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Biodiversity Net-gain Assessment

January 2023

123 Levenshulme Road,
Gorton,
Manchester,
M18 7NF

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This report aims to provide general advice on ecological constraints associated with any development of the site and includes recommendations for further survey; it is not intended that this report should be submitted with a planning application for development of the site, unless supported by the results of further surveys and a detailed assessment of the effects of the proposed development

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Executive Summary

As part of an ongoing planning application with Manchester City Council (Ref: 135270/FO/2022) regarding a plot of land at 123 Levenshulme Road, Gorton, Tyrer Ecological Consultants Ltd were commissioned to carry out a Biodiversity Net Gain Assessment (BNG); this process for the BNG assessment follows a Preliminary Ecological Appraisal (PEA) which identified and condition assessed the habitats present within the red line boundary. Proposals are understood to entail the erection of six semi-detached two-storey dwellings alongside a three-storey block of 31 apartments (Class C3) together with parking, access road, landscaping and boundary treatment

Habitats / Biodiversity Net Gain

Following some suggested alterations to the proposed plans, including potential enhancements and habitats being created, the headline results show that an on-site net-gain of 0.02 area units may be achieved, marginally increasing the baseline units from 2.16 to 2.18, as well as an on-site gain of 0.12 linear units from a baseline of 0.43 to 0.55, with all trading standards met. No water bodies are present on the site hence river units are not applicable in this situation.

Headline results show a net-loss of **0.69%** (+0.02 area units) and a net-gain of **28.53%** (+0.12 linear units).

Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-0.05
	<i>Hedgerow units</i>	0.12
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-2.53%
	<i>Hedgerow units</i>	28.53%
	<i>River units</i>	0.00%
Trading rules Satisfied?	Yes ✓	

Without the suggested alterations, the headline results show an on-site net-loss of 1.15 area units, decreasing the baseline units from 2.16 to 1.01, as well as an on-site gain of 0.12 linear units from a baseline of 0.43 to 0.55, with all trading standards met.

Headline results for unaltered plans show a net-loss of **-53.27%** (-1.15 area units) and a net-gain of **28.53%** (+0.12 linear units).

Table of Contents

- 1.0** Introduction & Scope
- 2.0** Biodiversity Metric 3.1
- 3.0** Limitations
- 4.0** Habitat Survey with Metric
- 5.0** Conclusions & Recommendations
- 6.0** Bibliography

Appendix I: Baseline - UK Habitats

Appendix II - Post-development - UK Habitats

Appendix III - Post-intervention - UK Habitats

External Appendices

- *123 Levenshulme Road PEA – Tyrer Ecological Consultants April 2022*
- *Biodiversity Metric 3.1 123 Levenshulme Road – Tyrer Ecological Consultants December 2022*
- *Biodiversity Metric 3.1 Post-Intervention 123 Levenshulme Road – Tyrer Ecological Consultants December 2022*
- *123 Levenshulme Road Baseline Habitat Condition Assessments - Tyrer Ecological Consultants December 2022*
- *123 Levenshulme Road Post-Development Habitat Condition Assessments - Tyrer Ecological Consultants December 2022*
- *123 Levenshulme Road Landscape Proposals - Trevor Bridge Associates Ltd September 2022*
- *Land at Levenshulme Road Arboricultural Report - Murray Tree Consultancy September 2022*

1.0 Introduction & Scope

- 1.1 As part of an ongoing planning application with Manchester City Council (Ref: 135270/FO/2022) regarding a plot of land at 123 Levenshulme Road, Gorton, Tyrer Ecological Consultants Ltd were commissioned to carry out a Biodiversity Net Gain Assessment (BNG); this process for the BNG assessment follows a Preliminary Ecological Appraisal (PEA) which both identified and condition assessed the habitats present within the red line boundary.
- 1.2 Proposals are understood to entail the erection of six semi-detached two-storey dwellings alongside a three-storey block of 31 apartments (Class C3) together with parking, access road, landscaping and boundary treatment (see **Figure 1.1**).



Figure 1.1 – Proposed site plan (©tadw architects)

- 1.3 This BNG Assessment relies on third-party information gathered during the PEA (see **External Appendices**), as well as other third-party information associated with the scheme (see **section 2.7** of this report).
- 1.4 As part of the Local Planning Authorities (LPA) planning policies and obligations to the Planning Framework, ecological surveys are generally required prior to planning permission being granted, particularly where protected/priority habitats or species are, or may be present, that could be affected by the proposals for which the application seeks consent.
- 1.5 This assessment uses 'Biodiversity Metric 3.1 (JP039)' as this tool is the most appropriate metric for the proposed scheme versus alternatives available. Biodiversity Metric 3.1 can be used or specified by any development project, consenting body or landowner that needs to calculate biodiversity losses and gains for terrestrial and / or intertidal habitats, and has been extensively tested. Natural England will be recommending to the Secretary of State that the Biodiversity Metric 3.1 forms the basis of the statutory biodiversity metric used to underpin future mandatory biodiversity net gain as set out in the Environment Act 2021.

Policy & Good Practice for BNG

- 1.6 Ongoing consultations, in lieu of the Environment Bill 2021 are for all developments to "Aim to achieve a 10% biodiversity net gain". The consensus in the ecological community is that a

'Metric' should not be treated as the final arbiter of net gain and should not replace professional judgement, but, that a Metric can be used to help planners make better more informed decisions; until use of a Metric is written into legislation as mandatory, the lack of a measurable 'net gain' using a Natural England metric, or any other metric, should not be a reason for refusal, as there is currently no legal basis.

- 1.7 Additionally, Natural England stress 'Nature before Numbers' in applying a Metric to a development, which promotes a pragmatic, realistic approach to decision making, as opposed to sole reliance on the outcome numerical values of the spreadsheet.

2.0 Biodiversity Metric 3.1

- 2.1 The Biodiversity Metric 3.1 auditing and accounting for biodiversity calculation tool (which is the chosen metric for this project) provides a way to quantify biodiversity, and the impact that development projects may have upon it, in a consistent way. Biodiversity Net-gain is a requirement for development projects in which biodiversity losses are outweighed by measures taken to avoid, minimise or compensate impacts of the project. It is an approach to development that aims to leave the natural environment in a measurably better state than before. This means delivering gains for area habitats, such as grasslands, and also for linear habitats such as hedgerows/lines of trees and water courses.
- 2.2 Application of use follows the BNG Principles and Rules covered in the most recent User Guide as well as the mitigation hierarchy and Biodiversity Net Gain: Good Practice Principles for Development and (see **Table 2.1**). CIRIA, CIEEM and IEMA developed the first UK principles on good practice to achieve Biodiversity Net Gain; these principles provide a framework that helps improve the UK's biodiversity by contributing towards strategic priorities to conserve and enhance nature while progressing with sustainable development, they also provide a way for industry professionals to show that projects followed good practice.

