosus* agg.), with field woundwort (*Stachys sylvatica*) present rarely.

Table 10 – Condition Assessment for Modified Grassland

UK Hab Classification	Grassland				
Condition Sheet	Grassland (Low)				
Condition Criteria 1.	There must be 6-8 species per m ² . If a grassland has 9 or more species per m ² it should be classified as a medium distinctiveness grassland habitat type.	Fail	Condition criteria 5.	Cover of bareground between 1% and 5% including localised areas, for example, a concentration of rabbit warrens	Pass
Condition Criteria 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.	Fail	Condition Criteria 6.	Cover of bracken less than 20%	Pass
Condition Criteria 3.	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area.	Pass	Condition Criteria 7.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Pass
Condition Criteria 4.	Physical damage is evident in less than 5% of total grassland area.	Fail			
Condition	Poor	Passes 4 of 7 criteria but fails essential criteria 1.			
Distinctiveness		Low			

3.1.6 6) Sparsely Vegetated Land – Ruderal/Ephemeral

An area of sparsely vegetated land was present on two spoil heaps that had been leftover from the emergency flood works conducted on the ditch. These consisted of compacted soil with large chunks of concrete and other miscellaneous rubble also present. This habitat had become partially colonised with vegetation such as cock's foot, dandelion, teasel, Yorkshire fog, and birds foot trefoil.

Table 11 – Condition Assessment for Ruderal/Ephemeral

UK Hab Classification	Sparsely Vegetated Land				
Condition Sheet	Urban				
Condition Criteria 1.	Vegetation structure is varied, providing opportunities for insects,	Fail	Condition criteria 3.	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total	Pass

	birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.			vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	
Condition Criteria 2.	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	Fail			
Condition	Poor	Passes 1 of 3 condition criteria			
Distinctiveness	Low				

3.1.7 6) Urban - Developed Land, Sealed Surface

This habitat designation comprised the road and pedestrian footpath present immediately adjacent to the site. This habitat provides negligible ecological value and is therefore not applicable for a condition score within the metric as this designation does not provide any value to the biodiversity of a site.

3.2 Linear River Habitats

3.2.1 1) Ditch

Two sections of ditch were present within the site. One ditch flows from a culvert adjacent to the northern boundary into Ochre Brook. This flows through a deep cutting in the northern section of the site which had been subject to extensive earthworks and therefore had minimal vegetation established on the banks. Aquatic vegetation including hard rush (*Juncus inflexus*), field horsetail (*Equisetum arvense*), and hairy willowherb. Towards the western end of the first ditch, there is a tributary from which the second section of ditch flows. This flows towards the A5080 at the south of the site.

Table 12 – Condition Assessment for 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 plants 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	Fail
Condition	Poor	Passes 4 of 8 attributes			
Distinctiveness	Medium				



Photograph 7– Drainage ditch that flows into Ochre Brook within the deep cutting.

3.2.1 2) Other Rivers and Streams (Ochre Brook)

Ochre Brook was present within the area of other broadleaved woodland present in the western section of the site. This watercourse enters from a culvert beneath the M62 and exits through another culvert beneath A5080 south of the site. The watercourse had a high level of flow and showed evidence of pollution, likely due to surface water run off from the motorway.

Table 13 – Condition Assessment for Other Rivers and Streams

Name	Highlee Clough		
UK Hab Classification	Other Rivers and Streams Type		
Condition Assessment	River MoRPH Survey		
River Category	Other	Reach Valley Gradient	0.01
Braiding Index	1	Bedrock Reach	No
Sinuosity Index	1.23	Coarsest Bed Material	Cobble
Anabranching Index	1	Average Bed Material	Gravel-Pebble
Level of Confinement	Unconfined	Condition Score	Fairly Poor
Condition Score	Fairly Poor		
Distinctiveness	Medium		
Extent of watercourse encroachment	No encroachment		
Extent of riparian encroachment	No encroachment		

4 Retained Habitats

4.1 Area habitats

4.1.1 Other Woodland, Broadleaved

As the woodland on site is protected by a TPO, any removal of areas of woodland or individual trees must be justified and approved by Knowsley Council. Therefore, it is recommended that as large an area of woodland as possible is retained. Currently, 2.2ha of broadleaved woodland is retained within the proposed landscape layout.

