

BIODIVERSITY NET GAIN FEASIBILITY ASSESSMENT

SEPTEMBER 2022

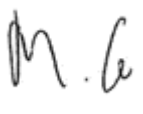
Unit 4

Brown Street
Littleborough
OL15 8BW

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



QUALITY MANAGEMENT

Project No.:	UG1240			
Project:	Unit 4, Brown Street			
Location:	Brown Street, Littleborough OL15 8BW			
Title:	Biodiversity Net Gain Feasibility Assessment			
Document Type:	BNG	Issue No.:	01	
Date:	September 2022			
Prepared By:	Max Grindle	Signature:		Qualifications: Assistant Ecologist, BSc, QCIEEM
Checked By:	Jake Healy	Signature:		Qualifications: Ecologist, MSc, QCIEEM
Checked By:	Shannon Brady	Signature:		Qualifications: Biodiversity Net Gain Consultant, MSc
Revision Status:				
Rev:	Date:	Issue/Purpose/Comment:	Prepared:	Checked:

NON-TECHNICAL EXECUTIVE SUMMARY

Urban Green have been appointed to complete a Biodiversity Net Gain Feasibility Assessment using the Natural England Biodiversity Metric 3.1 to assess the biodiversity value of the site at Unit 4, Brown Street in Littleborough, and provide recommendations on how to maximise biodiversity within the post development layout. The proposals for the site include the construction of residential and commercial mixed-use development, with associated hard and soft landscaping.

The baseline for the site was calculated using the Biodiversity Metric 3.1 and is illustrated in the table below:

	On-site baseline
Area Habitat Units	1.06
Linear Hedgerow Units	0.04

The assessments in this report are based on desk-based data and field survey data. If the recommendations in this report are implemented, the site is expected to achieve a net gain in biodiversity, meeting local and national planning requirements, and therefore off-site habitat units will not be required to offset the impact.

Contents

1	Introduction	5
1.1	Background to the Scheme.....	5
1.2	Site Context and Current Use.....	5
1.3	Purpose of this Report	6
1.4	Planning Context.....	6
2	Previous Surveys.....	7
3	Methods	10
3.1	Sources of Information	10
3.2	Site Mapping	11
3.2.1	Existing Habitat (Baseline).....	11
3.3	The Biodiversity Metric 3.1.....	11
3.4	Habitat Scoring.....	11
3.4.1	Baseline Units.....	11
3.5	Constraints to the Survey	13
4	Baseline Condition Assessment	14
4.1	Area Habitats	14
4.1.1	1) Woodland – Other woodland; broadleaved.....	14
4.1.2	2) Urban – Urban Tree.....	15
4.1.3	3) Heathland and shrub – Bramble scrub.....	16
4.1.4	4) Urban – Introduced shrub	16
4.1.5	5) Urban – Developed land; sealed surface (hardstanding)	16
4.1.6	6) Urban – Developed land; sealed surface (buildings).....	16
4.2	Linear Hedgerow Habitat.....	16
4.2.1	1) Hedge Ornamental Non-Native	16
4.2.2	2) Line of Trees.....	16
5	Recommendations for Development	18
5.1	Area Habitats	18
5.1.1	Retention and enhancement of woodland on site.....	18
5.1.2	Improve habitat diversity across the site.....	19
5.1.3	Create new areas of medium distinctiveness grassland.....	19
5.1.4	Planting Urban Trees.....	19

5.2	Linear Hedgerow Habitats	20
5.2.1	Retention and enhancement of line of trees	20
5.2.2	Creation of new native hedgerows.....	20
6	Conclusions	21
7	References	22
Appendix 1 – Pre-Development Habitat Map		

1 Introduction

1.1 Background to the Scheme

Urban Green have been appointed to complete a Feasibility Assessment on behalf of Casey Group to assess the biodiversity value of the site at Unit 4, Brown Street in Littleborough (hereafter referred to as 'the site'), provide recommendations on how to maximise biodiversity within the post development layout and the potential to achieve a net gain for biodiversity. The proposals include the demolition of existing buildings to facilitate the erection of a residential apartment block with associated car park and landscaping.

The author of the report is Max Grindle BSc, QCIEEM, Assistant Ecologist at Urban Green. Max has experience providing consulting services in Biodiversity Net Gain for a range of development schemes across the UK, including residential and commercial schemes.

