



Biodiversity Net Gain Assessment – 4.0

Phoenix Works, Middleton, Rochdale, M24 2WL

Kwick Build Ltd

Status	Issue	Name	Date
Draft	1	Elen Griffin BSc (Hons), MRSB Ecological Consultant	14/11/2023
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Final	2	Elen Griffin BSc (Hons), MRSB Ecological Consultant	22/11/2023
Final – updated plans	2.1	Elen Griffin BSc (Hons), MRSB Ecological Consultant	24/04/2024

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Industry Guidelines and Standards

This report has been written with due consideration to:

- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management, Construction Industry Research and Information Association & Institute of Environmental Management and Assessment (2019). Biodiversity Net Gain – Good Practice Principles for Development.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

Executive Summary

Arbtech Consulting Limited was instructed by Kwick Build Ltd to undertake a Biodiversity Net Gain (BNG) Assessment at Phoenix Works, Middleton, Rochdale, M24 2WL (hereafter referred to as “the site”). The assessment was required to inform a planning application for the demolition of an existing building and the erection of 20 new residential dwellings (hereafter referred to as “the proposed development”).

The baseline habitat value of the site is 1.62 units, comprising of developed land including buildings (no value), 0.15 units of modified grassland and 1.47 units of mixed scrub.

The post development habitat value of the site is 0.59 units, comprising the creation of buildings and hardstanding (no value), 0.24 units of urban garden, modified grassland (0.10 units), urban trees (0.19 units) and introduced shrubs (0.06 units)

This results in a net change in biodiversity of **-63.82% (i.e. a net loss)**.

The baseline hedgerow value of the site is 0.82 units, comprising 0.71 units of native lines of trees and 0.11 units of ornamental and non-native trees.

The post development habitat value of the site is 0.43 units, comprising solely of the inclusion of new hedgerows.

This results in a net change in biodiversity of **-47.71% (i.e. a net loss)**.

In order to achieve the required minimum 10% net gain in biodiversity as a result of the proposed development, the provision of additional or alternative landscaping should be explored and the proposed plans amended accordingly to either achieve a 10% net gain on site or to reduce off-site compensation requirements that may be required to achieve a 10% net gain.

Contents

1.0 Introduction and Context	6
1.1 Background	6
1.2 Site Location, Geology and Landscape Context	6
1.3 BNG Informative	6
2.0 Methodology	7
2.1 Baseline Biodiversity Value.....	7
2.2 Post Development Biodiversity Value	7
2.3 Limitations	8
3.0 Results	9
3.1 Baseline Habitats	9
3.2 Post Development Habitats	12
3.3 Change in Biodiversity Value of the Site	13
4.0 Recommendations to Deliver BNG.....	14
4.1 Discussion	14
4.2 Landscaping	14
4.3 Biodiversity Offsetting	14
4.4 Post Development	15
5.0 Bibliography	16
Appendix 1: Proposed Development Plan.....	17
Appendix 2: Site Location Plan	19
Appendix 3: Baseline Habitat Plan	20
Appendix 4: Post Development Habitat Plan	21
Appendix 5a: Habitat Condition Assessment Sheets - Baseline	22
Appendix 5b: Habitat Condition Assessment Sheets - Proposed	29
Appendix 6: Headline BNG Results.....	39

1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Kwick Build Ltd to undertake a Biodiversity Net Gain (BNG) Assessment at Phoenix Works, Middleton, Rochdale, M24 2WL (hereafter referred to as “the site”). The assessment was required to inform a planning application for demolition of an existing building and the erection of 20 new residential dwellings (hereafter referred to as “the proposed development”).

A plan showing the proposed development is provided in Appendix 1.

This report should be read in conjunction with the following documents:

- Defra Biodiversity Metric 4.0.
- PEA report for the site

1.2 Site Location, Geology and Landscape Context

The site is located at National Grid Reference SD 8706 7160 and has an area of approximately 0.548ha comprising of abandoned urban infrastructure, scrub and lines of trees. It is surrounded by residential dwellings, roads and scattered trees with Middleton Cemetery ~390m to the east and Brassey Recreation Ground ~125m to the west. The wider landscape comprises built up, urban landscape with residential dwellings, patches of urban green spaces and scattered trees. A site location plan is provided in Appendix 2.

1.3 BNG Informative

BNG is a specific, measurable outcome of project activities that deliver demonstrable and quantifiable benefits to biodiversity compared to the baseline situation. In order to achieve BNG, a project must be able to demonstrate that it has followed all 10 of the Principles of Biodiversity Net Gain (as outlined in the *British Standard 8683:2021 Process for Designing and Implementing Biodiversity Net Gain*).

The legalised Environment Act (2021) requires developments in England to demonstrate a measurable net gain in biodiversity and sets a target of a minimum of 10% BNG for all developments. It also stipulates that a management plan with a minimum 30-year term, should be adopted to ensure biodiversity net gain can be delivered. The Environment Act (2021) is still in a transitional phase and is not expected to become mandatory until November 2023. However, the requirement for biodiversity net gain is also enshrined within the National Planning Policy Framework (NPPF, 2021).