4.1.2 Developed Land, Sealed Surface

As Cronton Road comprises the full area of developed land, sealed surface habitat, the entirety of this area is being retained. This habitat type, however, contributes no habitat units to the final score.

4.2 Linear River habitats

4.2.1 Ditch

The section of ditch which flows in a north-south direction, is to be retained. The location and dimensions of the ditch will remain the same.

4.2.2 Other Rivers and Streams (Ochre Brook)

Ochre Brook will be retained in its entirety and there will be no active management of the brook. The habitats surrounding the brook will be modified and enhanced.

Table 14 – Retained Area Habitats

Area Habitat Parcel Reference	Total Area(ha)	Total Units	Area Retained (ha)	Units Retained
3) Other Woodland, Broadleaved	3.1	42.78	2.2	30.22
8) Developed land, sealed surface	0.71	0.00	0.71	0.00
Linear Habitat Parcel Reference	Total Length (km)	Total Units	Length Retained (km)	Units Retained
1) Ditch	0.28	1.06	0.14	0.53
2) Other Rivers and Streams	0.12	1.08	0.12	1.08
			Total	31.83

5 Lost Habitats

Using the Biodiversity Metric 3.1, 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 – Lost Area habitats

Habitat Parcel Reference	Total Area (ha)	Total Units	Area lost (ha)	Units lost	Planned Mitigation
1 & 2) Other Neutral Grassland	6.42	28.25	6.42	28.25	Large areas of replacement 'other neutral grassland' habitat will be created towards the north-east boundary of the site. This will be new areas of wildflower meadow.
3) Other Broadleaved Woodland	3.1	42.78	0.9	12.56	Most of the woodland will be retained and new urban trees across the site will compensate for the loss of woodland area
4) Mixed Scrub	0.23	2.02	0.23	2.02	The existing mixed scrub habitat is in moderate condition but covers a small area. New mixed scrub habitat of equal or better condition will be created and in larger areas.
5) Modified Grassland	0.04	0.09	0.04	0.09	Modified grassland currently comprises a very small area and is in poor condition. The creation of new areas of wildflower meadow will offset the loss of this habitat.
6) Sparsely Vegetated Land	0.26	0.57	0.26	0.57	This area around the ditch was primarily bare ground with some ruderal vegetation present. Higher quality and better condition habitats will easily mitigate for the loss of this habitat.
Total	10.05	73.71	7.85	43.49	

6 Pre-Development Unit Summary

Using the Biodiversity Metric 3.1, the habitat units of the existing site habitats, the units to be retained and the units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in Table 16.

Table 16: Pre-Development Unit Summary

	On-site baseline	Retained	Lost
Area Units	73.71	30.22	43.49
Linear River Units	2.18	2.18	0.00

7 Enhanced Habitats

Post-development habitats as detailed within the Proposed Landscape Plan (Annabelle Langhom Landscape Planning Ltd, 2022) 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_1602_ECO_BNG_CALC_01) which illustrates the numerical data.

7.1 Area Habitats

7.1.1 Other Broadleaved Woodland

In current proposals, all areas under the retained woodland will be seeded with EH1 shade tolerant wildflower mix, containing 80% slow growing grasses and 20% native wildflowers. The woodland has already achieved good condition and therefore, within the Biodiversity Metric 3.1, the condition of the woodland cannot be further improved. However, seeding within the woodland should still be encouraged to increase the diversity of ground vegetation within the woodland and provide increased resources for pollinators, birds, and small mammals. Any invasive species present within the woodland should be removed prior to seeding to improve establishment rates of new plants.

7.2 Linear River Habitats

7.2.1 Ditch

The section of the ditch which emerges from the culvert and flows into Ochre Brook is to be enhanced by establishing new vegetation on the banks of the ditch which are currently heavily damaged and contain low cover of ruderal vegetation. The banks will be seeded with a wetland meadow mix, EM8 specification, which contains a mix of 80% grasses and 20% wildflowers. Species within this mix are suited to seasonally wet soils and include species such as: betony (*Betonica officinalis*), common knapweed (*Centaurea nigra*), meadowsweet (*Filipendula ularia*), common bent (*Agrostis capillaris*), sweet vernal grass (*Anthoxanthum odoratum*) and red fescue (*Festuca rubra*). The condition score of the ditch is expected to be elevated from poor to moderate.