This report provides an indication of the feasibility of achieving Biodiversity Net Gain on site and provides suggestions for habitat creation and enhancement. Once fixed landscape designs are produced, the calculation should be repeated to ensure an accurate representation of post development habitats.

1.2 Site Context and Current Use

The site is located at National Grid Reference SD 93517 16412 and comprises a total area of approximately 0.6 ha (see Figure 1).

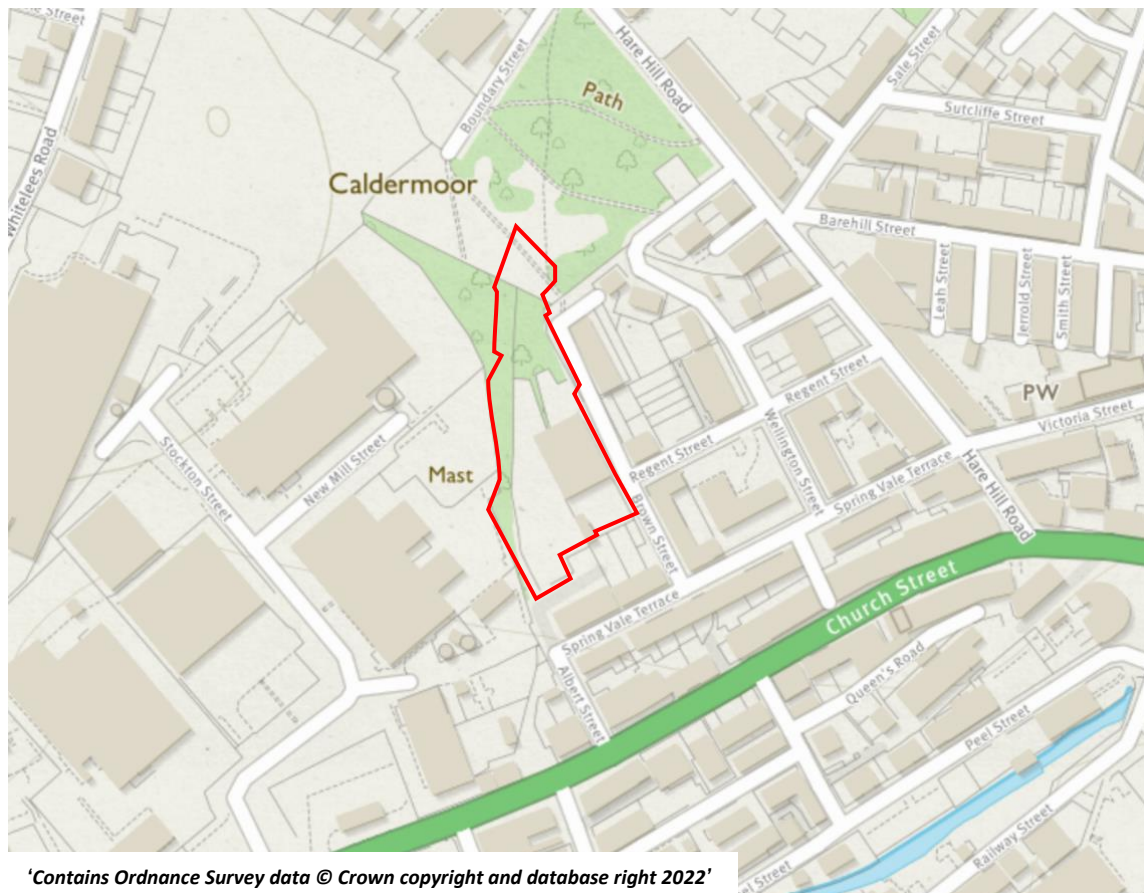


Figure 1 – Site Extent

The site is located in a predominantly urban area of Littleborough, approximately 5km north-east from Rochdale town centre. Residential properties are present to the south and east of the site, with industrial developments bordering to the west and a public park present to the north.

1.3 Purpose of this Report

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

- Ensure that all core principles 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;
- Provide design recommendations to maximise gains in biodiversity as part of the proposed development on site.
- Assess the potential for achieving a net gain on site.

1.4 Planning Context

Biodiversity Net Gain 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 many Local Plans already require developments to deliver BNG.

