

4. Methodology

4.1 Background

4.1.1 Biodiversity accounting of existing and post-development habitats and linear features onsite was carried out using the Statutory Biodiversity Metric Calculation Tool, following guidance set out in the metric user guide (DEFRA, 2023). The process for data collation and analysis associated with the assessment is detailed in Sections 4.2 – 4.3 below.

4.2 Baseline Data

4.2.1 A baseline analysis of the existing habitats onsite was carried out from the information gathered during the site's ecological assessment visit carried out by Eleanor Clark (Ecologist, JCA Limited) and Alex Donovan (Graduate Ecologist, JCA Limited) on 23/01/2024.

4.2.2 To undertake the Statutory Biodiversity Metric calculations, the following information was recorded for each habitat parcel and/or linear feature:

- Habitat type.
- Area/Length (ha/km).
- Habitat condition.
- Strategic significance.
- Whether that habitat will be lost, retained, enhanced, succeeded and/or created, and at what scale.

4.2.3 The habitat map for the site was digitised and interpreted using QGIS Version 3.38.0-Grenoble to calculate habitat area.

4.3 Impact Assessment

4.3.1 The existing baseline habitat plan for the site was overlain with the Proposed Sit Plan (Job No. 210, Dwg No. 005, Rev I) of the Proposed Development using GIS software to provide an area (Ha) of temporary and permanent habitat loss.

4.3.2 The area of any retained/enhanced or created habitats proposed as part of the development was also mapped to provide an area (Ha) (or length (Km) for linear features) of the onsite compensation proposals being provided. An estimate of



future condition, time until establishment and the likelihood of success was then calculated using landscaping data provided by the client and professional judgement.

4.4 Habitat Creation and Enhancement

- 4.4.1 The area of any retained/enhanced or created habitats proposed onsite as part of the Proposed Development was mapped using the Proposed Sit Plan (Job No. 210, Dwg No. 005, Rev I) of the final development, to provide an area (ha) (or length (km) for linear features) estimate of onsite compensation provided. This includes areas of developed land, which are assigned a very low (or null) value, notably, areas of buildings and/or roads.
- 4.4.2 Condition and strategic significance for each habitat or linear feature were projected using available ecological data or professional opinion about the likely value.

4.5 Residual Effects

- 4.5.1 The residual effects of the Proposed Development scheme were calculated using the Statutory Biodiversity Metric Calculation Tool. This subtracts the pre-development baseline values from that of the post-development values to determine the change in overall habitat value for the site, taking into account any habitat trading.
- 4.5.2 Habitat trading is where the loss of a habitat must be compensated for through the creation or restoration of areas of equivalent or greater distinctiveness value. Guidance by Defra is that the loss of high distinctiveness areas, such as Habitats of Principal Importance (HPI, NERC Act, S41), require compensation in a like-for like manner (creation or restoration of habitat of the same habitat classification as that impacted). Within the Biodiversity Metric 'trading up' (where compensation through creation of a higher distinctiveness habitat) can occur, however, 'trading down' (compensation through creation of lower distinctiveness habitats) is not permitted. Therefore, if present, despite gains in lower distinctiveness habitats, these will not reduce the net gain requirement for the development. This also applies to the different habitat features i.e. habitats, hedgerows and rivers and streams. Hedgerow creation gains will not reduce net gain requirements for either rivers and streams or habitats.
- 4.5.3 Where the resulting biodiversity balance is negative, a residual net loss of biodiversity is recorded. Where the balance is positive a residual net gain of biodiversity is recorded.



5. Statutory Biodiversity Metric

5.1 Introduction

5.1.1 The assessment was carried out by JCA Limited using the ecological data gathered during the site's ecological assessment survey carried out on 23/01/2024.

5.2 Existing Site Value

5.2.1 The existing biodiversity value for each habitat, together with the cumulative value of all habitats is provided in **Table 2**. Existing onsite habitats can be found in **Appendix 1**.

Table 2: Baseline habitats and ecological values as categorised by the Metric Calculation Tool.