Table 17 – Condition Assessment for 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 plants 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	Pass
Condition Criteria 4.	A fringe of marginal vegetation is present	Pass	Condition Criteria 8	Non-native plants are absent	Pass

		along more than 75% of the ditch				
Condition	Moderate	Passes 7 of 8 attributes				
Distinctiveness		Medium				

7 Created Habitats on Site

Using the Biodiversity Metric 3.1, the habitat units of the post-development created habitats were calculated.

7.1 Area Habitats

7.1.1 C1) Urban - Developed Land; Sealed Surface – Roads and Car Parking

There is one road leading off the A5080 which will provide access to the site. The road will lead to car parking spaces for site users which are adjacent to the building. The road and car park will be hardstanding which is categorised as developed land; sealed surface and has a predetermined condition of **N/A** within the metric.

7.1.2 C2) Urban - Developed Land; Sealed Surface – Buildings

The proposed development is for the construction of a single industrial warehouse unit with associated office space. Buildings are considered developed land, sealed surface and have a predetermined condition of **N/A** within the metric.

7.1.3 C3) Urban - Urban Trees – Scattered Native Trees / Ornamental Trees

A total of 330 urban trees are due to be planted on site, primarily along the north-east and south-west boundaries, with scattered trees across the rest of the site. These are categorised as ‘scattered native trees’ which are entirely native species and ‘ornamental trees’ which consist of two non-native species. Native species comprise 97% of the proposed urban trees, with the mix including species such as common alder (*Alnus glutinosa*), silver birch (*Betula pendula*), hornbeam (*Carpinus betulus*), bird cherry (*Prunus padus*) and common oak (*Quercus robur*). The selected non-native tree species are purple-leaved cherry (*Prunus cerasifera* ‘Nigra’) and whitebeam ‘Majestica’ (*Sorbus aria* ‘Majestica’).

Table 18 - Condition Assessment for Urban Tree

Classification within Landscape Designs	Scattered Native Trees / Ornamental Trees to Car Park				
UK Hab Classification	Urban tree				
Condition Sheet	Urban tree				
Condition Criteria 1.	The tree is a native species (or more than 70% within the block are native species).	Pass	Condition Criteria 4.	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Pass
Condition Criteria 2.	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap	Pass	Condition Criteria 5.	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark	Pass

		being >5 m wide (individual trees automatically pass this criterion).				
Condition Criteria 3.		The tree is mature or veteran (or more than 50% within the block are mature or veteran).	Fail	Condition Criteria 6.	More than 20% of the tree canopy area is oversailing vegetation beneath.	Pass
Condition	Good	Passes 5 of 6 criteria				
Distinctiveness		Medium				
Time to Target Condition		30+ years				
Difficulty of Creation		Low				

7.1.4 C4) Urban – Introduced Shrub – Shrub Mix Within Car Park (A1 & B1)

Blocks of ornamental scrub, of native and non-native species, will be planted within the car park area. Species within the A1 and B1 species mixes include Mexican orange blossom (*Choisya ternate*), Rakai Hebe (*Hebe rakaiensis*), field rose (*Rosa arvensis*), guelder rose (*Viburnum opulus*), laurustinus 'Eve Price' (*Viburnum tinus* 'Eve Price'), Californian Lilac 'Blue Mound' (*Ceanothus* 'Blue Mound') and common dogwood (*Cornus sanguinea*). Introduced shrub is automatically allocated a condition score of **N/A** within the metric.

7.1.5 C5) Woodland and Forest – Other Woodland, Broadleaved – Native Woodland Mix

The existing woodland is to be extended by planting the area within the north-east corner of the site with native tree and shrub whips. This new area of woodland will not be covered by the TPO which protects the existing woodland. The species composition is a mixture of tree and shrub species which are entirely native and, once mature, the balance of trees and shrubs will create a diverse vertical structure within the woodland, with varied foraging, nesting and commuting opportunities. Tree species include silver birch, hornbeam, wild cherry (*Prunus avium*) and common oak. Shrub species include holly (*Ilex aquifolium*), crab apple (*Malus sylvestris*) and dogrose (*Rosa canina*). A native groundcover layer will also be created by introducing woodland plants, including selfheal (*Prunella vulgaris*), red campion (*Silene dioica*) and bush vetch (*Vicia sepium*).