The DEFRA Biodiversity Metric 4.0 is the widely accepted tool used to calculate BNG. It enables the calculation of habitat value pre- and post-development in order to determine the overall change in biodiversity value as a result of the proposed development. The Biodiversity Metric has separate BNG assessments for areas of habitat, hedgerows and watercourses.

The biodiversity value of a site should be maximised. However, it may not always be possible to achieve a 10% biodiversity net gain within a site and therefore the Biodiversity Metric 4.0 can also account for offsite habitat creation, where land is available. Alternatively, developers can seek to provide an agreed financial contribution to an appropriate third party (such as the Local Authority, the UK Government or another landowner) to deliver the required biodiversity net gain elsewhere on their behalf.

2.0 Methodology

2.1 Baseline Biodiversity Value

The baseline BNG Calculation was informed by Preliminary Ecological Appraisal (Arbtech Consulting Ltd, 2023). A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The Preliminary Ecological Appraisal classified the habitats on site according to The UK Habitat Classification Habitat Definitions Version 2.0 (The UK Habitat Classification Working Group, July 2023).

Habitat Area/Length

The area or length of each habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of a similar composition and condition. Distinctions were made between habitats to be retained (i.e. left as found in baseline), enhanced (i.e. improved condition) or lost (i.e. destroyed by proposed development).

Areas of scattered trees were calculated using the Tree Helper tool within the Biodiversity Metric 4.0. Class sizes for urban trees are set out in Table 8-1 of the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Habitat Condition

Habitat condition was assessed using the relevant condition assessment sheets found in the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Strategic Significance

Strategic significance was assigned for each habitat based upon a review of the following:

- Ecological value
- Function within the landscape
- Any site or habitat allocations under the Rochdale Borough Council Local Plan.

2.2 Post Development Biodiversity Value

The post development BNG Calculation was informed by Proposed Site Layout (Condylofthouse Architects, 2022) which is included in Appendix 1. A post development habitat plan is provided in Appendix 4.

Habitat Classification

Proposed habitats were translated to their equivalents in the UK Habitat Classification using The UK Habitat Classification Habitat Definitions Version 2.0 (The UK Habitat Classification Working Group, July 2023) and the information provided within the Proposed Site Layout (Condyllofthouse Architects, 2022).

Habitat Area/Length

The area or length of each proposed habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of similar composition and condition. Distinctions were made between habitats to be retained (i.e. left as found in baseline), enhanced (i.e. improved condition) or newly created.

Areas of scattered trees were calculated using the Tree Helper tool within the Biodiversity Metric 4.0. Class sizes for urban trees are set out in Table 8-1 of the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Habitat Condition

Target habitat condition for each proposed habitat was determined assessed using the Temporal Multipliers Tool and the Enhancement Temporal Multipliers Tool included in the Biodiversity Metric 4.0 spreadsheet as well as the relevant condition assessment sheets found in the Biodiversity Metric 4.0 User Guide (Natural England, 2023). This is based on the assumption that a 30-year management plan will be adopted for the site.

Strategic Significance

Strategic significance was assigned for each proposed habitat based upon a review of the following:

- Likely ecological value
- Function within the landscape
- Any site or habitat allocations under the Rochdale Borough Council Local Plan

2.3 Limitations

There were no limitations to the assessment.

3.0 Results

3.1 Baseline Habitats

Table 1 details the baseline habitats present within the site along with their area/length, condition and strategic significance. A full condition assessment for each habitat (where relevant) is provided in Appendix 5a.

Table 1: Baseline Biodiversity Value

Habitat	Area / Length	Description	Condition Assessment	Strategic Significance
Buildings – u1b5	0.142 ha	A collection of disused buildings are present along the northern boundaries and towards the centre of the site with a small building also present along the south western boundary	N/A	Low – limited to no value.
Vacant developed land; sealed surface with old flower beds and introduced shrubs – u1b, 82,846, 847	0.163 ha	Large portions of sealed surfaces are present along the north western boundary which extends to the centre of the site once utilised as access and parking. Sparse vegetation is now present indicating its vacant nature with some areas of old flower beds and introduced shrubs still present along the boundaries and near to the remaining buildings.	N/A	Low – limited to no value.
Unmanaged modified grassland – g4, 521	0.075 ha	Small areas of unmanaged modified grassland is present around the edges of the sealed surface specifically towards the south west boundaries of the site. The grassland varies in length from ~10cm to ~40cm. Large areas (upwards of 25%) of damage are present where machinery has been moved in for the purpose of clearance and water testing.	Poor condition achieved. Does not pass essential criteria of 5A and only passes 2/7 of the assessment criteria.	Low due to its general homogenous nature and lack of vascular species.