Table 2.1 – The Mitigation Hierarchy & 10 BNG Good Practice Principles

Avoid	Minimise	Remediate/Mitigate	Compensate
Where possible avoid any damage/impacts.	Where possible damage/impacts should be minimised.	Where possible damage/impact/losses should be restored.	Damage/impact/losses should be compensated for as a last resort.
<u>The 10 Biodiversity Net Gain: Good Practice Principles</u> Principle 1. Apply the Mitigation Hierarchy Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere Principle 3. Be inclusive and equitable Principle 4. Address risks Principle 5. Make a measurable Net Gain contribution Principle 6. Achieve the best outcomes for biodiversity Principle 7. Be additional Principle 8. Create a Net Gain legacy Principle 9. Optimise sustainability Principle 10. Be transparent			

- 2.3 The Biodiversity Metric 3.1 Calculation Tool was applied upon the proposals for which the applicant seeks consent by Mr. H. Mulligan Qualifying CIEEM, a Trainee Ecologist at Tyrer Ecological Consultants Ltd undergoing extensive multi-discipline training, who has received in-house mentorship from trained Senior Ecologists at Tyrer Ecological Consultants Ltd in applying the Metric and has completed 'Biodiversity Metric v3.1 Training' delivered by CIEEM.
- 2.4 The methodology applied, including a condition assessment, as well as the measurement of areas/size/length of habitats, have been carried out in accordance with the most recent Habitat Condition Assessment Sheets instructions, Technical Supplement and User Guide.
- 2.5 Assessment of baseline / post-development Habitat Area / Linear units have been carried and assessed separately in accordance with the guidance, principles and rules.
- 2.6 Area and linear measurements were carried out using a combination of desktop software – QGIS, Google Earth and MAGiC maps, whilst physical measurements were also taken in the

field during ground truthing, where necessary. Strategic significance has been justified from a study of the local council planning portal.

- 2.7 Key third-party data sources and/or information used to help inform this BNG assessment include:
- Trevor Bridge Associates landscape plan (6990.01)
 - Murray Tree Consultancy arboricultural report (BS 5B37: 2012)
- 2.8 The results, conclusions and recommendations of this report have been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of Mr. H. Mulligan who undertook the net-gain assessment following formal training delivered by CIEEM and previous training with Senior Ecologist Mr. M. Pritchard ACIEEM, who has attended CIEEM led formal training in applying the Metric ("Calculating and Using Biodiversity Units with Metric 2.0" - 25th November 2019 (Dr. Julia Baker CEnv MCIEEM & Dr. Nick White of Natural England)).

3.0 Limitations

- 3.1 Measurements are calculated using software such as QGIS (accurate to 5m), Aerial Imagery and Third-Party Plans, thus Tyrer Ecological Consultants Ltd cannot be held accountable for any discrepancies between habitat area's (ha) or linear features (km) stated in this report and other documentation pertaining to the site.
- 3.2 The Biodiversity Metric 3.1 tool only allows for an area / length accuracy of two decimal places, and as such some of the values within the metric tool have been rounded to the nearest appropriate number.
- 3.3 In considering possible wider limitations, no other significant constraints were experienced at any key areas which might adversely influence the results, conclusions, and recommendations of this report.

4.0 Habitat Survey with Metric

- 4.1 The survey area is sited off Levenshulme Road in Gorton (also referred to as “the application site” and “the site”, circa 0.5 hectares), and is largely consisting of open grassland and scrub, with a small area of bare ground and a small toilet block to the west.



Figure 4.1 – Location of application site within the surrounding landscape (red boundary), Google Earth Pro 2021/22

- 4.2 The immediate habitat is largely urban in nature, with typical associated infrastructure such as road networks, residential properties with associated gardens and hedgerows, as well as commercial premises and businesses. The Hope Valley railway line passes directly adjacent to the application site and is flanked by linear hedgerows and lines of trees on both sides, with other semi-natural environs limited to open sports fields and Gorton Cemetery to the east, which provide large, open expanses of semi-natural grassland.
- 4.3 The extending environment is largely similar to that of the immediate, with further urban and sub-urban environs present such as large quantities of housing, a variety of schools, other commercial premises as well as road networks such as the A57, which passes approximately 0.54 kilometres to the north of the site, and the M60 motorway which is situated just over 2.0 kilometres to the east of 123 Levenshulme Road. Semi-natural environs include areas of deciduous woodland in Nutsford Vale Park, located approximately 0.5 kilometres to the west of the site. Aquatic habitats are also present, with Gorton Lower Reservoir positioned 0.87 kilometres north-east of the site, and Fallowfield Brook located 1.64 kilometres to the south, and further areas of woodland can also be found surrounding both locations.

Baseline Habitats

- 4.4 Baseline habitats have been extracted and interpreted from the site-associated PEA report which uses United Kingdom industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010); those habitats have been translated into UK Habitat Classification habitats – Habitat Definitions Version 1.1 (2020) habitats using the Translator tool available in the Metric spreadsheet. See **Table 4.1** for complete baseline information.
- 4.5 The reader is referred to the ‘Hard copy’ of the Metric¹, which will accompany this report when issued and should be read in conjunction with this section. Habitats are mapped in accordance with UK Habs (**Figure 4.2**).

Table 4.1 – Baseline Habitat information

A1 – Baseline Area Habitat based calculations	
Habitat	Size in hectares
Ref 1 – Other neutral grassland	0.448
Ref 2 – Mixed scrub	0.033
Ref 3 – Bramble scrub	0.019
Ref 4 – Developed land; sealed surface	0.002
Ref 5 – Urban Tree	0.004
Total	0.51 hectares
B1 – Baseline Linear Habitat based calculations	
Habitat	Length by kilometres
Ref 1 – Line of trees	0.051
Ref 2 – Line of trees	0.069
Ref 3 – Line of trees	0.042
Total	0.16 kilometres
C1 – Baseline River Habitat based calculations	
Habitat	Length by kilometres
N/A	N/A
Total	N/A

Existing Habitat Condition assessment

Area habitats

- 4.6 **Other neutral grassland: Ref 1:** The majority of the site consists of unmanaged, overgrown other neutral grassland (g3c), dominated by perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*), and common bent (*Agrostis capillaris*). Under the Biodiversity Metric 3.1 condition assessment, this grassland is scored as ‘Poor’.

Mixed scrub: Ref 2: The south-eastern edge of the site consists of dense scrub with no particular dominant species, with bramble (*Rubus fruticosus* agg.), common nettle (*Urtica dioica*), and various grasses and rushes present; under the Biodiversity Metric 3.1 condition assessment, this scrub is scored as ‘Moderate’.

¹This section of the report should be read in conjunction with the hard copy of the Biodiversity Metric 3.1 Auditing and accounting for biodiversity Calculation tool (JP039) - external Appendix.

Bramble scrub: Ref 3: The area along the eastern boundary of the site consists of dense scrub dominated by bramble, with other ruderal species present; under the Biodiversity Metric 3.1 condition assessment, bramble scrub is scored as 'N/A'.

Developed land; sealed surface: Ref 4: A single building (u1b5) is located close to the entrance at the west of the site, in use as a toilet block. Within the Metric, buildings are translated as 'Developed land; sealed surface'; under the Biodiversity Metric 3.1 condition assessment, this is scored as 'N/A'.

Urban tree: Ref 5: Three single trees are found within the site boundary (that do not form part of a treeline); these were allocated as T3, T4 and T5 within Murray Tree Consultancy's Arboricultural Report. T3 is a mature hawthorn tree (*Crataegus monogyna*), while T4 and T5 are mature elderberry trees (*Sambucus nigra*). T4 is to be retained within the proposed works. Under the Biodiversity Metric 3.1 condition assessment, these trees were each scored as 'Moderate'.

N.B. The root protection areas (RPAs) of each urban tree onsite was calculated by Murray Tree Consultancy within their Arboricultural Report and have subsequently been used as the area for the trees within the Metric.