Table 19 – Condition Assessment for Other Broadleaved Woodland

Classification within Landscape Designs	Native Woodland Mix	
UK Hab Classification	Other Broadleaved Woodland	
Condition Sheet	Woodland	
Indicator	Score	Description
1. Age distribution of trees	Poor – 1 points	One age class present
2. Wild, domestic	Good – 3 points	No significant browsing damage evident in woodland

	and feral herbivore damage		
3.	Invasive plant species	Good – 3 points	No invasive species present in woodland
4.	Number of native tree species	Good – 3 points	Five or more native tree or shrub species found across woodland parcel
5.	Cover of native tree and shrub species	Good – 3 points	> 80% of canopy trees and >80% of understory shrubs are native
6.	Open space within woodland	Good – 3 points	10-20% of woodland has areas of temporary open space
7.	Woodland regeneration	Poor – 1 point	No classes or coppice regrowth present in woodland
8.	Tree health	Good – 3 points	Tree mortality less than 10%, no pests or diseases and no crown dieback
9.	Vegetation and ground flora	Poor – 1 point	No recognisable NVC community
10.	Woodland vertical structure	Poor – 1 point	Two storeys across all survey plots
11.	Veteran trees	Poor – 1 point	No veteran trees present in woodland
12.	Amount of deadwood	Poor – 1 point	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps
13.	Woodland disturbance	Good – 3 points	No nutrient enrichment or damaged ground evident
Total Points		27 points	
Condition		Moderate (26 – 32 points)	
Distinctiveness		Medium	
Difficulty of Creation		Low	
Time to Target Condition		15 years	

7.1.6 C6) Heathland and Shrub – Mixed Scrub – Mixed Scrub Margin Mix

Large areas of mixed scrub habitat will be planted around the periphery of the existing woodland, the ditch and along the north-east boundary of the site, as well as in several small blocks at the southern end of the site. Five native shrub species will be planted within the newly created scrub habitat, with additional introduction of wildflowers suited to scrub habitat. Hazel (*Corylus avellana*), hawthorn, Scotch broom (*Cytisus scoparius*), bramble (*Rubus fruticosus*) and common gorse (*Ulex europaeus*) will be planted, with supplementary planting of birds-foot trefoil (*Lotus corniculatus*) and common knapweed (*Centaurea nigra*).

Table 20 - Condition Assessment for Mixed Scrub

Classification within Landscape Designs		Mixed Scrub Margin Mix				
UK Hab Classification		Mixed scrub				
Condition Sheet		Scrub				
Condition Criteria 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	Condition Criteria 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
Condition Criteria 2.		There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Fail	Condition Criteria 5.	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Fail
Condition Criteria 3.		There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Pass			
Condition	Moderate	Passes 3 of 5 criteria				
Distinctiveness		Medium				
Time to Target Condition		5 years				
Difficulty of Creation		Low				

7.1.7 C7) Grassland – Other Neutral Grassland – General Purpose Wildflower Mix

A new wildflower meadow is to be created adjacent to the north-west boundary of the car park and bordering the ditch, pond and woodland habitats. An additional patch of meadow will also be created along the south-west boundary. The earth will be seeded with an EM1 basic general purpose meadow mixture which contains a 90% mix of slow growing grasses and 10% native wildflowers. Grass species include common bent, crested dogstail (*Cynosurus cristatus*), red fescue and smooth-stalked meadow grass (*Poa pratensis*). Seven wildflower species are incorporated in the mix, including oxeye daisy (*Leucanthemum vulgare*), ribwort plantain (*Plantago lanceolata*) and selfheal (*Prunella vulgaris*).