Currently the National Planning Policy Framework (NPPF) details:

Paragraph 170 of the NPPF states:

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

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

Rochdale Borough Council adopted their new Core Strategy, relevant to 2041, in October 2016. Section 10.35 of the Rochdale Core Strategy states:

‘We will ensure that sites and features of biodiversity and geodiversity importance are given full and appropriate recognition and protection. Opportunities for enhancing biodiversity and geodiversity, creating new sites and features of interest and improving opportunities for public enjoyment will be supported. No development should result in a net loss of biodiversity or geodiversity interest in the borough and overall development in the borough should result in a net gain.’

Greater Manchester Combined Authority (GMCA) have also produced guidance relating to Biodiversity Net Gain within the 9 GM boroughs and set out a target of 10% gain in every new development.

2 Previous Surveys

A preliminary ecological appraisal (PEA) was conducted on the site in August 2021 by Urban Green. This constituted a desk-based study and a field survey which was carried out on 11th August 2021. Key information obtained is summarised below; full details can be found within the PEA (Urban Green, 2021). Due to the size and low impact of the proposed development, a 1km Local Data Search was conducted as it is deemed an appropriate distance for the Zone of Influence.

Table 1 – Designated Sites within the Search Areas

Designated Site	Approx. Distance from Site	Details
Statutory designated sites		
Rochdale Canal Sites of Special Scientific Interest (SSSI)	300m southeast	A 26.37ha site. Its designation was selected due to its important habitats for submerged aquatic plants and emergent vegetation. Species include the nationally scarce floating water-plantain (<i>Luronium natans</i>), a diverse assemblage of pondweeds (<i>Potamogeton</i> spp) including the nationally rare American pondweed (<i>Potamogeton epihydrus</i>), water violet (<i>Hottonia palustris</i>) as well as the locally uncommon species including royal fern (<i>Osmunda regalis</i>) and freshwater sponge (<i>Spongilla lacustris</i>). The site also supports in excess of 112 invertebrate species, 13 of these are of local importance and nationally scarce species including water beetle (<i>Agabus uliginosus</i>) and the pea mussel (<i>Pisidium pulchellum</i>). A number of waterfowl are attracted to the canal habitat, including kingfisher (<i>Alcedo atthis</i>) which is a Schedule 1 species of the Wildlife and Countryside Act 1981 (as amended). The site also falls within the IRZ of the Rochdale Canal SSSI.
Rochdale Canal Special Area of Conservation (SAC)	300m southeast	A 24.86ha site, its designation was selected due to its important habitats for submerged aquatic plants and emergent vegetation, primarily the nationally scarce floating water-plantain.
South Pennine Moors SAC and Special Protection Area (SPA)	1.7km southeast	This 65024.32ha site expands across several regions such as Cheshire, Derbyshire and Nottinghamshire, Greater Manchester, Lancashire, North Yorkshire, Shropshire and Staffordshire, South Yorkshire and West Yorkshire. This site was designated due to the presence of Annex I habitats such as European dry heaths and blanket bogs at the southern end of the Pennine range, old sessile oak woods with <i>Ilex</i> spp and <i>Blechnum</i> spp, as well as North Atlantic wet heaths with <i>Erica tetralix</i> and transition mires and quaking bogs.

Designated Site	Approx. Distance from Site	Details
Non-statutory designated sites		
Rochdale Canal (Scowcroft to Warland)	300m southeast	A site containing important habitats for submerged aquatic plants and emergent vegetation.
Hollingworth Lake and surrounds	960m southeast	A site containing a lake and surrounding woodland and fields.

