BIODIVERSITY ENHANCEMENT MANAGEMENT PLAN

January 2024

Jurby Avenue,
Blackley,
Manchester,
M9 6NQ

URBAN GREEN

QUALITY MANAGEMENT

Project No.:	UG1828				
Project:	Jurby Avenue				
Location:	Jurby Avenue, Blackley, Manchester, M9 6NQ				
Title:	Biodiversity Enhancement Management Plan				
Document Type:	BEMP				
Date:	27/01/2023				
Prepared By:	Sarah Child	Signature		Qualifications	Biodiversity Net Gain Consultant
Checked By:	Shannon Brady	Signature	SBrady	Qualifications	Biodiversity Net Gain Consultant
Checked By:	Max Grindle	Signature	M.G	Qualifications	Assistant Ecologist, BSc, QCIEEM

Revision Status:				
Rev:	**Date:**	**Issue/Purpose/ Comment:**	**Prepared:**	**Checked:**
02	04/01/2024	Updated to reflect amends to landscapes	SC	SB

CONTENTS

1 Introduction 1
1.1 Background to the Scheme 1
1.2 Site Context 1
1.3 Purpose of this Management Plan 2
1.4 Aims of this Management Plan 2
2 Development Proposals 3
3 Management Considerations 4
3.1 Management Responsibilities 4
3.2 Controlling Authority 4
3.3 Health and Safety 4
3.4 Monitoring and Review 4
3.5 General Measures 5
4 Ecological Baseline 6
5 Biodiversity Enhancements 8
5.1 Bat Boxes 8
5.2 Bird Boxes 9
5.3 Hedgehog 11
5.4 Work Schedule 12
6 Ecological Strategy 14
6.1 Area Habitat Creation 14
6.2 Linear Hedgerow Habitats 21
6.3 Five Year Work Programme 22
7 References 26
APPENDIX 1 – Biodiversity Enhancements Location Plan

1 Introduction

1.1 Background to the Scheme

Irwell Valley Homes are proposing to develop land at Jurby Avenue in Blackley (hereafter referred to as 'the site'). The proposals include the construction of an apartment complex with 13 residential units with associated maintenance and utility infrastructure, and hard and soft landscaping.

Urban Green have been appointed to provide a Biodiversity Enhancement Management Plan (BEMP) for the site which has been written to accompany the Biodiversity Net Gain Assessment of this site.

The author of the report is Biodiversity Net Gain Consultant, Sarah Child. Sarah has experience providing consulting services in Biodiversity Net Gain for a range of development schemes, both residential and commercial, across the UK.

1.2 Site Context

The site is located at National Grid Reference SD 85541 03537 and comprises a total area of approximately 0.3ha (see Figure 1).

'Contains Ordnance Survey data © Crown copyright and database right 2022'

Figure 1 – Site Extent

The site is located along a suburban/greenspace fringe within the predominantly urban area of Blackley, approximately 5.5km north of the centre of Manchester. The north of the site is bound by residential developments, with the south and east bordering public open greenspace, including Plant Hill Park to the east. Adjacent to the west of the site is a parcel of woodland. The site features a relatively low level of

disturbance due to its location at the end of a small suburban cul-de-sac, however main roads are present nearby in the wider environment.

1.3 Purpose of this Management Plan

The purpose of this management plan is to provide a schedule for the long-term management of habitats on site, ensure that existing and proposed habitats are suitably maintained and ensure good establishment and continued improvement of habitat condition. This allows those responsible for the management and maintenance of the site to understand the existing habitats, the development and ongoing management requirements of the site. Habitats should be maintained under a formal management regime for a minimum of 30 years, with regular assessments during this period to assess the development and condition of habitats.

1.4 Aims of this Management Plan

This management plan covers the habitat creation and enhancement on site, as detailed within the Biodiversity Net Gain (BNG) Assessment (Urban Green, 2024a & 2024b). This report assessed the development as scoring a net gain of 1.46 units (158.57%) for area habitats and a net gain of 0.18 (100.00%) units for linear hedgerow habitats.

Appropriate management practices are essential to ensuring that the proposed habitats reach the condition outlined within the Biodiversity Net Gain assessment and that the development achieves the predicted gain in value to the environment. The aim of this management plan is to provide a habitat management plan that:

- Maintains and enhances site biodiversity, through the sustainable management of on-site habitats;
- Promotes the successful establishment and growth of newly created habitats;
- Ensures the health and safety of all site user's post development is protected;
- Outlines a process for the regular monitoring and review of management practices and site habitats; and
- Provide measurable and achievable targets appropriate to each habitat to ensure condition targets are met as set out in Section 6 in accordance with Biodiversity Metric 3.1 habitat condition sheets.

2 Development Proposals

The site comprises approximately 0.3ha in total. The applicant is seeking approval for the construction of an apartment complex with 13 residential units with associated maintenance & utility infrastructure and hard & soft landscaping. The proposed habitats within this assessment are expected to produce a net gain of 1.46 units (158.57%) for area habitats and a net gain of 0.18 (100.00%) units for linear hedgerow habitats. The current proposals also satisfy all trading rules laid out by the metric. Consequently, the development meets all national and local planning policies and off-site mitigation will not be necessary.