Linear habitats

Line of trees: Three lines of trees are present onsite; G1 (as allocated by Murray Tree Consultancy) is a line of mature goat willows (*Salix caprea*), G2 (also grouped with T6 and T7 for the Metric) consists of young – mature ash (*Fraxinus excelsior*) and hawthorns, and G3 consists of semi-mature ash. Two of the individual trees within G2 are to be retained within the proposed plans, while all of G1 is to be retained. Under the Biodiversity Metric 3.1 condition assessment, G1 was scored as 'Moderate', while G2 and G3 were scored as 'Poor'.

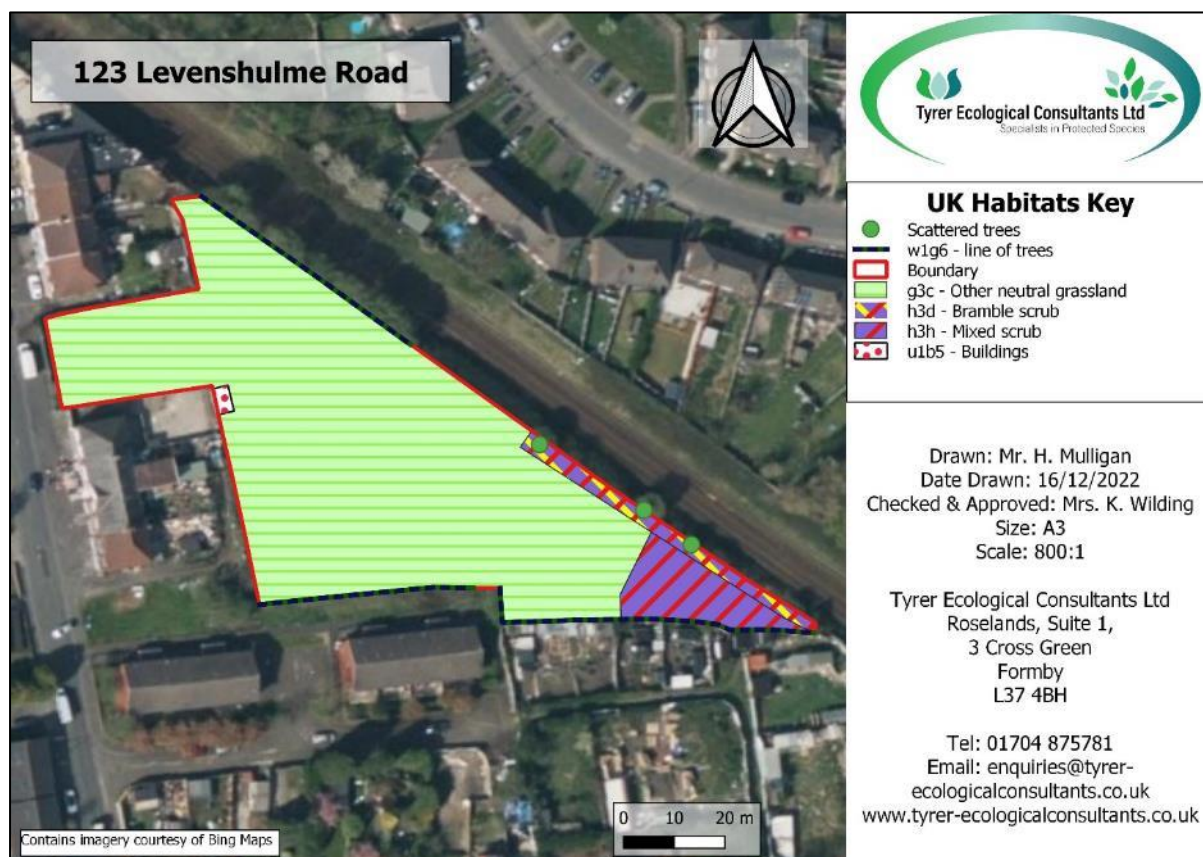


Figure 4.2 – Existing site habitats

- 4.7 Some habitats do not exist in both UK Habs and the Biodiversity metric, this is a constraint of UK Habs and expected to be addressed within UK Habs second publication, while some habitat names vary across both documents (**Table 4.2**).

Table 4.2 – Habitat Translation table between UK Habs Biodiversity Metric 3.1 for the Baseline

UK Habitat code/name	Metric Description
u1b5 - Buildings	Developed land; sealed surface
u1b – Developed land. Sealed surface	Developed land; sealed surface
Scattered trees	Urban tree

Strategic significance

- 4.8 123 Levenshulme Road has been assessed as ‘Area/compensation not in local strategy/ no local strategy’. This is because the site is not covered by any local policies (**Figure 4.3**), and is located in a highly urbanised environment, with several barriers separating the site from the other natural and semi-natural habitats in proximity.

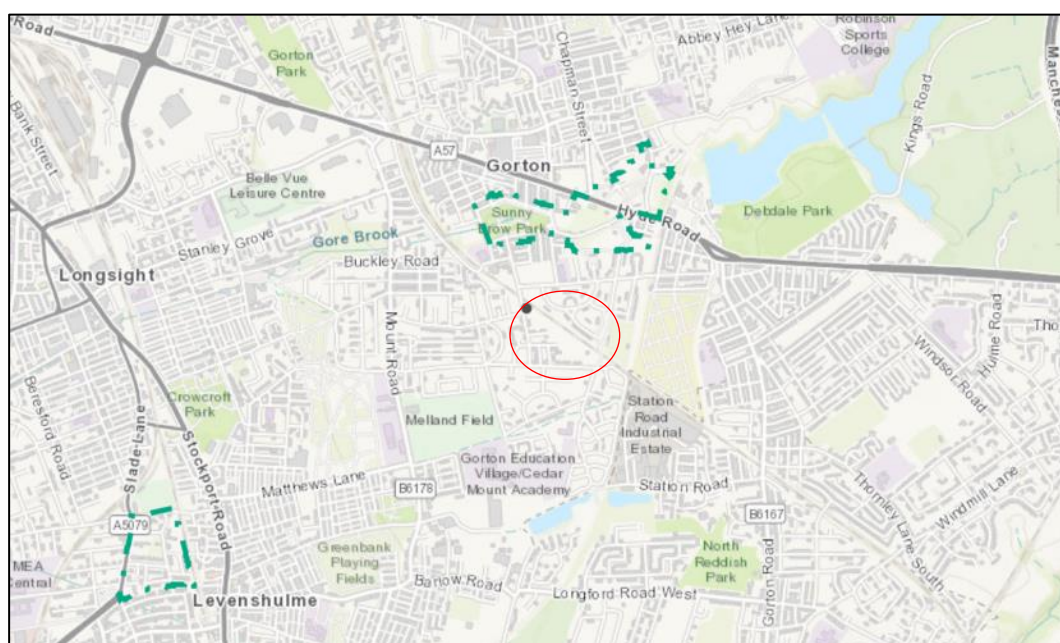


Figure 4.3 – Extract taken from the Manchester City Council Local Development Framework Area Map (site's location indicated by red circle)

Proposals

Area units and Hedgerow units

- 4.9 Aside from the retention of urban tree T4, treeline G1, and the two individual trees within treeline G2, all other baseline area habitats are considered lost as result of the proposed development.
- 4.10 Landscaping proposals include the erection of six semi-detached two-storey dwellings alongside a three-storey block of 31 apartments together with parking, access road, landscaping and boundary treatment. The species of the introduced shrubs and trees have been selected by Trevor Bridge Associates Ltd., and will be predominantly constituted of suitable, native plants which will provide local wildlife with good quality habitat for foraging and commuting, with the correct management. **Figure 4.4** below shows how the site will look in respect of UK Habitats post-development.