Table 21 - Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs	General Purpose Wildflower Mix				
UK Hab Classification	Other neutral grassland				
Condition Sheet	Grassland (medium, high & very high)				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches characteristics	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass

	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. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.				
Condition Criteria 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.	Pass	Condition Criteria 5.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ 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
Condition Criteria 3.	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Condition Criteria 6.	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Pass
Condition	Good	Passes 6 of 6 criteria, including both essential criteria.			
Distinctiveness	Medium				
Time to Target Condition	10 years				
Difficulty of Creation	Low				

7.1.8 C8) Grassland – Other Neutral Grassland – Flowering Lawn Mix

Further wildflower areas will be created in compartments adjacent to the car park and along the south-east boundary. These meadow areas will be seeded with an EL1 flowering lawn mixture which contains a mix of 80% grasses and 20% wildflowers and contains a higher species richness compared to the mixture used in the other wildflower areas (C7). Additional species within these areas include glaucous sedge (*Carex flacca*), smaller cat's-tail (*Phleum bertolonii*), meadow buttercup (*Ranunculus acris*) and cowslip (*Primula veris*).

Table 22 - Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs		Flowering Lawn Mix			
UK Hab Classification		Other neutral grassland			
Condition Sheet		Grassland (medium, high & very high)			
Condition Criteria 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. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass
Condition Criteria 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.	Pass	Condition Criteria 5.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ 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
Condition Criteria 3.	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Condition Criteria 6.	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Pass
Condition	Good	Passes 6 of 6 criteria, including both essential criteria.			
Distinctiveness		Medium			
Time to Target Condition		10 years			
Difficulty of Creation		Low			

7.1.9 C9) Grassland – Other Neutral Grassland – Wetland Meadow Mix

Marginal vegetation will be established around the existing ditch and proposed pond, as well as in the south-west corner of the site, by seeding with EM8 seed mixture containing 80% grasses and 20%

wildflowers. Species within this mix are suited to seasonally wet soils and are typical of floodplain habitats. Species include sweet vernal-grass (*Anthoxanthum odoratum*), tufted hair-grass (*Deschampsia cespitosa*), Devil's-bit scabious (*Succisa pratensis*) and rough hawkbit (*Leontodon hispidus*).

Table 23 - Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs		Wetland Meadow Mix			
UK Hab Classification		Other neutral grassland			
Condition Sheet		Grassland (medium, high & very high)			
Condition Criteria 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. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass
Condition Criteria 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.	Pass	Condition Criteria 5.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ 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
Condition Criteria 3.	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Condition Criteria 6.	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Pass
Condition	Good	Passes 6 of 6 criteria, including both essential criteria.			
Distinctiveness		Medium			
Time to Target Condition		10 years			
Difficulty of Creation		Low			

7.1.10 C10) Lakes - Pond (non-priority habitat) – Pond

A large pond will be created to the north-west of the site, adjacent to the hardstanding access road, woodland and wildflower meadow. The banks of the pond will be sown with wetland wildflower seed (C9), aquatic plants will be introduced and the water levels in the pond will be allowed to fluctuate naturally. The pond will provide a valuable habitat for aquatic and amphibious species, as well as being an interesting visual feature.

Table 24 - Condition Assessment for Pond (Non-Priority Habitat)

Classification within Landscape Designs		Pond			
UK Hab Classification		Pond (non-priority habitat)			
Condition Sheet		Pond			
Condition Criteria 1.	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	Condition Criteria 6.	There is an absence of non-native plant and animal species.	Pass
Condition Criteria 2.	There is semi-natural habitat (i.e. moderate distinctiveness or above) for at least 10 m from the pond edge.	Pass	Condition Criteria 7.	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass
Condition Criteria 3.	Less than 10% of the pond is covered with duckweed or filamentous algae.	Pass	Condition Criteria 8.	In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds) ³ , should cover at least 50% of the pond area that is less than 3 m deep.	Pass
Condition Criteria 4.	The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.	Pass	Condition Criteria 9.	The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	Pass
Condition Criteria 5.	Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.	Pass			
Condition	Good	Passes 9 of 9 criteria.			
Distinctiveness		Medium			
Time to Target Condition		5 years.			
Difficulty of Creation		Low			

7.2 Linear Habitats

There were no pre-existing hedgerows or lines of trees to be retained or compensated for. However, hedgerows provide valuable wildlife corridors, as well as opportunities for refuge, resting, foraging and nesting.