3 Management Considerations

3.1 Management Responsibilities

The implementation of this management plan will be the responsibility of the landowner for a minimum of 30 years, based on requirements within the Environment Act (2021). Any transference of responsibility of this plan should be undertaken with the appropriate appointment of a competent organisation capable of delivering the management detailed within the document.

The organisation implementing this plan will be a management company with the necessary certificates of competence to implement landscape management operation on site. The managing organisation will ensure that all site management complies with good practice standards and all relevant health and safety procedures. The managing organisation will also ensure that measures outlined to avoid pollution incidents, comply with protected species and habitats legislation, and ensure overall environmental protection are enforced.

A maintenance specification is provided in Section 6. This sets out the detailed maintenance requirements for the habitats onsite, which must be followed at all times. Any deviations from the management plan must be highlighted to the site owners or management company.

3.2 Controlling Authority

The controlling authority, Manchester City Council, should be consulted on any matters relating to the approved landscape proposals for the scheme.

3.3 Health and Safety

The site will be managed to comply with all relevant health and safety legislation, approved codes of practice (ACOP) and Health and Safety Executive (HSE) guidance.

As the managing organisation will be the main company involved in on site works, the managing organisation will fulfil the landowner's role and the work manager's role. This places an obligation on the managing company to ensure that any contractor understands and fulfils their health and safety role and any work undertaken on the site will follow the guidelines of the HSE.

3.4 Monitoring and Review

Regular monitoring of the development against measurable targets (as detailed within Section 6) will be undertaken across all habitats detailed within this management plan during the 30-year period. The outcome of this monitoring will form part of a Monitoring and Audit Report to be submitted to the site owner annually to inform the forthcoming year's work. The report will include management operations undertaken, any unexpected changes or declines in habitat condition and any actions required that fall outside those detailed within this report.

A more in-depth habitat assessment of the created habitats on site should also be undertaken between April and September annually by an experienced ecologist. Results should be reported back and feed into a five-year management plan review, to enable assessment of the management prescriptions against the defined objectives for each habitat. Where objectives are not being adequately met, appropriate action will be put in place, with any refinements incorporated into the updated management plan and annual work programme. This review will enable maintenance operations to evolve in accordance with habitat requirements as they establish, and mature and targeted conditions are met.

3.5 General Measures

Habitat creation on site will follow details set out in the Detailed Planting Plan (Urban Green, 2023). The following general measures shall be met to ensure successful habitat creation and succession on site.

- All planting is to follow guidance set out in the relevant British Standard or Horticultural Trades Association documents and carried out by a competent person.
- Planting is to remain undamaged, with healthy and vigorous growth, and is to be planted upright and well balanced. Trees and shrubs are to be of good shape and without elongated shoots, grown in a suitable environment and hardened off before being delivered to the site.
- All planting is to be true to name and free from pests, diseases, discoloration, weeds, fungus, and physiological disorders upon planting.
- If plants/trees are unobtainable alternatives are to be agreed with the Ecologist/Landscape Architect in writing prior to ordering.
- After planting ensure that the full depth of topsoil is wetted. Apply water evenly and without damaging or displacing plants or soil. Continue to water as necessary to ensure the successful establishment and continued thriving of planting.
- All tree/shrub/hedgerow works shall be completed outside of nesting bird season (i.e. between October and February inclusive). If works are required within the nesting bird season, a check must be undertaken of all affected trees by a suitably qualified ecologist.
- All tree works shall be carried out by a skilled, qualified and approved Arboricultural Contractor in accordance with BS3998: 2010 'Tree Work – Recommendations'.

4 Ecological Baseline

The ecological baseline for the site was assessed within the Preliminary Ecological Assessment (PEA) (Urban Green, 2022a) informed by an extended phase one habitat survey. A summary of designated sites, notable and/or protected species and habitats identified is provided below, with full descriptions of each feature available within the PEA. The baseline habitat map for the site can be found in the Biodiversity Net Gain Report (Urban Green, 2024a).

Table 1 – Identified designated sites relevant to the site.

Designated Site	Distance from Site	Description
Statutory Designated Sites		
Rochdale Canal Special Area of Conservation (SAC) and SSSI	3.5km east	This site is designated for the significant populations of floating water-plantain (*Luronium natans*) and diversity of pondweed species (*Potamogeton* sp.) supported within the predominantly mesotrophic waters. The site falls within the Impact Risk Zone for this SSSI.
Blackley Forest Local Nature Reserve (LNR)	930m west	The forest makes up most of the reserve along with grassland. The River Irk flows through the park and is a main feature. There are a variety of plants and animals to see. Habitats include broadleaved and plantation woodland, grassland, lake, marsh and a river.
Boggart Hole Clough LNR	820m south	The site is the largest woodland clough in Manchester and part is ancient woodland.
Non-statutory Designated Sites		
Bailey's Wood Site of Biological Interest (SBI)	500m south	No information provided.
Boggart Hole Clough SBI	820m south	No information provided.