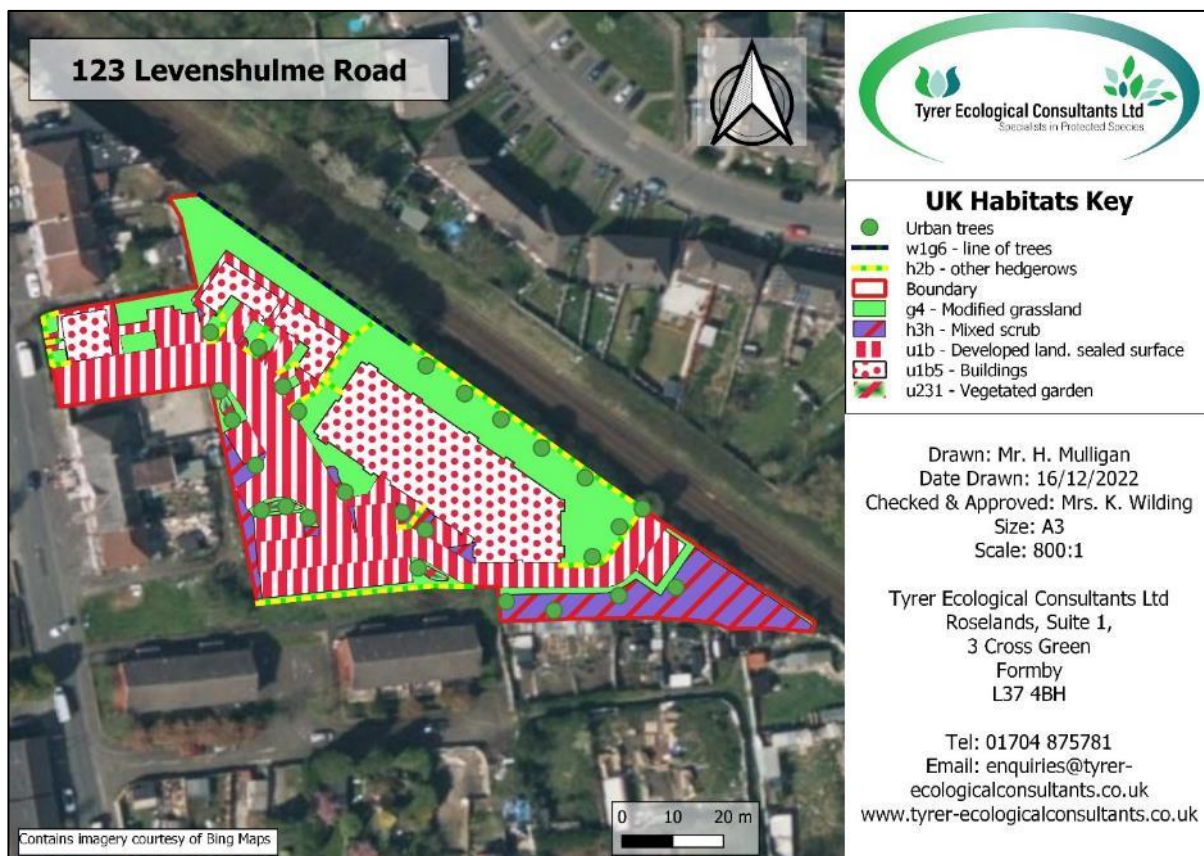


Figure 4.4 – Post-development New Area Habitats

- 4.11 Metric tool calculations show an on-site post-development loss of habitat units and gain of hedgerow units. Specifically, habitat units have decreased from 2.16 on the baseline to 1.01 units post-development, a decrease of 1.15 units, while hedgerow units have increased from 0.43 units to 0.55 units post-development, an increase of 0.12 units.
- 4.12 This net loss in habitat units is a consequence of losing large areas of other neutral grassland, mixed scrub and bramble scrub, which forms the majority of the baseline site, and not replacing this with sufficient areas of the same habitats or higher distinctiveness habitats. The net gain in hedgerow units however is a consequence of retaining a treeline, incorporating a native hedgerow, and including large quantities of ornamental hedgerow.

Post development

Area habitats

- 4.13 **Modified grassland: Refs 1 and 7:** 'Germinal' A22 Low Maintenance grass mixture is to be incorporated in numerous patches throughout the site, in communal grassland areas (Ref 1) alongside the rear gardens of the dwellings (Ref 7); this is a blend of perennial ryegrass (*Lolium perenne*), red fescue (*Festuca rubra*) and highland bent (*Agrostis castellona*), which will culminate in areas of modified grassland. Under the Biodiversity Metric 3.1 condition assessment, this grassland is scored as 'Poor'.

Developed land; sealed surface: Ref 2: Several buildings (u1b5) are to be built onsite, in particular the large block of apartments, alongside several semi-detached dwellings. Under the Biodiversity Metric 3.1 condition assessment, 'Developed land; sealed surface' is scored as 'N/A'.

Developed land; sealed surface: Refs 3, 6 and 8: Large areas of hardstanding (u1b) are present throughout the proposed site plan, including the access track and footpaths (Ref 8), paving around the houses and communal areas (Ref 3), and carparking (Ref 6). Under the Biodiversity Metric 3.1 condition assessment, 'Developed land; sealed surface' is scored as 'N/A'.

Introduced shrub: Ref 4: Numerous small patches of introduced ornamental mixed shrub (h3h) are to be incorporated within the site; species composition has been selected by Trevor Bridge Associates Ltd., with the areas consisting of a variety of species including sibirica (*Cornus alba*), flaviramea (*Cornus stolonifera*), emerald gaiety (*Euonymus fortunei*), red robin (*Photinia x fraseri*) and rubella (*Skimmia japonica*). Under the Biodiversity Metric 3.1 condition assessment, 'Introduced shrub' is scored as 'N/A'.

Mixed scrub: Ref 5: An area of mixed scrub (h3h) is to be incorporated at the south-east of the application site, consisting of a variety of native species such as hawthorn, dog rose (*Rosa canina*), holly (*Ilex aquifolium*), guelder-rose (*Viburnum opulus*), hazel (*Corylus avellana*) and blackthorn (*Prunus spinosa*). Under the Biodiversity Metric 3.1 condition assessment, this scrub is scored as 'Moderate'.

Vegetated garden: Ref 9: Several small patches onsite are to be planted with various flowers, namely three variations of *Crocus chrysanthus* (blue pearl, cream beauty and snow bunting), alongside *Narcissus* 'Tête-à-tête', creating vegetated flowerbeds (u231). Under the Biodiversity Metric 3.1 condition assessment, 'vegetated garden' is scored as 'N/A'.

Urban trees: Ref 10: 23 urban trees are to be planted throughout the proposed development within the areas of modified grassland, vegetated garden, introduced shrub and native shrub, of various species including silver birch (*Betula pendula*), field maple (*Acer campestre*), small-leaved lime (*Tilia cordata*), rowan (*Sorbus acuparia*) and whitebeam (*Sorbus aria*). Their RPA size has been calculated within the Metric utilising the Urban tree helper tool, with each of the trees considered to be 'small' based on the data provided in the landscape plan provided by Trevor Bridge Associates Ltd. Under the Biodiversity Metric 3.1 condition assessment, the urban trees are scored as 'Moderate'.