Table 2 – Summary of the PEA, 2021

Flora/Fauna	Results
Vascular plants	No notable flora was noted during the field survey, with only common and widespread species observed. In addition, the data search returns records of notable flora in association with aquatic habitats which does not exist on site.
Invertebrates	The data search returned 62 records of Section 41 (NERC Act, 2006) invertebrate species including autumnal rustic (<i>Eugnorisma glareosa</i>), blood-vein (<i>Timandra comae</i>), buff ermine (<i>Spilosoma luteum</i>), cinnabar (<i>Tyria jacobaeae</i>), common carpet (<i>Epirrhoe alternata</i>), dot moth (<i>Melanchra persicariae</i>), grey dagger (<i>Acronicta psi</i>), knot grass (<i>Acronicta rumicis</i>), mouse moth (<i>Amphipyra tragopoginis</i>), neglected rustic (<i>Xestia castanea</i>), rosy minor (<i>Mesoligia literosa</i>), sallow (<i>Cirrhia icteritia</i>), small phoenix (<i>Ecliptopera silaceata</i>), small squared-spot (<i>Diarsia rubi</i>), white ermine (<i>Spilosoma lubricipeda</i>) and white-letter hairstreak (<i>Satyrus w-album</i>). No deadwood, aquatic habitats or high floristic diversity was located on site which would provide an important resource for notable invertebrates during their life cycle and so their presence is discounted. Common invertebrates are anticipated to be on site.
Amphibians	The data search returned one record of common toad (<i>Bufo bufo</i>). No ponds were located within site or within 250m of the site boundary. As great crested newts' (<i>Triturus cristatus</i>) upper dispersal limit is generally considered to be up to 250m from a waterbody (though occurrence of greater distances does exist), great crested newts are not anticipated to be present on site. The woodland may provide suitable foraging and refuge for common amphibians that may be present within the local area. Therefore, great crested newts are reasonably discounted, though common amphibians may be present within the site boundaries.
Reptiles	Generally, reptiles require a mosaic of habitats. However, much of the site comprised a monoculture of bare ground which lacked a variety of heights and structure that is important to reptiles to avoid predation. The woodland on site and associated parkland is isolated from extensive suitable habitats and would not be able to support a population of reptiles. Overall, the habitats on site were of limited value and no records of the species group were identified. Reptiles are not considered to be present on site.

Flora/Fauna	Results
Birds	A total of 186 records of protected or notable birds were returned. The bare ground habitats provide negligible value for ground nesting birds due to very limited vegetation present and species would be exposed to predation. The woodland may provide value to nesting birds. In addition, several notable passerine bird records were returned as present on-site including dunnock (<i>Prunella modularis</i>), house sparrow (<i>Passer domesticus</i>) and starling (<i>Sturnus vulgaris</i>). It is anticipated that these species may utilise the habitats on site and within the wider area. Whilst the surrounding trees may provide suitable perches for birds of prey, no suitable food source, such as small rodents, were noted throughout the site and wider area and. In addition, the relatively small size of the site limits the foraging habitat for birds of prey and species are likely to utilise more suitable habitat within the nearby agricultural areas.
Bats	The data search returned six records of bat roosts recorded within 1km of the site boundary, with the closest record of a pipistrelle species (<i>Pipistrellus sp.</i>) mixed roost located 120m north-west of the site in 2014. 69 additional bat records were returned for pipistrelle species. A search on MAGIC also details the presence of one granted bat mitigation licence within 2km of the site (licence reference: 2015-8632-EPS-MIT). The licence began in March 2015 and ends in October 2020 and permits the destruction of a common pipistrelle (<i>Pipistrellus pipistrellus</i>) resting place. B1a was assessed as having moderate bat roosting potential due to a number external PRFs. B1b was assessed as having low bat roosting potential due to a limited number of external PRFs observed relating to the asbestos roof panels. Further bat surveys were undertaken on site in 2021, with bat activity recorded during the two surveys in relation to the site. However, no roost was identified within the site, but the site was confirmed to be used by foraging and commuting bats.
Hedgehog (<i>Erinaceus europaeus</i>)	1 record of hedgehog was returned. The woodland is anticipated to provide suitable cover and foraging habitats for the species. Hedgehogs are anticipated to be on site.
Badger (<i>Meles meles</i>)	There were no records of badger returned within the data search and no evidence of badger presence or sett building. The habitats on site are also isolated from the wider landscape by major roads. Badgers are likely using habitats close by and could use the site for foraging and sett building.
Invasive species	Wall cotoneaster (<i>Cotoneaster horizontalis</i>) was present within the woodland, whilst an additional area of wall cotoneaster and montbretia (<i>Crocasmia × crocosmiflora</i>) was present within the centre of the site, on the western aspect of B1a.

3 Methods

3.1 Sources of Information

Table 3 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
MAGIC website (www.magic.gov.uk)	22/09/2022	Locations of statutory designated sites within 1km of the site boundary. Locations of the designated sites within the National Site Network (Ramsar, SAC and 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/)	22/09/2022	Relevant statutory designated site citations.
JNCC (https://jncc.defra.gov.uk/)	22/09/2022	Information on European wildlife sites. Details of relevant Section 41 species and habitats.
Greater Manchester Local Record Centre	22/09/2022	Locally designated wildlife sites within 1km of site boundary. Records of protected and notable species within 1km of the site boundary.
Greater Manchester Local Biodiversity Action Plans	22/09/2022	Species and habitats which are given special conservation status at the local level.
Preliminary Ecological Appraisal (Urban Green, 2021)	22/09/2022	Notable species, habitats and designations identified on site and within a 1km radius.
The Biodiversity Metric 3.1 <i>Natural England Publications</i> (http://nepubprod.appspot.com/publication/6049804846366720)	22/09/2022	The Biodiversity Metric 3.1, including the tool itself, user guides and reference documentation associated with the tool.