Table 2 – Identified Ecological features relevant to the site.

Species / Species Group	Evidence	Considered within Assessment	Rationale for Consideration
Amphibians	Suitable habitat present	Yes	No records were returned in the data search, however the unmanaged areas of grassland may have potential to support common amphibians.
Birds	Suitable habitat present	Yes	There is suitable nesting potential for passerine birds on the site, and 17 records of protected/notable bird species were returned from the data search.

Species / Species Group	Evidence	Considered within Assessment	Rationale for Consideration
Bats (all species)	Suitable habitat present	Yes	27 records of bats were returned. The site was assessed to have low value for foraging and commuting bats.
Hedgehog (*Erinaceus europaeus*)	Suitable habitat present	Yes	Four records of hedgehogs were returned. The unmanaged fringes of the modified grassland and the bramble scrub provide suitable habitat for hedgehogs, therefore, hedgehogs may be present.
Badger (*Meles meles*)	Suitable habitat adjacent to site	Yes	No records of badger returned through the data search, however, woodland adjacent to the site provides potential suitable habitat and presence of commuting or foraging badger cannot be reasonably discounted from the site.
Invasive Species	Ability to spread quickly	Yes	No records of invasive species were returned, and none were found on site. However, some invasive non-native plants are very fast spreading and therefore the potential for these species to be introduced to the site cannot be ruled out.

Table 3 – Pre-development Habitats Identified

UK Hab Classification	Dominant Species / Description	Development Actions and Mitigation
Area Habitats		
Grassland – Modified Grassland	The majority of the site was comprised of actively managed modified grassland. The habitat was dominated by perennial ryegrass (*Lolium perenne*), with occasional cock's-foot (*Dactylis glomerata*), dandelion (*Taraxacum*), ragwort (*Jacobaea vulgaris*), and ribwort plantain (*Plantago lanceolata*). There was a less heavily managed strip along the eastern site boundary that had more varied sward.	Although this habitat is in poor condition, it still offers limited habitat provision, however it will all be lost to accommodate for the development. A new area of wildflower meadow will be created to the east of the site which will be more ecologically beneficial.
Heathland and Shrub – Bramble Scrub	A strip of dense bramble (*Rubus fruticosus*) scrub was present along the western site boundary.	This is habitat has low ecological value. New areas of mixed scrub containing native species are to be planted on the site.
Urban – Developed land; sealed surface	The end of Jurby Avenue extended within the site boundary to the north, which was used as a carpark.	Developed land offers negligible ecological benefit and therefore compensation is not necessary
Urban – Urban Trees	There were two urban trees present on the site; the first was an early-mature elder (*Sambucus nigra*) in the south-eastern corner of the site and the second was a semi-mature	The two urban trees currently on site will be lost. An additional 33 urban trees will be planted on site to compensate for those lost.

UK Hab Classification	Dominant Species / Description	Development Actions and Mitigation
	goat willow (*Salix caprea*) present in north-eastern corner of the site.	

5 Biodiversity Enhancements

5.1 Bat Boxes

A total of 4 bat boxes are to be installed across the site. The bat boxes selected will provide a range of suitable conditions and target pipistrelle species that were confirmed present within the area during the data search for the PEA (Urban Green, 2022a).

Externally mounted bat boxes are to be positioned on installed trees or newly constructed houses. Please refer to Table 4 for the bat box specifications examples. A bat box design of similar specification can be selected for the site.

Table 4 - Bat box specification

Bat Box Type	Image	Number of Boxes
Greenwoods Ecohabitats Two Crevice Bat Box Dimensions: External: 43 high x 21.5 wide x6.8 deep Internal: 41 x 16.5 x1.8 Weight: 6.75 kg		2
Greenwoods Ecohabitats Medium Hollow Bat Box Dimensions: External: 43 x 21.5 x 13.5 Internal: 41 x 16.5 x 8.5 Weight: 6.75		2

5.1.1 Positioning of Bat Boxes

Bat boxes must be positioned between 4–6m high and are most effective when located on a south-east to south-western facing aspect, as this will provide additional heat throughout the day. Bats prefer to change roosts to benefit from varying ambient temperatures; as such, bat boxes are to be clustered on trees in groups of two, with one box located on the south-western aspect and another on the south-eastern. Please refer to Appendix 1 for the Biodiversity Enhancements Location Plan.

5.1.2 Timing of Installation

As the site had no existing habitat features which would support roosting bats, bat boxes can be installed once construction is complete, to enhance the sites value to roosting bats. The boxes are to be situated upon newly planted trees.

5.1.3 Maintenance of Bat Boxes

Bat boxes are considered self-cleaning and require minimal maintenance once installed. The boxes are made of hard-wearing material that is generally long-lasting. Bat boxes should be checked periodically (e.g., every two years) to assess their use and the condition of the boxes. Section 5.4 includes the maintenance schedule.