Urban trees: Ref 11: The mature hawthorn T6 (which was considered part of treeline G2 within the baseline) is being retained within the proposed plans. Although this is obviously not being 'created', it will no longer form part of an existing treeline and as such must be entered in the 'creation' section within the Metric. As this already exists, it can be entered as 'Habitat created 30+ years in advance' within the Metric. Under the Biodiversity Metric 3.1 condition assessment, this tree is scored as 'Good'.

Urban trees: Ref 12: Another mature hawthorn tree within G2 (not individually specified) is to be retained within the proposed plans. Similarly to T6, although this is not being 'created', it will no longer form part of an existing treeline and as such must be entered in the 'creation' section within the Metric. Under the Biodiversity Metric 3.1 condition assessment, this tree is scored as 'Moderate'.

Linear habitats

Retained line of trees: The mature goat willow treeline along the northern boundary of the site allocated as G1 by Murray Tree Consultancy is to be retained post-development. As stated previously, under the Biodiversity Metric 3.1 condition assessment, this line of trees was scored as 'Moderate'.

Ornamental hedgerows: Numerous stretches of hedgerow consisting of beech (*Fagus sylvatica*), holly (*Ilex aquifolium*) and cherry laurel (*Prunus laurocerasus*) are proposed throughout the site; given that the hedgerow is not entirely native, it must be considered as

ornamental non-native hedgerow within the Metric. Under the Biodiversity Metric 3.1 condition assessment, this type of hedgerow is automatically scored as 'Poor'.

Native Hedgerow: A stretch of hedgerow (h2b) to be planted along the northern boundary of the site will consist of native species including hawthorn, holly, dog rose, guelder-rose and field rose (*Rosa arvensis*). Under the Biodiversity Metric 3.1 condition assessment, this hedgerow is scored as 'Moderate'.

Table 4.3 – Habitat Translation table between UK Habs Biodiversity Metric 3.1 for post-development

UK Habitat code/name	Metric Description
h2b – other hedgerows	Hedge Ornamental Non Native
h2b – other hedgerows	Native hedgerow
u1b5 - buildings	Developed land; sealed surface
u1b – developed land, sealed surface	Developed land; sealed surface
h3h – Mixed scrub	Introduced shrub
Scattered trees	Urban tree

Table 4.4 – Post-development Habitat information

A1 – Post-development Area Habitat based calculations	
Habitat	Size in hectares
Ref 1 – Modified grassland	0.042
Ref 2 – Developed land; sealed surface	0.114
Ref 3 – Developed land; sealed surface	0.027
Ref 4 – Introduced shrub	0.015
Ref 5 – Mixed scrub	0.042
Ref 6 – Developed land; sealed surface	0.046
Ref 7 – Modified grassland	0.101
Ref 8 – Developed land; sealed surface	0.111
Ref 9 – Vegetated garden	0.003
Ref 10 – Urban tree	0.094
Ref 11 – Urban tree	0.007
Ref 12 – Urban tree	0.004
Total	0.50 hectares (0.61 hectares including urban trees)
Retained urban tree	0.002
B1 – Post-development Linear Habitat based calculations	
Habitat	Length by kilometres
Ref 1 – Hedge Ornamental Non-Native	0.134
Ref 2 – Native hedgerow	0.064
Total	0.20 kilometres
Retained line of trees	0.051
C1 – Post-development River Habitat based calculations	
Habitat	Length by kilometres
N/A	N/A
Total	N/A

- 4.14 Headline results show a net-loss of -53.27% habitat units and a 28.53% net-gain of hedgerow units (see **Table 4.5**) with all trading rules satisfied according to the current proposed plans.

Table 4.5 – Headline Results

Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-1.15
	<i>Hedgerow units</i>	0.12
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-53.27%
	<i>Hedgerow units</i>	28.53%
	<i>River units</i>	0.00%
Trading rules Satisfied?	Yes ✓	

- 4.15 Following some alterations to the proposed plans, including potential enhancements and habitats being created, the headline results show that a net-gain of 0.69% habitat units may be achieved alongside the 28.53% net-gain of hedgerow units (see **Table 4.6**); these potential interventions recommended to help the site achieve a Biodiversity Net Gain are expanded upon in **Section 5.0** of this report. The applicant should be aware **that this net-gain can only be achieved with adherence to strict management plans and enhancement measures as suggested below in Section 5.0.**

Table 4.6 – Headline Results post-intervention

Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.02
	<i>Hedgerow units</i>	0.12
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.69%
	<i>Hedgerow units</i>	28.53%
	<i>River units</i>	0.00%
Trading rules Satisfied?	Yes ✓	

5.0 Conclusions & Recommendations

Area units

- 5.1 The proposals may attain a positive 0.69% net-gain for area units (a significant increase on the current landscaping plans), subject to the following (see **Figure 5.1**):