7.2.1 Hedgerow – Species Rich Native Hedgerow – Native Hedgerow

A total of 0.89km of native, species rich hedgerow (double staggered) will be created which will encompass the car park and provide a buffer between hardstanding and the habitats across the wider site, as well as between the development and the A5080. Seven native shrub species will make up the hedge, including field maple (*Acer campestre*), dogwood, hazel, hawthorn, European spindle (*Euonymus europaeus*), holly and guelder rose.

Table 25 - Condition Assessment for Native Species Rich Hedgerow

Classification within Landscape Designs		Native Hedgerow			
UK Hab Classification		Native species rich 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: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	Fail
A2. Width	>1.5 m average along length	Pass	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <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 (unless 'line of trees')	Pass	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.	Pass
B2. Gap – hedge canopy continuity	Gaps make up <10% of total length and No canopy gaps >5 m.	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 criteria and fails no more than 1 fail in each functional group			
Distinctiveness		Medium			
Time to Target Condition		12 years.			
Difficulty of Creation		Low			

7.2.2 Hedgerow - Native hedgerow – Evergreen Hedgerow

0.02km of evergreen hedgerow will be created as two small lengths of hedgerow bordering a stretch of parking bays. The only species within this hedge is hornbeam.

Table 26 - Condition Assessment for Native Hedgerow

Classification within Landscape Designs		Evergreen 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: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	Fail
A2. Width		>1.5 m average along length	Pass	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <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 (unless ‘line of trees’)	Pass	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.	Pass
B2. Gap – hedge canopy continuity		Gaps make up <10% of total length and No canopy gaps >5 m.	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 criteria and fails no more than 1 fail in each functional group				
Distinctiveness		Low				
Time to Target Condition		12 years.				
Difficulty of Creation		Low				

8 Post-Development Summary and Conclusion

Using the Biodiversity Metric 3.1, the habitat units of the planned 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 Table 27.

Table 27: 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	%
Habitat (Area) Units	73.71	30.22	43.49	0.00	51.39	81.61	7.9	+10.71
Hedgerow (Linear) Units	0.00	-	-	-	7.75	7.75	7.75	+100
River (Linear) Units	2.18	1.61	-	0.57	-	2.56	0.38	+17.35

As illustrated in Table 27, the total Biodiversity Net Gain for the site, based on the current landscape design, is 10.71% for area habitats, 100% for linear hedgerow habitats and 17.35% for linear river habitats. Overall, it demonstrates that the post-development habitats will provide more ecological benefit to local wildlife than the habitats currently found on site and the development is in line with the relevant National Planning Policy Framework and Local Planning Policies.

However, the newly created habitats fail to satisfy the trading rules laid out in the metric. Specifically, the units of medium distinctiveness habitats must be replaced with units from the same broad habitat or higher distinctiveness habitats. In this case, 'other neutral grassland' and 'other broadleaved woodland' have not been sufficiently replaced. The landscape proposals for this site lead to the creation of a wider diversity of habitats including ponds, scrub, and good condition grassland, than are currently present on site. Despite the trading rules not being satisfied, the post-development habitats will provide positive ecological value and habitat heterogeneity.

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 (usually 30 years) is required (Urban Green, 2022). 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.

9 References

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Appendix 1 – Pre- Development Habitat Map

U R B A N
G R E E N

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- Red Line Boundary
- Target/Notes
- Other Rivers and Streams
- Sparsely Vegetated
- Mixed scrub
- Modified Grassland
- Other neutral grassland
- Other Broadleaved Woodland Types
- Developed Land Sealed Surface



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Project: **Mercury 62**

Title: **Habitat Map**

Issue: **01**

Drawn: CL	Checked: MB	Approved: MB
Project: UG1602	Scale @ A3: NTS	Date: 9/6/2022
Dwg No: UG_1602_ECO_HM_01	Revision: 01	



Appendix 2 - Proposed Landscape Plan

U R B A N
G R E E N



Project Name	Mercury 62
Project Number	CLPD 075
Plan Name	Detailed Planting Plan
Plan Number	CLPD 075 P01
Revision	b
Date	07/07/2022
Scale	1:500 @ A0