3.2 Site Mapping

3.2.1 Existing Habitat (Baseline)

The site was subject to a field survey on the 11th August 2021 by Katie Bird, Senior Ecologist at Urban Green. The weather conditions were 18°C, with cloud cover but no precipitation.

The methods were based on the standard methodology as detailed by *JNCC Handbook for Phase 1 Habitat Survey* (JNCC, 2010). A Phase 1 Habitat Plan was produced to demonstrate habitats within the proposed development and the surrounding area. The mapping techniques were based on *the Phase 1 Habitat Survey* (JNCC, 2010) guidance. Plant common and latin names were taken from the *Online Atlas of British and Irish Flora* (<https://www.brc.ac.uk/plantatlas/>), a continually updated directory of plant nomenclature developed in partnership by the Botanical Society of Britain and Ireland, the Biological Records Centre, the UK Centre for Ecology and Hydrology, and the JNCC.

Plant species were identified and recorded and species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and those 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* were also searched for during the field survey.

As the Biodiversity Metric 3.1 uses the UKHab classification system, habitat types were converted to UKHab classifications using the UKHab Habitat Definitions guidance (Butcher *et al.*, 2020) and the Metric/Phase 1 translation sheet within the metric. The UKHab conversions were used to input data into the metric and habitats were subsequently mapped using ESRI ArcGIS Pro software (Appendix 1).

3.3 The Biodiversity Metric 3.1

The BNG calculation was undertaken utilising The Biodiversity Metric 3.1 from Natural England (full calculation available UG_1240_BNG_CALC_01) using data obtained from the field survey.

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

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, location and proximity to nearby ‘connecting’ features. The metric enables assessments to be made of the present and forecast future biodiversity value of a site.

3.4 Habitat Scoring

The Biodiversity Metric 3.1 supplies reference documents and user guides to accurately evaluate and assess the different habitats on site. The methodology for the baseline and post development calculations are demonstrated in the following sections.

3.4.1 Baseline Units

To assess the quality of a habitat, and therefore calculate the units scored, the Biodiversity Metric 3.1 utilises three scoring factors detailed as follows:

Condition

The condition of a habitat is assessed utilising the Condition Sheets provided for each 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 Biodiversity Metric 3.1 Technical Supplement Part 1a (Natural England, 2022).

For this assessment, the **woodland, urban trees and line of trees** assessment sheets were used to assess the various habitats on site (see Table 4).

Table 4 – Conditions Sheets for Habitat Assessment

Condition Sheet	Habitats Assessed
Area Habitats	
Woodland	Woodland and forest – Other woodland; broadleaved
Urban trees	Urban – Urban trees
N/A	Scrub – Bramble Scrub
N/A	Urban – Introduced shrub
N/A	Urban – Developed land; sealed surface
Linear Habitats	
N/A	Hedge ornamental non-native
Line of Trees	Line of Trees

Distinctiveness

The distinctiveness of each habitat (area) is automatically assigned by the tool, based upon national records of the occurrence and rarity of each habitat. Table 5 provides the basis of the distinctiveness assessment for area habitats.

Table 5 – Distinctiveness Assessment for Habitat Areas

Distinctiveness Categories		
Category	Scores	Description
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.

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. 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 (see Table 6).

Table 6 – Strategic Significance Assessment for Habitat Areas and Linear 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

3.5 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.

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, but this margin of error has been minimised using professional opinion of 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.

Furthermore, the original ecological survey was carried out using Phase 1 Habitat survey techniques which have been converted to UKHab classifications for input into the metric. There is a possibility that, during this process, some habitats may get wrongly classified, however, this possibility has been minimised by using UKHab guidance documents and conversion recommendations within the metric to accurately re-classify habitats.

The conclusions and recommendations detailed in this report are based upon the site redline boundary identified in Figure 1. 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.

4 Baseline Condition Assessment

Condition assessments are provided below following the methodology outlined in Section 3.4. The primary codes used are identified, habitats have been given reference numbers for clarity in-text and the metric calculation illustrates the numerical data. The habitats found on site are of low strategic significance and as such are of low potential and not in an area defined in local policy.