		Species diversity within the grassland includes cock's foot (D), Yorkshire fog (A), perennial ryegrass (F), cleavers (O), nettle (O), dandelion (O), red clover (f), ribwort plantain (R).		
Mixed line of trees including ecologically valuable, felled trees and forest brash - w1h, 33, 34, 206, 207 (parcel 1)	0.162 km	Lines of trees are present around the site boundaries. Mature dense leylandii cypress trees are present along part of the southern boundary, such trees are not considered to be ecologically valuable due to their dense and homogenous nature. Other lines of trees present are considered to be ecologically valuable due to the species diversity and varied maturity. The canopies are, for the most part, continuous however notable gaps ~1.5m wide are present along the southern and northern boundaries. No standing deadwood or veteran trees were noted within the lines of trees on site. A low number of trees were observed to have stems covered in ivy however no other obvious natural ecological niches such as cavities or loose bark. Species diversity within the line of trees are as follows; Leylandii (A), sycamore (F), holly (O), beech (O), lime (R), birch (R), chestnut (R), laurel (O), ash (R) and hawthorn (O).	Moderate condition achieved. Passes 4/5 criteria with the exception of areas of undisturbed land due to the works undertaken on the site as well as the trees location close to residential houses.	High - ecologically valuable lines of trees provide habitat for birds in addition to commuting and foraging lines for bats.
Leylandii trees – w1h, 33 (parcel 2)	0.111 km	Lines of trees are present around the site boundaries. Mature dense leylandii cypress trees are present	Poor condition achieved due to the non-native nature of the trees and areas of undisturbed land due to	Moderate - provides some ecological value but less than

		along part of the southern boundary, such trees are not considered to be ecologically valuable due to their dense and homogenous nature.	the works undertaken on the site as well as the trees location close to residential houses.	above due to the non-native nature of the trees.
Mixed scrub with scattered trees and invasive non native species – h3h, 32 524	0.167 ha	Large areas of scrub are present below the lines of trees which extend out into the centre of the site. Limited to no tall grassland or forbs species are present around the edges of the scrub. Some natural clearings are present within the scrub which appear to be natural due to the presence of low immature and sapling ground species. Himalayan balsam and bindweed was noted within the areas of scrub with Himalayan balsam being an invasive non-native species. Species diversity within the areas of scrub include bramble (A), ivy (F), nettle (F), creeping thistle (O), Himalayan honeysuckle (O), herb Robert (F), St Jon's wort (O), honeysuckle (R) and myrtle (R)	Moderate condition achieved. 3/5 criteria passed however Invasive species recorded along with lack of woody species recorded.	Moderate - provides habitat and foraging habitat for numerous species
Built linear feature including fence – u1e, 612	0.323 km	Fencing, constructed of wire and wooden, is present around the site boundaries. The wooden fencing has been mounted on a concrete base.	N/A	Low – limited to no value.

3.2 Post Development Habitats

Table 2 details the post development habitats present within the site along with their area/length, condition and strategic significance. An assessment of the anticipated condition for each habitat (where relevant) is provided in Appendix 5b, which is based on the assumption that a 30 year management plan will be implemented for the site. The proposed development will result in the loss of areas of scrub, lines of trees, unmanaged grassland and sealed surface to include buildings.

Table 2: Post Development Biodiversity Value

Habitat	Area / Length	Description	Target Condition	Strategic Significance
Developed land sealed surface including buildings – u1b & u1b5	0.364 ha	New residential dwellings with associated access roads, driveways and paving are to be erected on the site.	N/A – no value	Low – limited to no value.
Urban vegetated garden - u1, 828	0.123 ha	Private urban gardens are to be included to the rear of the new dwellings to include grassland and shrub planting.	N/A – automatically calculated	Low – limited value due to their private nature and management
Modified grassland - g4	0.028 ha	Small areas of modified grassland are to be present to the front of the new dwellings around driveways and along the main access road	Moderate condition scored passing 5/7 criteria but failing the essential criteria of 6-8 vascular species.	Low - due to its general homogenous nature and lack of vascular species.
Individual urban trees	0.057 ha (as per tree helper)	Approximately 14 new native urban trees are to be planted within public-facing areas of the new developments along the main public access road and pavements. Species to include field maple, silver birch and rowan. 20 trees will also be included within the private areas of the new dwellings therefore these trees cannot be counted towards the overall BNG of the site.	Moderate condition scored. Passing 3/6 criteria including presence of native species oversailing vegetation and tree maturity after 30 years.	Moderate - help to support nesting bird species and supply some limited foraging habitat for bats
Native hedgerow - h2h	0.117 km	Native hedgerows are to be planted along the modified grassland areas. Species to include hawthorn, hazel and dog rose.	Moderate – fails only three criteria however fails two within the same functional group.	Moderate - help to support nesting bird species and supply some limited foraging habitat for bats

Introduced shrubs - 847	0.031 ha	New shrub planting is to be included to the rear of the new dwellings in addition to along the front elevations near to new hedgerows. Species include spindle, David viburnum, Potentilla Elizabeth and Brachyglottis.	N/A – automatically calculated.	Low – limited value due to likely management
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3.3 Change in Biodiversity Value of the Site

Full details are provided in the Defra Biodiversity Metric 4.0. The headline results are presented in Appendix 6.