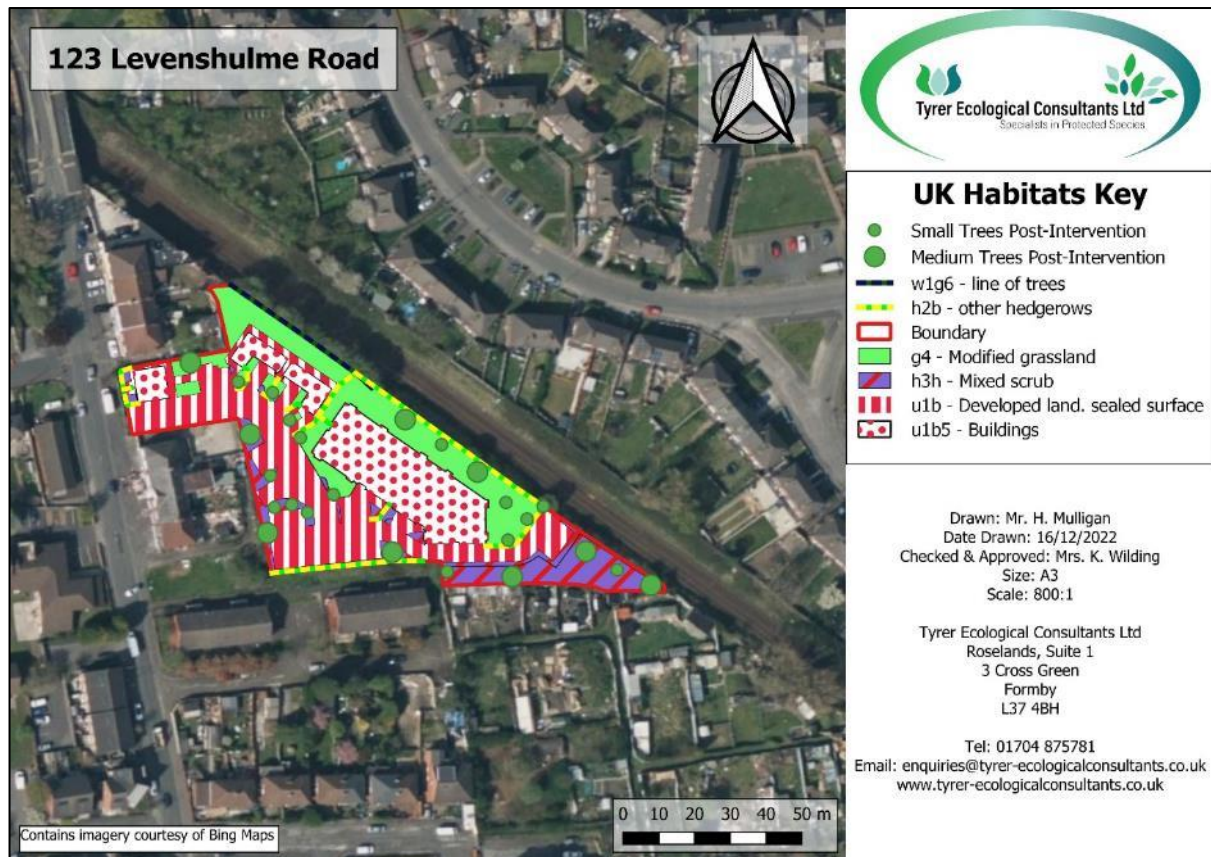


Figure 5.1 – Proposed Post-Intervention Habitats

Urban Trees

- Planting of up to 15 small urban trees in 'Moderate' condition and nine medium urban trees in 'Moderate' condition: Within the current proposals, 23 small urban trees are to be planted alongside the retention of three trees. In order to increase the post-development biodiversity however, it is recommended that more trees are incorporated within the site alongside larger trees, with there feasibly being the potential for up to nine medium sized trees to be planted within the site boundary and 15 small trees, based upon Root Protection Areas. The proposed planting location of each of these trees is indicated in **Figure 5.1**.
- It is further recommended that of the three urban trees proposed to be retained from the baseline site, only T6 is retained; this is a 'Good' condition tree and is of a larger size than the others, and as such provides significant habitat units that aid the site's biodiversity, while the others are smaller, of poorer condition, and provide less significant habitat units. Removing these two trees will allow more space to subsequently plant the nine medium trees and 15 small trees as stated above.
- See **Table 5.1** below for urban tree condition assessment criteria:

Table 5.1 – Urban Tree Condition Assessment Criteria

1	The tree is a native species (or more than 70% within the block are native species).
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).
3	The tree is mature ² or veteran ³ (or more than 50% within the block are mature ² or veteran ³).
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.
5	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark.
6	More than 20% of the tree canopy area is oversailing vegetation beneath.

In order to achieve 'Moderate' condition, 3-4 of the above criteria need to be met, while 5-6 must be met for T6 to retain its 'Good' condition – implementation of a suitable management and maintenance plan will be required to achieve this; indicative native species that may be used are outlined in **Table 5.4**.

Mixed scrub areas

- Expansion of mixed native scrub area at south-east of site: It is recommended that the area of mixed native scrub within the proposed plans (**Ref 5 in Section 4.15**) is expanded to incorporate the strip of modified grassland surrounding it, thus increasing the size of this patch of higher distinctiveness habitat and improving the biodiversity value of the site marginally.
- Planting of native mixed scrub instead of introduced ornamental shrub: Within the current proposals, numerous small patches of ornamental, introduced shrubbery are to be planted (**Ref 4 in Section 4.15**). In order to increase the post-development biodiversity however, it is recommended that these areas are instead planted with the same native shrub mix as is proposed for the patch at the south-east of the site. This will again provide higher distinctiveness habitats that will improve the biodiversity of the site when compared to the proposed introduced shrubs.
- Replacement of vegetated garden flowerbeds and creation of larger scrub area: Along the western and southern boundaries of the site, three small patches of flowerbeds are proposed (**Ref 9 in Section 4.15**), amongst interconnected strips of modified grassland and introduced shrubbery. It is suggested that all of these areas are instead replaced with a large patch of mixed scrub; this will provide a large patch of a higher distinctiveness habitat, improving upon the habitats originally proposed for these areas.
- In order to achieve a decreased net-loss, it is important that the two larger patches of mixed scrub recommended above achieve a 'Good' condition within the Biodiversity Metric 3.1 condition assessment, while the smaller patches achieve 'Moderate'. To achieve a 'Good' score, a patch must achieve each of the five criteria within **Table 5.2**, while 3-4 must be met to achieve 'Moderate'. A management plan for these areas is therefore recommended to be incorporated within the proposed plans, in order to achieve these conditions.

Table 5.2 – Scrub Condition Assessment 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).
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.
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.
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).
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.

Linear units

5.2 The proposals, in their current form, will attain a positive 28.53% net gain for linear units subject to the following:

- Ornamental non-native hedgerow creation: within the proposed plans, 0.134 km of beech, cherry laurel and holly hedgerow is to be planted throughout the site. Although this is a 'very low' distinctiveness habitat within the Metric, the sizeable length of hedgerow proposed means that it creates a significant number of linear units. Non-native hedgerows automatically score 'Poor' within the Metric condition assessment, and as such no management plan is required for this hedgerow to achieve a net gain; however, in order to achieve the predicted percentage of net gain within the Metric, the proposed length of hedgerow within the development should not be shortened.
- Native hedgerow creation: within the proposed plans, 0.064km of hedgerow consisting of native species such as hawthorn, dog rose, and field rose is to be planted along the north-eastern boundary. Firstly, certain characteristics must be met for the hedgerow to be considered a 'native hedgerow':
 - Must be over 20 metres in length – i.e. remain true to the current landscaping proposals.
 - Must be between 1.5 metres and 5 metres wide.
 - Must have more than 80% canopy cover consisting of one or more native UK species.

Furthermore, in order to achieve this net-gain, this hedgerow must achieve 'Moderate' condition within the Biodiversity Metric 3.1 condition assessment. A suitable maintenance and management plan should therefore be incorporated within the proposed plans, to allow certain thresholds to be met which will allow the habitat to reach this condition; the hedgerow must not fail more than 4 of the following thresholds and must not fail both attributes in more than one core group. The conditions are as follows:

- Core Group A:
 - Must be more 1.5 metres high on average along its length. **
 - Must be more 1.5 metres wide on average along its length.
- Core Group B:
 - Gap between the base of the hedgerow and ground must be less than 0.5 metres for 90% of its length.
 - Gaps must make up less than 10% of the total length of the hedge.

- Core Group C:
 - More than 1 metre of undisturbed ground with perennial vegetation should be present on one side of the hedge for 90% of its length.
 - Plant species indicative of nutrient enrichment of soil should dominate less than 20% of the undisturbed ground.
- Core Group D:
 - Less than 90% of the hedgerow and/or undisturbed ground is free of invasive non-native or neophyte species.
 - Less than 90% of the hedgerow and/or undisturbed ground is free of damage caused by human activities.
- Treeline retention: within the proposed plans, the line of goat willows G1 (as allocated by Murray Tree Consultancy) located along the northern boundary of the site is to be retained. This treeline scores 'Moderate' within the condition assessment, and as such a management and maintenance plan should be put in place in order to maintain this condition. 3-4 of the criteria within **Table 5.3** must be met to maintain this condition.

Table 5.3 – Line of Trees Condition Assessment Criteria

1	More than 70% of trees are native species.
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.
3	Includes one or more mature ¹ or veteran ² tree.
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.
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.