4.1 Area Habitats

4.1.1 1) Woodland – Other woodland; broadleaved

The northern aspect comprised a section of mixed broadleaved woodland (see Photograph 1 and 2). Abundant species within this woodland comprised frequent ash (*Fraxinus excelsior*), willow (*Salix* spp.), Leyland cypress (*Cupressus × leylandii*), sycamore (*Acer pseudoplatanus*), with rare cherry (*Prunus* spp.), field maple (*Acer campestre*), Lawson cypress (*Chamaecyparis lawsoniana*), goat willow (*Salix caprea*), silver birch (*Betula pendula*) and alder (*Alnus glutinosa*).

The understorey comprised holly (*Ilex aquifolium*), wall cotoneaster, Japanese laurel (*Aucuba japonica*), bramble (*Rubus fruticosus* agg.), and Darwin's barberry (*Berberis darwinii*). With ground flora of abundant ivy (*Hedera helix*), wood avens (*Geum urbanum*), herb robert (*Geranium robertianum*), cleavers (*Galium aparine*) and ground ivy (*Glechoma hederacea*). Occasional species included creeping buttercup (*Ranunculus repens*), foxglove (*Digitalis purpurea*) and mallow (*Malva sylvestris*).

Table 7 – 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	No recognisable NVC community (Poor – 1 Point)
Indicator 3. Invasive plant species	Rhododendron or laurel present, or other invasive species > 10% cover (Poor – 1 point)	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 woodland (Poor – 1 Point)
Indicator 5. Cover of native tree and shrub species	50-80% of canopy trees and 50-80% of understory shrubs are native (Moderate – 2 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	No nutrient enrichment or damaged ground evident (Good – 3 points)
Indicator 7. Woodland regeneration	No classes or coppice regrowth present in woodland (Poor – 1 Point)		
Condition	Moderate	Scores 26 (26 – 32 = Moderate)	



Photograph 1 – Mixed broadleaved woodland



Photograph 2 – Mixed broadleaved woodland

4.1.2 2) Urban – Urban Tree

Located within 5) Developed land; sealed surface (hardstanding) and equidistant between the linear hedgerow habitats to the east and west was an early-mature sycamore, standing at 14m. The tree was in good physiological and structural condition.

Table 8 – Condition Assessment for Urban Trees

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 being >5 m wide (individual trees automatically pass this criterion).	Pass	Condition Criteria 5.	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark	Fail
Condition Criteria 3.	The tree is mature or veteran (or more than 50% within the block are mature or veteran).	Pass	Condition Criteria 6.	More than 20% of the tree canopy area is oversailing vegetation beneath.	Fail
Condition	Moderate	Passes 4 of 6 criteria			

4.1.3 3) Heathland and shrub – Bramble scrub

An area of bramble scrub was present onsite, extending from within the understorey of 1) Woodland – Other woodland; broadleaved.

Bramble scrub is given a pre-determined condition score of **N/A**.

4.1.4 4) Urban – Introduced shrub

Scattered areas of introduced ornamental shrub were located within the ornamental hardstanding areas. Species consisted of culver's root (*Veronicastrum virginicum*), Japanese holly (*Ilex crenata*) and juniper species (*Juniperus* spp.).

Introduced shrub is given a pre-determined condition score of **N/A**.

4.1.5 5) Urban – Developed land; sealed surface (hardstanding)

The most abundant habitat onsite, comprising much of the southern aspect of the site, was an area of hardstanding consisting of paved pathway and road.

Developed land; sealed surface is given a pre-determined condition score of **N/A**.

4.1.6 6) Urban – Developed land; sealed surface (buildings)

Three buildings and a number of shipping containers were present within habitat 5) Urban – Developed land; sealed surface (hardstanding).

Developed land; sealed surface is given a pre-determined condition score of **N/A**.

4.2 Linear Hedgerow Habitat

4.2.1 1) Hedge Ornamental Non-Native

On the western border of the site, immediately below 1) Woodland – Other woodland; broadleaved, was a length of Leyland cypress, maintained as a hedge with an average height of 3m across its length, which measured approximately 22m.

Hedge Ornamental Non-Native is given a pre-determined condition score of **Poor**.

4.2.2 2) Line of Trees

On the eastern border of the site, located below 3) Heathland and shrub – Bramble scrub, was a line of trees containing Lawson cypress and sycamore. The age of trees within this line ranged from early-mature to semi-mature, and height ranged between 3-7m.