Areas of Habitat

The baseline habitat value of the site is 1.62 units, comprising of developed land including buildings (no value), 0.15 units of modified grassland and 1.47 units of mixed scrub.

The post development habitat value of the site is 0.59 units, comprising the creation of buildings and hardstanding (no value), 0.24 units of urban garden, modified grassland (0.10 units), urban trees (0.19 units) and introduced shrubs (0.06 units)

This results in a net change in biodiversity of -63.82% (i.e. a net loss).

Hedgerows

The baseline hedgerow value of the site is 0.82 units, comprising 0.71 units of native lines of trees and 0.11 units of ornamental and non-native trees.

The post development habitat value of the site is 0.43 units, comprising solely of the inclusion of new hedgerows.

This results in a net change in biodiversity of -47.71% (i.e. a net loss).

4.0 Recommendations to Deliver BNG

4.1 Discussion

The current proposed plan results in a -63.82% net loss in habitat units and -47.71% in hedgerow units. Both are less than the 10% target of biodiversity net gain and therefore do not meet the trading rules set out for BNG.

In order to achieve the required minimum 10% net gain in biodiversity as a result of the proposed development, the provision of additional or alternative landscaping should be explored and the proposed plans amended accordingly to either achieve a 10% net gain on site or to reduce off-site compensation requirements that may be required to achieve a 10% net gain.

4.2 Landscaping

To maximise the biodiversity value of the site itself, the following alterations to the current landscaping proposals could be considered:

- Installation of neutral grassland as opposed to modified grassland
- Retention of more tree lines on the site
- Planting additional native hedgerows to replace the row of leylandii trees to be removed
- Planting of new areas of mixed scrub

Should these alterations be incorporated this BNG Assessment will need to be updated to accurately reflect the change in biodiversity value of the site pre- and post-development.

4.3 Biodiversity Offsetting

If the landscaping plans are not altered or if the above alterations still do not deliver a 10% net gain, the deficit will need to be delivered in a suitable offsite location i.e. biodiversity offsetting.

According to the Defra Biodiversity Metric 4.0 there is a unit deficit of 1.20 habitat units and 0.48 hedgerow units and this will need to be provided to offset the loss in biodiversity and achieve a 10% biodiversity net gain.

The mechanism for securing this off-setting will need to be proposed to, and confirmed by the LPA e.g., purchasing conservation credits through a registered provider, habitat creation directly through the client owned or LPA offered land or a financial contribution towards another provider such as a local nature reserve or park. As well as the creation of new habitats, this should also secure the management of the proposed habitats to help achieve the desired condition for at least 30 years. This would be linked to the application through a planning obligation Section

106 (S106) agreement. The proposed habitat compensation should be of an appropriate distinctiveness to meet the trading rules of BNG. An ecology survey of the baseline habitat of any off-site land will be required to inform the baseline conditions of any land subject to off-site compensation measures.

4.4 Post Development

A Biodiversity Net Gain (BNG) Management Plan must be produced for the site. This should include recommendations for the implementation, management and monitoring of the site for at least 30 years.

5.0 Bibliography

- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- CIEEM-CIRIA-IEMA (2019) Biodiversity Net Gain – Good Practice Principles for Development.
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey a technique for environmental audit.
http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf
- Natural England (2023). The Biodiversity Metric 4.0 (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 User Guide (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 Technical Annex 1 - Condition Assessment Sheets and Methodology (JP039).
- Natural England (2023). The Biodiversity Metric 4.0 Technical Annex 2 – Technical Information (JP039).
- The UK Habitat Classification Habitat Definitions Version 2.0 (The UK Habitat Classification Working Group, July 2023)

Notes



NOTE: Scheme design subject to statutory approval.
All proposed levels are indicative only and subject to detailed design.
All true reference numbers to be cross-checked by
We Know Services, following receipt of detailed
topographical survey.

FOR APPROVAL

C	Amendments following Planning Officer comments.	UAC	05/04/2024
E	Amendments to suit Landscape Architect proposals, RCF-T0102A	UAC	14/06/2025
A	Minor Amendments.	UAC	10/06/2025
-	Final issue.	UAC	01/07/2025

condylofthouse
architects

Client:

Project
Phoenix Works - Middleton

Title: _____
Proposed Site Layout: _____

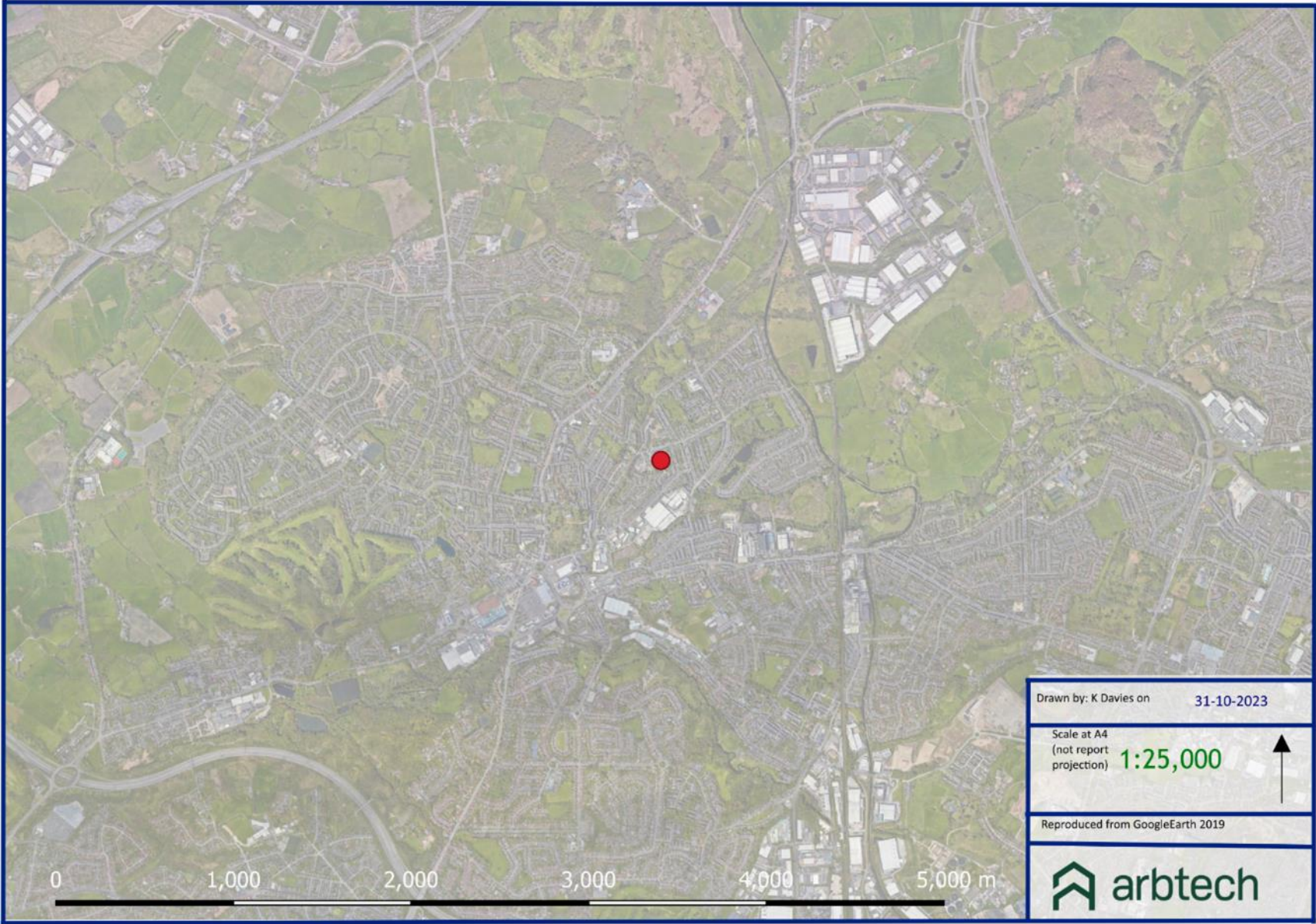
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As indicated (3A2)	JULY 22	LMC