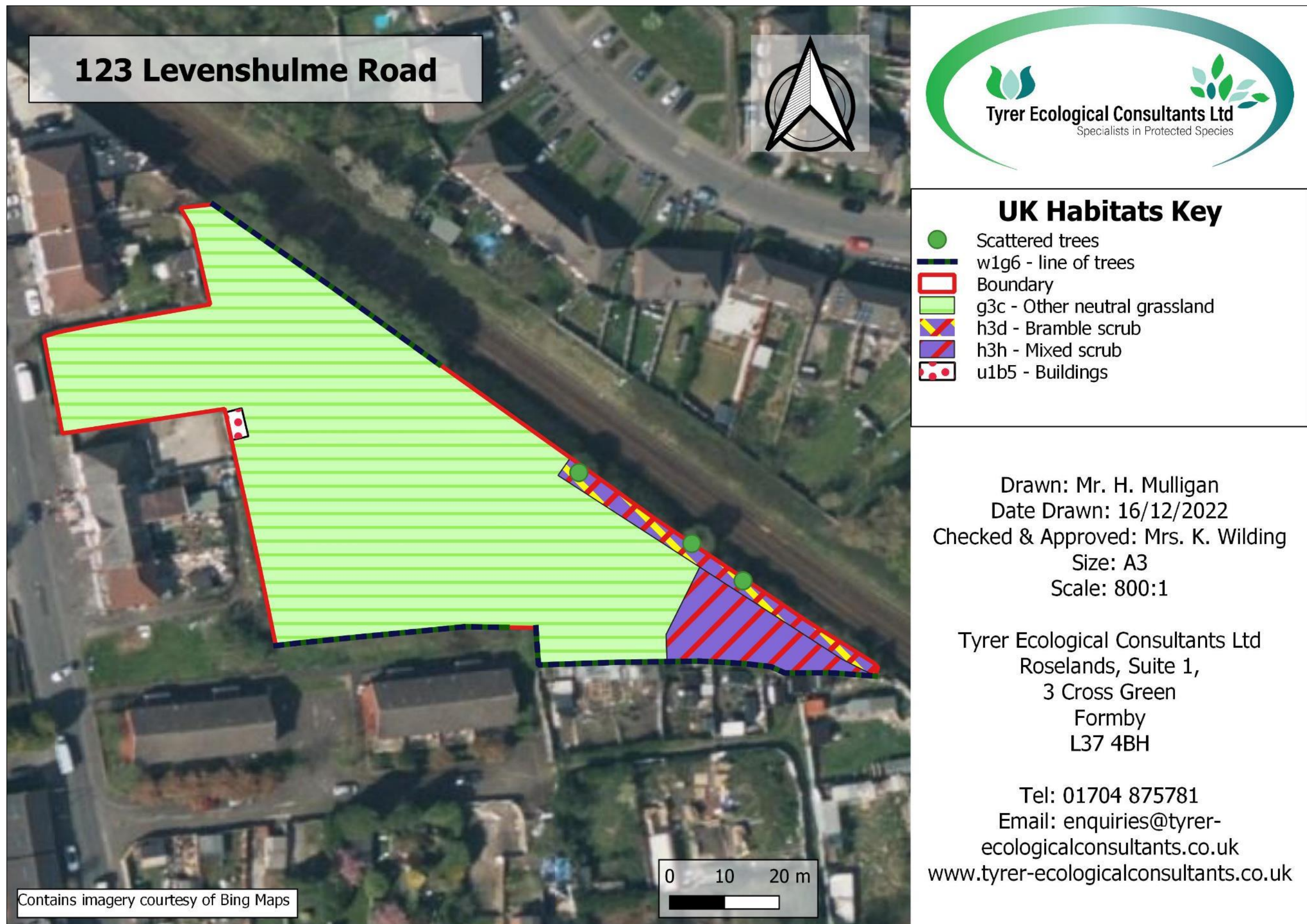
- 5.3 The site achieves a net-gain for hedgerow units, above the 10% net-gain aim put forward by Natural England, however there is currently no legal requirement for this figure to be met by developments. Instead, as mentioned previously, professional judgement can help planners make better informed decisions regarding the biodiversity and the potential of a site in this manner. However, the site did not achieve a 10% net gain post development for area units, although can achieve a small net-gain of 0.69%.
- 5.4 Without the suggested habitat creation applied, the site would achieve a net-loss of -53.27% (-1.15) in areas units; thus, the proposed intervention methods can negate this loss and instead create a minor net-gain, should they be applied accurately and appropriately as per this report.
- 5.5 A series of ferns, herbaceous plants, climbers, woody shrubs and trees which are suitable for incorporation into the proposed development have been suggested in **Table 5.4** overleaf, with these plants being readily commercially available. These native species are of significantly better value to biodiversity, particularly for pollinating insects.