If any boxes are identified as damaged or missing, they are to be replaced with a box of similar specification.

Note only those holding the appropriate Natural England Class 2 bat licence may open and inspect these boxes. It is an offence for anyone without this licence to open a bat box. If a bat box becomes occupied by a bird the nest must be left *in situ* until after the bird nesting season (March to September inclusive).

5.2 Bird Boxes

The development has the potential to enhance bird nesting opportunities through the provision of bird nest boxes. A total of 6 bird boxes are to be installed across the site upon houses.

Bird boxes come in several types and sizes, which vary in their suitability from species to species. Table 5 provides details of bird nest box types and the likely species they attract. Bird species that are known to inhabit the local area and readily utilise artificial nest boxes have been selected. Boxes of similar specifications as those detailed in Table 6 can be selected, in the case the example boxes are not available.

Table 5 - Bird nest box hole sizes and associated species

Box entrance hole size	Associated species
28mm	Great tit (*Parus major*), tree sparrow (*Passer montanus*), pied flycatchers (*Ficedula hypoleuca*)
32mm	House sparrow (*Passer domesticus*)
45mm	Starling (*Sturnus vulgaris*)

Table 6 – Bird nest boxes that can be bought from websites such as nhbs.com, habibat.co.uk or other online retailers

Bird box type	Image	Target Species	Number of boxes
BilBao Woodstone Nest Box Specification Height:210mm Width: 305mm Depth:120mm Entrance Hole Diameter: 28mm Weight: 6kg Material: Woodstone		Coal tit, blue tit, great tit	2
BilBao Woodstone Nest Box Specification Height: 210mm Width: 305mm Depth: 120mm Entrance Hole diameter: Oval Weight: 6kg Material: Woodstone		House sparrow, tree sparrow, great tit, blue tit, nuthatch	2
Vivara Pro Woodstone Starling Nest Box Specification Height: 385mm Width: 220mm Depth: 215mm Entrance hole diameter: 45mm Weight 7.4kg Material: Woodstone		Starling	2

5.2.1 Positioning of Bird Boxes

Bird boxes are most effective when positioned on a north-east to north-west facing aspect to prevent overheating during the summer nesting season. Care should be taken to make sure boxes are not angled in such a manner to allow rain to enter them. Nest boxes are to be affixed to vertical surfaces at a minimum height of 3m. Please refer to Appendix 1 for the Biodiversity Enhancements Location Plan.

5.2.2 Timing of Installation

The bird boxes must be installed at the earliest opportunity in order to compensate for the disturbance of the on-site nesting habitat. Bird boxes can be installed at any time of the year. However, they must remain undisturbed throughout the bird nesting season (March to September inclusive) to avoid disturbing nesting birds and committing an offence under the Wildlife and Countryside Act 1981 (as amended). Section 5.4 includes the Schedule of Works.

5.2.3 Maintenance of Bird Boxes

The boxes are made of Woodstone, which have been selected due to their durability compared traditional softwood boxes.

The following maintenance measures are to be completed, following the installation of the boxes:

- Bird boxes will require periodic checking and cleaning, (e.g., once every two years).
- Unhatched eggs may be removed legally between September and January and must then be disposed of.
- Disused nests must be removed and cleaned using boiling water to remove parasites. Boxes should be left to dry before replacing the lid. Insecticides and flea powders must not be used.
- If any boxes are identified as damaged or missing, they are to be replaced with a box of similar specification.

Note bird boxes must only be opened and cleaned outside the bird nesting season (which is between March to September inclusive).

5.3 Hedgehog

The site is considered to have potential to support hedgehogs, therefore, hedgehog highways are to be installed across the site to improve connectivity. Additionally, hedgehog homes are to be installed within suitable areas for hedgehogs within the site to provide additional hibernation features.

Appendix 1 details the location of the proposed hedgehog homes to be installed within the site. If hedgehog homes are not available, brash/wood piles can be used instead in similar locations.

Specifications for hedgehog enhancements are detailed in Table 7.

Table 7 – Hedgehog enhancements that can be bought from websites such as britishhedgehogs.org.uk, arkwildlife.co.uk or other online retailers

Specification	Image	Number of houses
Hedgehog Home Approximately 23 x 52 x 40cm (9" x 20½ " x 16").		2

5.3.1 Hedgehog Homes Locations

A hedgehog house contains a narrow or tunnel-like entrance, which is essential to prevent predators such as foxes and badgers gaining access to the hedgehog house. In addition, camouflaging the top and sides of house with soil and leaves can also help to reduce the chance of predation, ensuring that the entrance remains clear at all times for hedgehog access.

Hedgehog homes are to be placed out of direct sunlight and must not face the north or north-east aspects (to avoid cold winter winds) and where it will not be disturbed, such as against a wall, bank or fence (British Hedgehog Preservation Society, 2018).

To prolong the longevity, hedgehog homes must be emptied (if absent from hedgehog presence) annually in April or October, to reduce the infestation of fleas and ticks that can be transferred through nest use. If hedgehog presence is confirmed within hedgehog homes from initial inspection (upon gently removing the lid), then this hedgehog home must be exempt from the annual clean until the following year (subject to presence of a hedgehog).