Drawing No.	Revision
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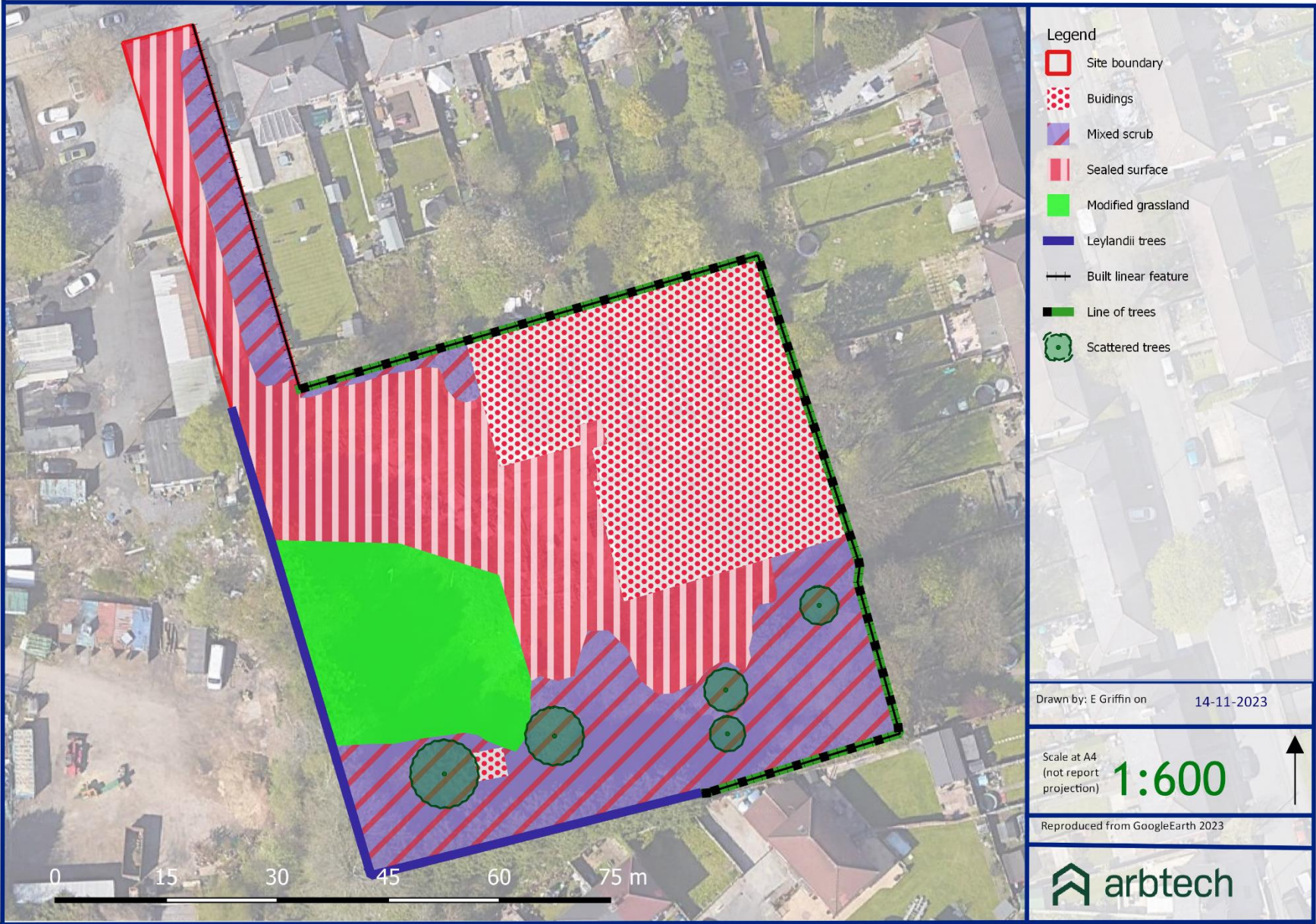
Unit 12 Contact Business Village
24 Darnley Road
Liverpool L5 8PR
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www.ronsoft.co.uk



Appendix 2: Site Location Plan



Appendix 3: Baseline Habitat Plan



Appendix 4: Post Development Habitat Plan



Appendix 5a: Habitat Condition Assessment Sheets - Baseline

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
UK Habitat Classification (UKHab) Habitat Type(s)			
Grassland - Modified grassland			
Site name and location	Phoenix Works, Middleton, Rochdale, M24 2WL	On-site or off-site	On-site
Limitations (if applicable)		Survey reference (if relating to a wider survey)	
Grid reference		Habitat parcel reference	
Habitat Description			
Small areas of unmanaged modified grassland is present around the edges of the sealed surface specifically towards the south west boundaries of the site. The grassland varies in length from ~10cm to ~40cm. Large areas (upwards of 25%) of damage are present where machinery has been moved in for the purpose of clearance and water testing. Species diversity within the grassland includes cock's foot (D), Yorkshire fog (A), perennial ryegrass (F), cleavers (O), nettle (O), dandelion (O), red clover (f), ribwort plantain (R).			
ukhab – UK Habitat Classification - - -			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m² present, including at least 2 forbs (this may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m² (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	no	fewer than 6 vascular species noted

B	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 vertebrates and invertebrates to live and breed.	no	sward is above 10cm and has been left rank/unmanaged
C	Some scattered scrub (including bramble <i>Rubus fruticosus</i> agg.) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	no	limited to no scrub species recorded
D	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.	no	large areas of damage from machinery noted
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	no	upwards of 25% bare ground present
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	yes	no bracken recorded
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴).	yes	non-present within the grassland
Essential criterion achieved (Yes or No)			no
Number of criteria passed			2
Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 6 or 7 criteria including passing essential criterion A	Good (3)		
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)		

Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	yes 2/7	
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Condition Sheet: LINE OF TREES Habitat Type			
Habitat Type(s)			
Line of trees Line of trees – associated with bank or ditch Ecologically valuable line of trees Ecologically valuable line of trees – associated with bank or ditch			
Habitat Description			
Ecologically valuable line of trees and line of trees - Lines of trees are present around the site boundaries. Mature dense leylandii cypress trees are present along part of the southern boundary, such trees are not considered to be ecologically valuable due to their dense and homogenous nature. Other lines of trees present are considered to be ecologically valuable due to the species diversity and varied maturity. The canopies are, fore the most part, continues however notable gaps ~1.5m wide are present along the southern and northern boundaries. No standing deadwood or veteran trees were noted within the lines of trees on site. A low number of trees were observed to have stems covered in ivy however no other obvious natural ecological niches such as cavities or loose bark. Species diversity within the line of trees are as follows; Leylandii (A), sycamore (F), holly (O), beech (O), lime (R), birch (R), chestnut (R), laurel (O), ash (R) and hawthorn (O).			
See the Biodiversity Metric 4.0 User Guide Section 9. This assessment is based on the Hedgerow Survey Handbook1. For further clarifications please refer to the Handbook. Where ancient and veteran trees are present within the line of trees, see Footnote 2 for standing advice.			
Site name and location	Phoenix Works, Middleton, Rochdale, M24 2WL	On-site or off-site	On-site
		Survey reference (if relating to a wider survey)	
		Habitat parcel reference	