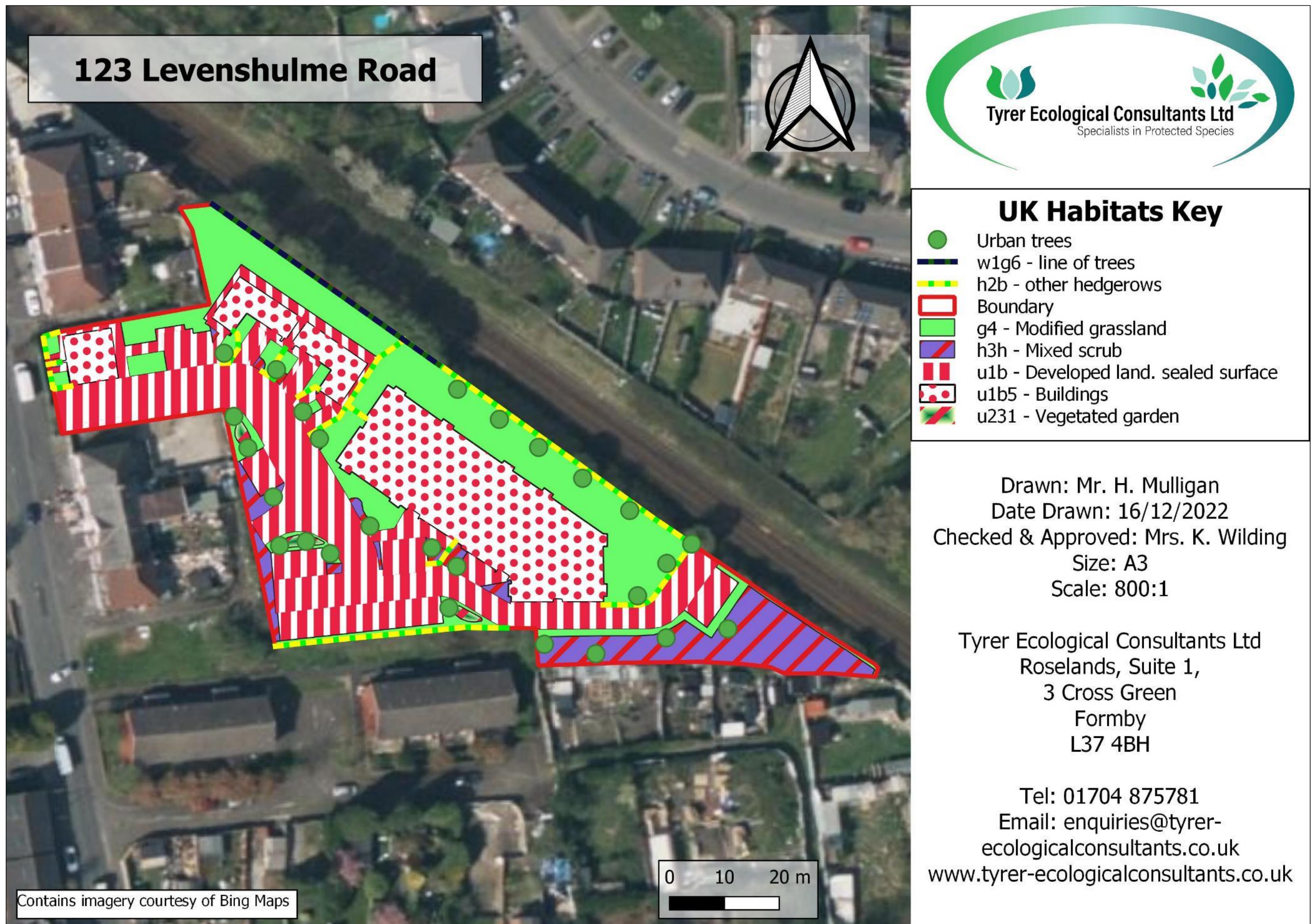
Table 5.4 – Suggested Plant Species

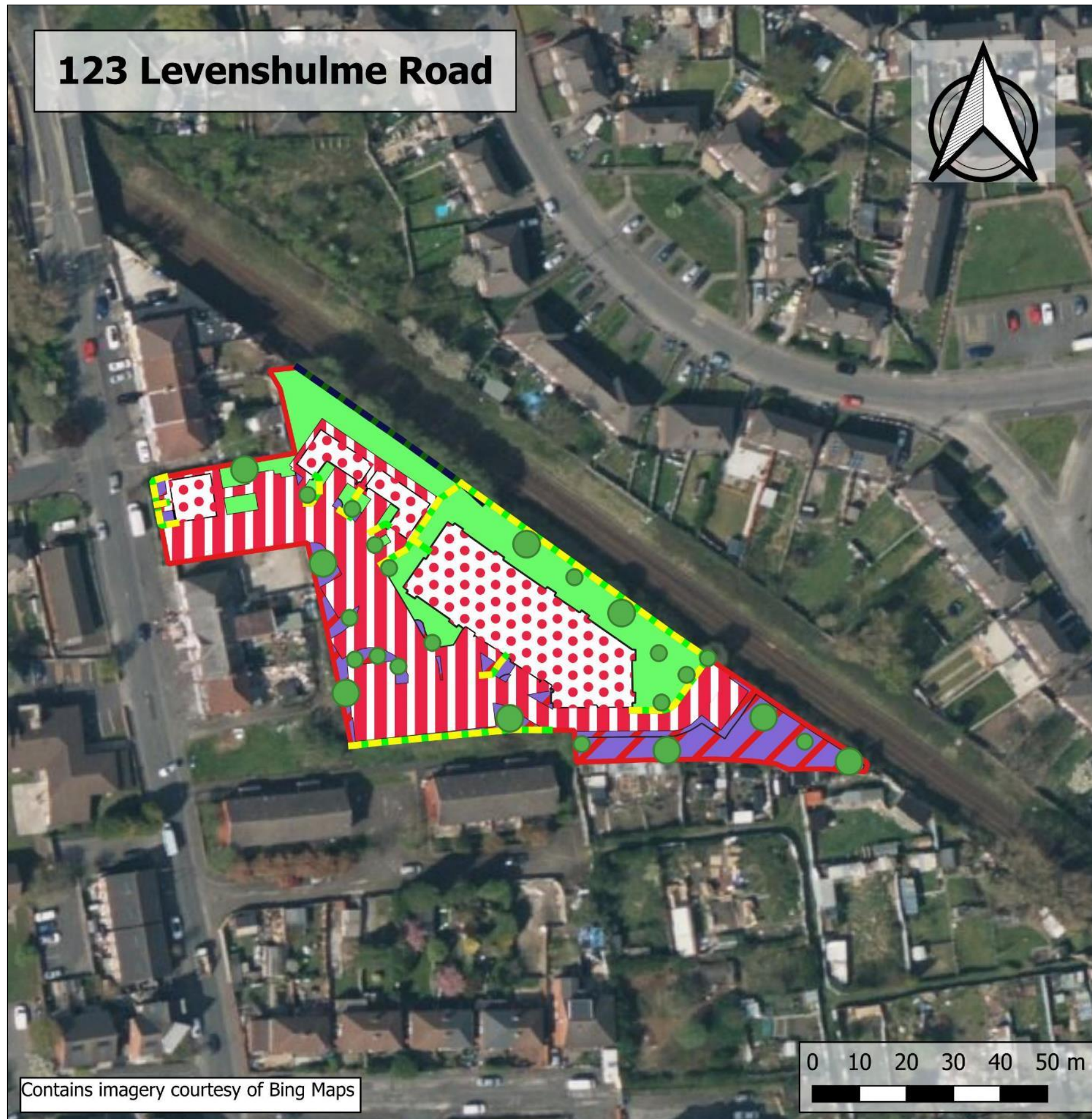
	Common Name	Scientific Name	Planting Preference
Ferns	Male Fern	<i>Dryopteris filix-mas</i>	Semi-shade or shaded
	Soft Shield-fern	<i>Polystichum setiferum</i>	Semi-shade or shaded
	Maidenhair Fern	<i>Adiantum capillus-veneris</i>	Suitable for rockeries / walled gardens
	Royal Fern	<i>Osmunda regalis</i>	Full sun in moist-damp areas
Herbaceous plants	Bloody Crane's-bill	<i>Geranium sanguineum</i>	Dry soils - suitable for rockeries
	Columbine	<i>Aquilegia vulgaris</i>	Semi-shade or open areas
	English Bluebell	<i>Hyacinthoides non-scripta</i>	Moist soils in semi-shade or open areas
	Giant Bellflower	<i>Campanula latifolia</i>	Semi-shade or open areas
	Greater Knapweed	<i>Centaurea scabiosa</i>	Dry-moist soils. Suitable for borders
	Greater Woodrush	<i>Luzula sylvatica</i>	Moist soils in semi-shade or open areas
	Meadow Crane's-bill	<i>Geranium pratense</i>	Humid-moist soils. Suitable for borders
	Musk Mallow	<i>Malva moschata</i>	Suitable for borders and rockeries
	Sea Campion	<i>Silene uniflora</i>	Dry soils - suitable for rockeries
	Stinking Hellebore	<i>Helleborus foetidus</i>	Semi-shade or open areas
Climbers	Honeysuckle	<i>Lonicera periclymenum</i>	Dry-moist soils
	Hops	<i>Humulus lupulus</i>	Dry-moist soils
	Ivy	<i>Hedera helix</i>	Dry-moist soils
	Sweet-briar	<i>Rosa rubiginosa</i>	Dry-moist soils
Woody Shrubs	Blackthorn	<i>Prunus spinosa</i>	-
	Dogwood	<i>Cornus sanguinea</i>	-
	Guelder Rose	<i>Viburnum opulus</i>	-
	Hawthorn	<i>Crataegus monogyna</i>	-
	Hazel	<i>Corylus avellana</i>	-
	Holly	<i>Ilex aquifolium</i>	-
Trees	Alder Buckthorn	<i>Frangula alnus</i>	-
	Osier	<i>Salix viminalis</i>	-
	English Oak	<i>Quercus robur</i>	-
	Purple Willow	<i>Salix purpurea</i>	-
	Rowan	<i>Sorbus aucuparia</i>	-
	Silver Birch	<i>Betula pendula</i>	-
	Wild Cherry	<i>Prunus avium</i>	-
	Wych Elm	<i>Ulmus glabra</i>	-

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UK Habitats Key

- Small Trees Post-Intervention
- Medium Trees Post-Intervention
- w1g6 - line of trees
- h2b - other hedgerows
- Boundary
- g4 - Modified grassland
- h3h - Mixed scrub
- u1b - Developed land. sealed surface
- u1b5 - Buildings

Drawn: Mr. H. Mulligan
Date Drawn: 16/12/2022
Checked & Approved: Mrs. K. Wilding
Size: A3
Scale: 800:1

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