If possible, the addition of hay or straw must be added to each hedgehog home for insulation and replaced after an annual clean has been completed. Further information is available on the Hedgehog Street website (https://www.hedgehogstreet.org/cleaning-out-boxes/), and within the Work Schedule located in Section 5.4.

5.3.2 Hedgehog Highway Locations

Hedgehog highways comprise small gaps within fences, approximately 13cm x 13cm. They are to be installed across the site creating a corridor for hedgehogs to commute across the site and into residential gardens. It is recommended that every fence within the development has a hedgehog highway gap included to facilitate full movement of hedgehog across the site.

5.4 Work Schedule

Key

	Recommended times when works can be conducted
	Times to avoid work

5.4.1 During Construction

Works	J	F	M	A	M	J	J	A	S	O	N	D
Erect boxes / Deploy hedgehog houses	Any time of year. All bird/bat/hedgehog boxes to be erected prior to the completion of the scheme.											

5.4.2 Post-Construction

Works	J	F	M	A	M	J	J	A	S	O	N	D
Bird box check and cleaning			Avoid bird nesting season									
Bat box checks												
Annual hedgehog house clean and replacement of bedding (if absent from hedgehog presence)												

Bird and bat box checks should be conducted in October of every other year to ensure that there is sufficient time for any repairs or replacements to be conducted.

6 Ecological Strategy

This section summarises the management strategy for each habitat proposed to be introduced within the final design of the scheme. Each objective includes a target time for positive assessment provided to enable identification of failing management and trigger early intervention. Management plans have been included detailing management objectives for an initial 5-year period. Regular monitoring of the site against the management objectives will be conducted during the first five years of the project, and a review of the management strategies will be undertaken, with any updates or changes to the program incorporated for the next five years of the management plan.

The proposed landscape layout (Urban Green, 2023), found in the Biodiversity Net Gain Report (Urban Green, 2024a), displays the final proposed habitats and their location on site. Areas which are classified as 'developed land, sealed surface' offer no ecological benefit, therefore, this habitat is automatically allocated a condition score of N/A and requires no ecologically driven management.

6.1 Area Habitat Creation

6.1.1 Urban - Urban trees – Proposed Trees

A total of 33 urban trees (18 small, 15 medium) will be planted across the site. The mix incorporates non-native species, including Japanese maple (*Acer palmatum* 'Purpureum'), golden honey locust (*Gleditsia triacanthos* 'Sunburst'), rowan 'Sheerwater Seedling' (*Sorbus aucuparia* 'Sheerwater Seedling'), and small-leaved lime 'Green Spire' (*Tilia cordata* "Green Spire").

The targeted condition for the urban tree habitat is **moderate**, with an expected target condition time of 27 years. Detailed management techniques are detailed within Table 8 along with the corresponding condition criteria. In order to reach the expected targeted condition of moderate, at least 3 of the following criteria are expected to be achieved. As individual trees automatically pass criterion 2, this is not assessed. An annual schedule of works for the first 5 years post-development is detailed in Table 12 in Section 6.3.

Table 8 – Management Objectives for Urban Trees

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. The tree is a native species	N/A	N/A	N/A
2. The tree canopy is predominantly continuous	N/A	N/A	N/A
3. The tree is mature or veteran	• Limit the use of damaging management practices e.g., herbicide use • After 10-20 years, trees will reach semi-maturity and appropriate corrective surgery may be necessary. • Undertake annual arboricultural assessments for the first	Mature and veteran trees are more effective than young trees at providing air filtration services and sequester carbon. Veteran trees provide additional niches for wildlife.	10 years

	3 years (Urban Green, 2022b)		
4. There is little or no evidence of an adverse impact on tree health by anthropogenic activities and no current regular pruning regime so the trees retain >75% of expected canopy	• Only undertake management activities where necessary • Limit use of herbicides around trees • Tree works/pruning should be undertaken by a qualified professional • Avoid cutting all specimens across the plot in a single period, particularly where this is likely to removes all flower/fruit interest for wildlife. • Ensure tree canopy is balanced and consistent with the natural structure for the species	Promotes healthy growth and supports growth to maturity.	From year 1
5. Micro-habitats for birds, mammals and insects are present	• Leave any micro-habitat features, such as ivy and loose bark, in place • Where it is safe and appropriate, retain areas of dead wood • No management activities to take place during nesting season (February to August) • Avoid undertaking management activities on all trees in a single month period to retain important resources for wildlife. • Installation of bird and bat boxes in suitable locations on trees (Appendix 1)	Ensures diversity is maintained throughout by allowing the creation of additional habitat niches which can be exploited by wildlife.	By year 5
6. More than 20% of the tree canopy area is oversailing vegetation beneath	• Leave a 2m unmown buffer zone around each tree to allow natural succession of surrounding vegetation • No use of herbicides within this zone	Creates a buffer habitat around trees to allow movement of wildlife and increases diversity of flora	From year 1

	• Periodic removal of non-native invasive species		

6.1.2 Urban - Introduced Shrub

Areas of introduced shrub containing different mixes of non-native species will be created, forming sensory gardens and ornamental flower beds. Introduced shrub mainly provides aesthetic value, although it has some limited benefit to wildlife, particularly pollinators, therefore it is automatically allocated a condition score of **N/A** within the metric.