Table 9 – Condition Assessment for 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.	There is an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations.	Fail
Condition Criteria 2.	Tree canopy is predominantly continuous with	Pass	Condition Criteria 5.	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for	Fail

		gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.			wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	
Condition Criteria 3.		Includes one or more mature or veteran tree.	Pass			
Condition	Poor	Passes 2 of 6 criteria				
Distinctiveness		Medium				

5 Recommendations for Development

The site is located in a predominantly urban area of Littleborough, approximately 5km north-east from Rochdale town centre. Residential properties are present to the south and east of the site, with industrial developments bordering to the west and a public park present to the north.

Considering this and its location within a busy developed area the habitats on site are important for connectivity within the wider landscape and provide a refuge for wildlife. There is, however, a lack of habitat diversity as the site is dominated by hardstanding which offers negligible ecological value to the surrounding area.

Using the Biodiversity Metric 3.1, the habitat units of the existing site area habitats were calculated, as well as the linear hedgerow units. The results of these calculations are presented in Table 10 and the Metric 3.1 (UG_1240 _BNG_CALC_01).

Table 10 - Summary of Baseline On-Site Habitat Units

	On-site baseline
Area Habitat Units	1.06
Linear Habitat Units	0.04

5.1 Area Habitats

It is recommended that the following measures are implemented:

- Retention and enhancement of woodland on site
- Improve habitat diversity across the site
- Create new areas of medium distinctiveness grassland
- Plant urban trees

5.1.1 Retention and enhancement of woodland on site

The woodland currently on site is the habitat of most ecological value providing opportunities for nesting birds and commuting and foraging mammals and bats. The woodland currently has a condition score of moderate and therefore leaves room to be enhanced which would result in a higher number of area units offered by this parcel of the site.

A starting point for enhancing the condition of the woodland is to remove the Japanese laurel and eradicate the wall cotoneaster that is currently present within the habitat; these species are classed as invasive plant species and reduce the condition of the woodland. By removing these species and planting other species that are recognisable NVC communities of woodland, such as W8 which includes dog's-mercury (*Mercurialis perennis*), bramble, and common feather-moss (*Eurhynchium praelongum*), the condition of the woodland can be enhanced.

Allowing standing dead wood to remain in the habitat is also advantageous as this provides various other opportunities for insects and other animals to capitalise on.

5.1.2 Improve habitat diversity across the site

Currently, there are only 4 area habitats on site, with developed land; sealed surface comprising the majority of the site

A starting point for improving the overall ecological value of the site is creating a wider range of habitats, particularly those of medium or high distinctiveness such as wildflower meadow and urban trees. The habitats created should ideally be of different broad habitat types and provide value in various ways, for example, providing shelter for nesting, food resources and a diverse vertical structure. This will support and attract a wide range of species, including birds, pollinators, and small mammals, and improve connectivity between other local habitats.

If removing and replacing habitats, it is also important to consider the trading rules laid out by the metric which are based on the distinctiveness of the existing habitats. The bramble habitat must be replaced by habitats of the same habitat type (heathland and shrub) or a higher distinctiveness habitat. Creating new areas of native, species rich mixed scrub, which provides the same number of units as the habitats lost, will address this, and offer a more diverse habitat compared to the existing areas of scrub which are dominated by single species.

5.1.3 Create new areas of medium distinctiveness grassland

No areas of grassland are currently present on site and as such the creation of some grassland areas will result in extra area habitat units on site and improve the habitat diversity onsite.

Wildflower meadows fit this habitat type and are a relatively simple habitat to create via seeding using a species rich seed mix, usually an 80:20 ratio of grass and wildflower species respectively. Native wildflowers such as bluebell (*Hyacinthoides non-scripta*), meadowsweet (*Filipendula ulmaria*) and bird's foot trefoil (*Lotus corniculatus*) will provide nectar for native pollinators, as well as improving the visual amenity of the site.

To promote the development of a good condition habitat, a staggered mowing regime (mowing in sections) of twice annually (with removal of arisings) should be adopted to allow a sward with varied heights to develop and any areas of bare ground should be seeded. Furthermore, ongoing monitoring should be carried out to identify and remove any invasive, non-native species (listed on Schedule 9 of the Wildlife and Countryside Act 1981), such as rhododendron (*Rhododendron* spp.) and Himalayan balsam (*Impatiens glandulifera*).