Limitations (if applicable)		1	2									
		Grid reference										
Condition Assessment Criteria												
		Criterion passed (Yes or No)										
A	At least 70% of trees are native species.	Yes	No									
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Yes	Yes									
C	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	Yes	No									
D	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 human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice2.	No	No									
E	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). 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.	Yes	Yes									
Number of criteria passed		4	2									

Condition Assessment Result (out of 5 criteria)	Condition Assessment Score	Score Achieved ×/✓										
Passes 5 criteria	Good (3)											
Passes 3 or 4 criteria	Moderate (2)	yes										
Passes 2 or fewer criteria	Poor (1)		yes									

Condition Sheet: SCRUB Habitat Type**UK Habitat Classification (UKHab) Habitat Type**

Heathland and shrub - Blackthorn scrub
Heathland and shrub - Gorse scrub
Heathland and shrub - Hawthorn scrub
Heathland and shrub - Hazel scrub
Heathland and shrub - Mixed scrub
Heathland and shrub - Dunes with sea buckthorn (H2160)
Heathland and shrub - Willow scrub

Habitat Description

Mixed scrub - Large areas of scrub are present below the lines of trees which extend out into the centre of the site.
 Limited to no tall grassland or forbs species are present around the edges of the scrub. Some natural clearings are present within the scrub which appear to be natural due to the presence of low immature and sapling ground species.
 Himalayan balsam and bindweed was noted within the areas of scrub with Himalayan balsam being an invasive non-native species.
 Species diversity within the areas of scrub include bramble (A), ivy (F), nettle (F), creeping thistle (O), Himalayan honeysuckle (O), herb Robert (F), St Jon's wort (O), honeysuckle (R) and myrtle (R)

For Dunes with sea buckthorn see: [Dunes with sea-buckthorn \(Dunes with Hippophae rhamnoides\) - Special Areas of Conservation \(jncc.gov.uk\)](https://jncc.gov.uk)

For other scrub types see: [ukhab – UK Habitat Classification](#)

Site name and location	Phoenix Works, Middleton, Rochdale, M24 2WL	On-site or off-site	On -site
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Limitations (if applicable)		Survey reference (if relating to a wider survey)	
Grid reference		Habitat parcel reference	
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. At least 80% of scrub is native, and there are at least three native woody species¹, with no single species comprising more than 75% of the cover (except hazel <i>Corylus avellana</i>, common juniper <i>Juniperus communis</i>, sea buckthorn <i>Hippophae rhamnoides</i> or box <i>Buxus sempervirens</i>, which can be up to 100% cover).	No	lacks the woody species required to be classified as a good representation
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran ²) shrubs are all present.	Yes	
C	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴) and species indicative of sub-optimal condition ⁵ make up less than 5% of ground cover.	No	Himalayan balsam noted
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Yes	tall/rank grasses around the edges extending into areas of modified grassland

E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Yes	
Number of criteria passed			3
Condition Assessment Result (out of 5 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 5 criteria	Good (3)		
Passes 3 or 4 criteria	Moderate (2)	yes	
Passes 2 or fewer criteria	Poor (1)		

Appendix 5b: Habitat Condition Assessment Sheets - Proposed

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
UK Habitat Classification (UKHab) Habitat Type(s)			
Grassland - Modified grassland			
Site name and location	Phoenix Works, Middleton, Rochdale, M24 2WL	On-site or off-site	On-site
Limitations (if applicable)		Survey reference (if relating to a wider survey)	
Grid reference		Habitat parcel reference	
Habitat Description			
ukhab – UK Habitat Classification			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	no	to be dominated by ryegrass as per suggested seed mix

B	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 vertebrates and invertebrates to live and breed.	yes	likely to be managed to a moderately short sward with some longer areas around trees and hedges
C	Some scattered scrub (including bramble <i>Rubus fruticosus</i> agg.) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	no	non present on landscaping
D	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.	yes	presence of pavements will reduce damage and erosion
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	yes	non anticipated
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	yes	non anticipated
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA4).	yes	non anticipated
Essential criterion achieved (Yes or No)			no
Number of criteria passed			5
Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved x/✓	
Passes 6 or 7 criteria including passing essential criterion A	Good (3)		
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	yes	

Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)		
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Condition Sheet: INDIVIDUAL TREES Habitat Type			
Habitat Type(s)			
Individual trees – Urban trees Individual trees – Rural trees Complete a condition sheet for each tree or block of trees. <u>Please see separate Line of trees condition sheet for a line of Rural trees.</u>			
Habitat Description			
Approximately 15 new native urban trees are to be planted within public-facing areas of the new developments along the main public access road and pavements. Species to include field maple, silver birch and rowan.			
Individual trees (description applied to the urban or rural environment): Young trees over 7.5 cm in diameter at breast height whose canopies are not touching. Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only): Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies must overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.			
Site name and location	Phoenix Works, Middleton, Rochdale, M24 2WL	On-site or off-site	on site
Limitations (if applicable)		Survey reference (if relating to a wider survey)	

Grid reference		Habitat parcel reference	
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The tree is a native species (or at least 70% within the block are native species).	yes	only native species suggested
B	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).	no	trees are set individually
C	The tree is mature (or more than 50% within the block are mature).	yes	trees will be allowed to development to maturity
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	no	due to the trees locations regular pruning following maturity is considred likely
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	no	species suggested are unlikely to provide ecological niches partially due to their likely managment
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	yes	trees are to be placed with grassland and or hedgerows beneath
Number of criteria passed		3	
Condition Assessment Result (out of 6 criteria)	Condition Assessment Score	Score Achieved ×/✓	

Passes 5 or 6 criteria	Good (3)		
Passes 3 or 4 criteria	Moderate (2)	yes	
Passes 2 or fewer criteria	Poor (1)		
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.			

Condition sheet: HEDGEROW Habitat Types

Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Species-rich native hedgerow
Species-rich native hedgerow - associated with bank or ditch
Species-rich native hedgerow with trees
Species-rich native hedgerow with trees - associated with bank or ditch

Habitat Description

Native hedgerows are to be planted along the modified grassland areas. Species to include hawthorn, hazel and dog rose.

See the Biodiversity Metric 4.0 User Guide Section 9.

Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

Site name and location	Phoenix Works, Middleton, Rochdale, M24 2WL	On-site or off-site	On-site
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Limitations (if applicable)		Survey reference (if relating to a wider survey)	
Grid reference		Habitat parcel reference	
Condition Assessment Criteria			
A series of ten attributes, representing key physical characteristics are used for this assessment. This assessment is based on the Hedgerow Survey Handbook¹ and Favourable Conservation Status document². For further clarification please refer to the Hedgerow Survey Handbook. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the ‘favourable condition’ criteria.			
Hedgerow favourable condition attributes			
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for ‘favourable condition’	Description	Criterion passed (Yes or No)
Core groups - applicable to all hedgerow types			
A1.	Height	>1.5 m average along length The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	yes

A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	no	due to the location hedgerows are likely to be kept narrow
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	yes	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	yes	

C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	no	grassland below is likely to be managed and disturbed
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	no	
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA3) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website ⁴ , as well as the BSBI website ⁵ where the 'Online Atlas of the British and Irish Flora' ⁶ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website ⁷ .	yes	
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).	yes	
Additional group - applicable to hedgerows with trees only					

E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient8), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.		
E2.	Tree health	At least 95% of hedgerow 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.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.		

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees			
Category	Category Requirements	Metric Score	
Good	No more than 2 failures in total; AND No more than 1 failure in any functional group.	3	
Moderate	No more than 4 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 and C2 = Moderate condition).	2	
Poor	Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails	1	

	attributes A1, A2, B1 and B2 = Poor condition).		
Score achieved:		2	

Appendix 6: Headline BNG Results

The full Defra Biodiversity Metric 4.0 is provided as a separate excel spreadsheet.

Phoenix Works, Middleton, Rochdale, M24 2WL				Return to results menu	
Headline Results					
Scroll down for final results ▲					
On-site baseline	Habitat units	1.62			
	Hedgerow units	0.82			
	Watercourse units	0.00			
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.59			
	Hedgerow units	0.43			
	Watercourse units	0.00			
On-site net change (units & percentage)	Habitat units	-1.03	-63.82%	On-site net gain is less than target set ▲	
	Hedgerow units	-0.39	-47.71%	On-site net gain is less than target set ▲	
	Watercourse units	0.00	0.00%		
Off-site baseline	Habitat units	0.00			
	Hedgerow units	0.00			
	Watercourse units	0.00			
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00			
	Hedgerow units	0.00			
	Watercourse units	0.00			
Off-site net change (units & percentage)	Habitat units	0.00	0.00%		
	Hedgerow units	0.00	0.00%		
	Watercourse units	0.00	0.00%		
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-1.03			
	Hedgerow units	-0.39			
	Watercourse units	0.00			
Spatial risk multiplier (SRM) deductions	Habitat units	0.00			
	Hedgerow units	0.00			
	Watercourse units	0.00			
FINAL RESULTS					
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-1.03			
	Hedgerow units	-0.39			
	Watercourse units	0.00			
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-63.82%		Total net gain achieved is less than target set ▲	
	Hedgerow units	-47.71%		Total net gain achieved is less than target set ▲	
	Watercourse units	0.00%			