This habitat is classified as three different features within the landscape plans, with differing species mixes; Sensory Ornamental Planting, which includes species such as cranesbill 'Johnson's Blue' (*Geranium × johnsonii 'Johnson's Blue'* and New Zealand hair sedge (*Carex comans* 'Frosted Curls'), Feature Ornamental Planting, which contains species such as tufted hair grass 'Goldtau' (*Deschampsia cespitosa 'Goldtau'*) and salvia 'Mainacht' (*Salvia sylvestris 'Mainacht'*), and Ornamental Grass Planting, which contains species such as greater quaking-grass (*Briza maxima*) and pampas grass (*Cortaderia selloana 'Pumila'*).

Only basic aesthetic management is required for this habitat.

6.1.3 Heathland and Shrub - Mixed Scrub - Low Maintenance Native Shrub Planting

Areas of mixed scrub will be created in the public areas, predominantly along the western and southern site boundaries. Species will include guelder rose (*Viburnum opulus*), common dogwood (*Cornus sanginea*), and common hazel (*Corylus avellana*).

The targeted condition for the new mixed scrub habitat is **poor**, with an expected target condition time of 1 year. Detailed management techniques are described within Table 9 along with the corresponding condition criteria. Although the predicted condition is poor (0, 1 or 2 criteria met), the detailed management objectives should be followed to produce the best condition score possible. An annual schedule of works for the first 5 years post-development is detailed in Table 13 in Section 6.3.

Table 9 – Management Objectives for Mixed Scrub

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. Habitat is representative of UKHab description and there are at least three woody species	• As many native, shrubby species as possible to be incorporated at design stage • Replace lost plants with another of the same species, size and quality to ensure diversity is maintained and one species cannot dominate.	A wide range of species provides varied foraging, commuting nesting opportunities to birds, invertebrates and small mammals	From year 1
2. There is a good age range	• Allow natural seeding of new shrubs • Appropriate pruning of shrubs to promote health and reach full growth	Different life stages provide structural diversity and offer different foraging and habitat opportunities	From year 5

	• Replace lost shrubs with young plants, according to the landscape plan • Periodic cutting to create a graded margin at scrub edge		
3. There is an absence of invasive non-native species	• Identification and removal of invasive non-native species as soon as possible. • Where possible, do this by hand. If necessary, application of herbicide should be carried out by an experienced contractor.	Ensure native assemblage of species throughout mixed scrub habitat. Prevents competition from aggressive non-native species.	From year 1
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).	• Limit mowing in the immediate habitat surrounding the areas of mixed scrub to allow succession of natural vegetation • Avoid using fertiliser on site to prevent a small number of species dominating	Creates a gentle habitat gradient to allow movement of fauna and increases diversity around the mixed scrub habitat.	From year 1
5. There are clearings, glades or rides present within the scrub, providing sheltered edges.	• Hand removal of woody species in clearings/rides/glades which would close the open spaces within this habitat • Retain pruned wood on site as hibernacula	Creates edge habitat which provides additional foraging and commuting benefits for birds, invertebrates and small mammals	By year 5

6.1.4 Grassland – Modified Grassland – Turf Lawn Areas

Grass turf (Rowlawn Medallion Turf), containing fescue (*Festuca sp.*) and ryegrass (*Lolium sp.*) cultivars, will be laid in the communal garden area in the south-western corner of the site. This grassland is expected to contain a low species richness and will be heavily managed by mowing, resulting in a low sward height, therefore the target condition is **poor**, with an expected time to target condition of 1 year. Due to the low species richness, these areas of modified grassland cannot achieve moderate or good condition. For this reason, criteria 1 has not been assessed. Consideration should be given to implementing management practices which promote the development of a habitat which still offers value to local wildlife. Detailed management techniques are discussed within Table 10 along with the corresponding condition criteria.

Table 10 – Management Objectives for Modified Grassland

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment

1. There must be 6-8 species per m2. If a grassland has 9 or more species per m2 it should be classified as a medium distinctiveness grassland habitat type.	N/A	N/A	N/A
2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	• Observe periods where mowing is avoided e.g. No Mow May • Leave 1m unmown strips along areas of grassland • Avoid cutting all areas of grass at once to provide structural diversity across the site	Varied sward heights provide increased opportunities for commuting and foraging for birds, invertebrates and small mammals	From year 1
3. Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	• Consistent monitoring of habitat for growth of shrub species • Hand removal of any growth of woody species	Maintains the characteristic of the habitat and prevents overgrowth by shrub species	From year 2
4. Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	• Ensure areas of bare ground are kept to a minimum to reduce erosion by re-seeding bare ground • Only carry out necessary maintenance activities when specified and at the appropriate time of year • Management activities to be carried out by a suitably qualified person using the correct equipment	Preventing physical damage promotes healthy growth of vegetation and uniformity within the habitat	From year 1

5. Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	• Seed any bare areas with a suitable seed mix	Ensures widespread cover of desired species and reduces space for non-desirable species to colonise	From year 1
6. Cover of bracken less than 20%.	• Consistent monitoring of the habitat for bracken growth • Hand removal of bracken upon discovery	Removing bracken at an early stage prevents species from dominating the habitat and outcompeting other desired species	From year 2

6.1.5 Grassland - Other Neutral Grassland – Species Rich Grassland & Wildflower Areas

A large area of wildflower meadow will be created to the east of the site, with some smaller areas around the building entrance, using the EM3 Special General Purpose Meadow Mixture from Emorsgate Seeds. The mix contains 20% native wildflower species, such as yarrow (*Archillea millefolium*), common knapweed (*Centaurea nigra*), and musk mallow (*Malva moschata*), and 80% grasses, including crested dogstail (*Cynosurus cristatus*) and red fescue (*Festuca rubra*).

The targeted condition for the new other neutral grassland habitat is **good**, with an expected target condition time of 10 years. Detailed management techniques are described within Table 11 along with the corresponding condition criteria. In order to reach the expected targeted condition of **good**, 5 of the 6 condition criteria must be met, including essential criterion 1. An annual schedule of works for the first 5 years post-development is detailed in Table 14 in Section 6.3.

Table 11 – Management Objectives for Other Neutral Grassland

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type. Indicator species are clearly visible throughout sward	• Re-seeding of habitat and bare ground to introduce species indicative of other neutral grassland habitats according to UKHab guidance • Desirable species examples include perennial ryegrass (*Lolium perenne*) (<30% cover), Yorkshire fog (*Holcus lanatus*), cock's foot (*Dactylis glomerata*), red clover (*Trifolium pratense*) and daisy (*Bellis perennis*) • No fertiliser application within this habitat and removal of arisings after mowing to maintain low nutrient conditions • Where wildflower cover is low in successive years use of conservation harrowing to create bare areas necessary to promote wildflower germination	Ensures the grassland is maintained as a medium distinctiveness habitat with a high species richness	From year 2

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)	• Once established, mow wildflower meadows to 50-75mm in spring and autumn to encourage seasonal growth. • Remove arisings to keep nutrient levels low • Stagger mowing of different sections of meadow/groundcover planting to encourage maximum diversity and to allow mammals/invertebrates to translocate (particularly for larger areas) • Include a buffer zone around the edge of grassland area which is less heavily managed, allowing a longer sward height	Varied sward heights provide increased opportunities for commuting and foraging for birds, invertebrates and small mammals	From year 1
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	• Ensure adequate seeding of bare ground at 4g/m² • Monitor growth and seed areas of bare ground when seasonally appropriate. • Where bare ground is below threshold use of conservation harrowing or scarification by hand for smaller areas	Ensures widespread cover of wildflower assemblages and reduces space for more dominant species to colonise	From year 2
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	• Regular inspection of meadow area for bracken and scrub growth • Hand removal of bracken and scrub species where the cover is approaching the limit	Removing bracken at an early stage prevents species from dominating the habitat and outcompeting other desired species	From year 2
5. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	• Identification and removal of invasive non-native species as soon as possible. • Where possible, do this by hand. If necessary, application of herbicide should be carried out by an experienced contractor.	Ensure native assemblage of species throughout grassland habitat. Prevents competition from aggressive non-native species.	From year 1
6. There are greater than 9 species per metre squared	• No fertiliser to be used on wildflower areas • Reduce mowing to twice yearly to allow flowers to set seed • Monitoring and removal of non-native invasive species • Monitoring and removal of more dominant shrub species	Ensures high floristic diversity and a wide range of habitat and foraging provisions for pollinator and bird species	From year 1

6.2 Linear Hedgerow Habitats

6.2.1 Hedgerow – Ornamental Non-native Hedgerow – Low Ornamental Hedge Planting

Lengths of ornamental, non-native hedgerow will be planted around the site, predominantly along the southern and eastern site boundaries. Hedgerows will be comprised of 155m of Portuguese laurel (*Prunus lusitanica*) and 36m New Zealand broadleaf (*Grisselinia littoralis*).

Ornamental hedgerow has a predetermined condition of **poor** within the metric, with an expected target condition time of 1 year. Due to the ornamental nature and limited ecological value that this habitat type provides, only basic aesthetic management is required.