5.1.4 Planting Urban Trees

Within the Biodiversity Metric 3.1, urban trees have the potential to produce significant unit contributions, dependent on the size and condition of the trees - a single medium tree of moderate condition provides approximately 0.29 habitat units. Urban trees should be planted across the site where it is realistic to do so, and the trees are not going to be damaged or disturbed. Native tree species should be selected over ornamental, including species such as wild cherry (*Prunus avium*) and silver birch. Management and human interference should be kept to a minimum and a naturally vegetated area should be present under the canopy.

5.2 Linear Hedgerow Habitats

Hedgerow habitats are important features throughout the UK. Damaging or removing these habitats should be avoided as much as possible and a new development should strive to increase the total length of hedgerows on site.

It is recommended that the following measures are implemented:

- Retention and enhancement of line of trees
- Creation of new native hedgerows

5.2.1 Retention and enhancement of line of trees

The line of trees along the eastern boundary acts as a wildlife corridor and provides foraging and nesting opportunities for wildlife. The line of trees should be retained and enhanced where possible. Currently, this habitat is in poor condition, failing 3 of 5 condition criteria. To reach moderate condition, ensure that a 6m naturally vegetated, undisturbed strip is allowed to develop on either side of the line of trees, including on the land located offsite where possible and encourage continuous canopy cover by planting in gaps and restricting pruning.

5.2.2 Creation of new native hedgerows

New linear hedgerows should be planted on site where feasible, especially around the periphery of the site. Hedgerows are important green infrastructure that provide connectivity to the wider landscape and provide an array of nesting, sheltering and foraging opportunities to wildlife as well as contributing significant linear habitat units. Native species should be used over no-native species as this provides a greater return of linear units.

6 Conclusions

The site currently comprises predominantly developed land; sealed surface habitat which offers negligible ecological value and no habitat units. Other habitats are present on site that do provide ecological value and significant habitat units, namely the other woodland; broadleaved habitat currently in moderate condition.

Should the recommendations in this report be followed, it is likely that the site will achieve a net gain in biodiversity, meet local and national planning requirements, and no off-site mitigation will be required. A full detailed assessment will be necessary once landscape designs have been completed to calculate the final Biodiversity Net Gain score for the site.

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.

7 References

- Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). *UK Habitat Classification – Habitat Definitions V1.1*
- CIEEM (2019). Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM.
- Communities and Local Government Committee (2021). The National Planning Policy Framework.
- Natural England (2022). Auditing and accounting for biodiversity calculation tool.
- Natural England (2022). The Biodiversity Metric 3.1 - Technical Supplement.
- Natural England (2022). The Biodiversity Metric 3.1 - User Guide.
- Rochdale Borough Council (2016), Rochdale Adopted Core Strategy.
- Stace, C. (2010). *New Flora of the British Isles*. 3rd ed. Cambridge: Cambridge University Press.
- The UK Habitat Classification Working Group (2018) *The UK Habitat Classification*.
- The Wildlife and Countryside Act 1981 (England and Wales).
- Urban Green (2021). UG_1240_ECO_PEA_01.

Appendix 1 – Pre-development Habitat Map

Do not scale this drawing (printed or electronic version).
This drawing is copyright and is for use on this site only. This drawing should be read in conjunction with all relevant consultants drawings and specialist subcontractors / supply chain drawings and specifications.
Responsibility for the reproduction of this drawing in paper form, or issued in electronic format, lies with the recipient to check that all information has been replicated in full and is correct when compared to the original paper or electronic image.

- Target Note
 - Scattered tree
 - Species poor hedge
 - Built Linear Feature
 - Inroduced Scrub
 - Red Line Boundary
 - Dense scrub
 - Other woodland mixed
 - Shipping / metal container
 - Building
 - Developed Land Sealed Surface
 - Line of Trees
- TN1 - Wall Cotoneaster
TN2 - Montbretia and wall cotoneaster

0 5 10 20 Meters



A: Ground Floor, The Tower,
Deva City Office Park, Trinity Way,
Manchester M3 7BF
T: +44 (0) 161 312 3131
weareurbangreen.co.uk

Client: Casey Group

Project: Brown Street, Littleborough

Title: UKHAB Habitat Map

Issue: 01

Drawn: CL	Checked: MG	Approved: MB
--------------	----------------	-----------------

Project: UG1240	Scale @ A3: NTS	Date: 22/09/2022
--------------------	--------------------	---------------------

Dwg No: UG_1240_ECO_HM_01	Revision: 01
------------------------------	-----------------