Appropriate for management

Not appropriate for management

6.3 Five Year Work Programme

Table 12 – Five Year Work Programme for Urban Trees

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Urban trees	Initial and replacement planting – Bare root and root ball	Year 1 then as required to year 5												
	Initial and replacement planting – Containerised	Year 1 then as required to year 5												
	Control and removal of non-native species surrounding trees	As required year 1 to 5												
	Monitoring throughout growing and dormant period to ensure successful establishment and control browsing and other damage	Every three months years 1 to 5												
	Any required pruning to damaged or diseased trees	As required year 1 to 5												

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
	Water twice a month during warmer months	Annually during warmer months or as needed in periods of hot weather												
	Visual inspection of tree health	Every 3 years, based on recommendations made in the tree survey report (Urban Green, 2022b)												

Table 13 – Five Year Work Programme for Mixed Scrub

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Mixed scrub	Initial and replacement planting	As required year 1 to 5												
	Visual inspection to assess plant health	Bi-monthly every year												
	Control and removal of invasive non-native species	As required year 1 to 5												
	Monitoring throughout growing and dormant period to ensure successful establishment and control browsing and other damage	Every three months years 1 to 5												
	Pruning of plants using appropriate methods.	As required year 1 to 5												

Table 14 – Five Year Work Programme for Other Neutral Grassland (Wildflower Meadow)

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Wildflower meadows	Initial and replacement seeding	Year 1 then as required to year 5												
	Control and removal of non-native species	As required year 1 to 5												
	Monitoring throughout growing and dormant period to ensure successful establishment and control browsing and other damage	Every three months years 1 to 5												
	Mowing of meadow areas	Spring and autumn cut and removal of arisings, annually years 1 to 5												
	Removal of dense bracken and shrub growth	Annually years 1 to 5, outside of nesting season												

7 References

Basingstoke and Deane (2010). Hedgerows – A Guide to their Management.

Baker, J., Hoskin, R. and Butterworth, T. (2019). Biodiversity net gain. Good practice principles for development: A practical guide.

British Hedgehog Preservation Society. *Hedgehog Homes - Know your Hedgehog*. Available URL: https://www.britishhedgehogs.org.uk/leaflets/L5-Hedgehog-Homes.pdf [Accessed January 2023].

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.

GOV.UK. 2022. Manage scrub and scrub mosaics. [online] Available at: https://www.gov.uk/guidance/manage-scrub-and-scrub-mosaics#:~:text=Managing%20scrub%20edges&text=Avoid%20topping%20dense%20patches%20of,to%20avoid%20destroying%20seeding%20herbs. [Accessed January 2023].

Greenwood's Ecohabitats. Shop. Available URL: https://www.greenwoodsecohabitats.co.uk/shop [Accessed January 2023].

Lowe, S., Repper, L. and Wallace, S.G. (2012) Notes on Tree Planting and the Use of Native Species in North East England.

Natural England (2022). Habitat Condition Assessment Sheets.

NHBS. *Barn Owl Nest Box.* Available URL: https://www.nhbs.com/barn-owl-nest-box [Last accessed: 15/11/2022]

NHBS. *Vivara Pro Seville 28mm WoodStone Nest Box*. Available URL: https://www.nhbs.com/vivara-pro-seville-28mm-woodstone-nest-box [Accessed January 2023].

NHBS. *Vivara Pro Seville 32mm WoodStone Nest Box*. Available URL: https://www.nhbs.com/vivara-pro-seville-32mm-woodstone-nest-box [Accessed January 2023].

NHBS. *Vivara Pro WoodStone Starling Nest Box*. Available URL: https://www.nhbs.com/vivara-pro-woodstone-starling-nest-box [Accessed January 2023].

Stace, C. (2010). New Flora of the British Isles. 3rd ed. Cambridge: Cambridge University Press.

Urban Green (2022a). UG_1828_ECO_PEA_03.

Urban Green (2022b). UG_1828_ARB_AIA_REV_00_FINAL.

Urban Green (2023). UG_1828_LAN_GA_DRW_01 P02.

Urban Green (2024a). UG_1828_ECO_BNG_01.

Urban Green (2024b). UG_1828_ECO_BNG_CALC_01.

Wildlife and Countryside Act (1981).

APPENDIX 1 – BIODIVERSITY ENHANCEMENTS LOCATION PLAN

URBAN GREEN

Do not scale this drawing (printed or electronic version)

Contractors must check all dimensions from site

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 andspecifications.

All works to be carried out in accordance with the latest British Standards / Codes of Practice unless specifically directed otherwise in the specification.

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.

Graphical representations of equipment on this drawing have been co-ordinated, but are approximations only. Please refer to the specifications and / or details for actual sizes and / or specific contractor construction information.

- 2x Two Crevice Bat Box
- 2x Medium Hollow Bat Box
- BilBao Woodstone Nest Box (28mm)
- BilBao Woodstone Nest Box (32mm)
- Vivara Pro Woodstone starling Nest Box
- Hedgehog House

U R B A N
G R E E N

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

Client
Irwell Valley Homes

Project:
Jurby Avenue

Title:
Biodiversity Enhancements Location Plan

Issue:
01

Drawn:	Checked:	Approved:
SC	SB	MG
Project: UG1828	Scale @ A:3: 1:5,000	Date: 03/01/2024

Dwg No: UG_1828_ECO_BEMP_01 — 01