Biodiversity Metric Reference Number	Statutory Biodiversity Metric Habitat Type	Total Area onsite (Ha)	Distinctiveness	Condition	Strategic Significance	Ecological Baseline Habitat Unit
1	Other neutral grassland	0.1197	Medium	Poor	Area/compensation not in local strategy/no strategy	0.48
2	Other neutral grassland	0.0432	Medium	Poor	Area/compensation not in local strategy/no strategy	0.17
3	Urban trees	0.0489	Medium	Moderate	Area/compensation not in local strategy/no strategy	0.39
4	Urban trees	0.0529	Medium	Good	Area/compensation not in local strategy/no strategy	0.63
	Total (area excl. trees)	0.16	–	–	–	1.68

5.2.2 The other neutral grassland (reference numbers 1 and 2) was classified as **poor** condition. The habitat parcel failed the following condition assessment criteria:

- Criteria A – The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type. **Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**
- Criteria E – Combined cover of species indicative of sub-optimal condition and physical damage accounts for less than 5% of the total area. If any invasive non-native plant species are present, this criterion is automatically failed.



- Criterion F – There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type. **Note – this criterion is essential for achieving Good condition for non-acid grassland types only.**

5.2.3 The urban trees (reference numbers 3) were classified as **moderate** condition. The habitat parcels failed the following condition assessment criteria:

- Criteria C – The tree is mature (or more than 50% of the block are mature)
- Criteria D – There is little or no evidence of an adverse impact to health by human activities. And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.

5.2.4 The urban trees (reference number 4) were classified as **good** condition. The habitat parcels failed the following condition assessment criteria:

- Criteria D – There is little or no evidence of an adverse impact to health by human activities. And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.

5.2.5 All habitats had a strategic significance of 'Area/compensation not in local strategy/ no local strategy' due to the site and habitats onsite not being identified within the local strategy or Biodiversity Action Plan.

5.2.6 The existing biodiversity value for each hedgerow, together with the cumulative value of all hedgerows is provided in **Table 3**.

Table 3: Baseline hedgerows and ecological values as categorised by the Metric Calculation Tool.

Biodiversity Metric Reference Number	Statutory Biodiversity Metric Hedgerow Type	Total Area onsite (ka)	Distinctiveness	Condition	Strategic Significance	Ecological Baseline Habitat Unit
1	Line of trees	0.029	Low	Poor	Area/compensation not in local strategy/no strategy	0.06
2	Native hedgerow with trees	0.054	Medium	Moderate	Formally identified in local strategy	0.50
	Total	0.08	–	–	–	0.55

5.2.7 The line of trees (reference numbers 1) was classified as **poor** condition. The habitat parcel failed the following condition assessment criteria:

- Criteria A - At least 70% of trees are native.



- Criteria B – 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.
- There is an undisturbed naturally vegetated strip of at least 6m on both sites to protect the line of trees from farming and other human activities.

5.2.8 The native hedgerow with trees (reference numbers 2) were classified as **moderate** condition. The habitat parcel failed the following condition assessment criteria:

- Criteria A2 – Width is >1.5m along length.
- Criteria B2 – Hedge canopy gaps make up <10% of total length; and no canopy gaps >5m.
- Criteria D2 - >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.

5.2.9 All hedgerows are listed as priority habitats under the Derbyshire BAP (**Table 1**), therefore, the native hedgerow was listed as 'Formally identified in local strategy' in the Strategic Significance section. Lines of trees are not classed as priority habitats under the BAP, so was listed as 'Area/compensation not in local strategy/ no local strategy'.

5.2.10 To ensure a 10% net gain in biodiversity is achieved as part of the Proposed Development the following measures can be employed:

- Habitat retention; and/or
- Habitat enhancement; and/or
- Habitat creation.



6. Proposed Development Impact Assessment

6.1 Description of the Proposed Development

4.1.1 The Proposed Development involves the construction of three residential properties and associated landscaping.

6.1.1 The Proposed Development will see the partial removal of other neutral grassland and urban trees onsite habitats to facilitate the development. The loss, retention, and enhancement of habitats as a result of the Proposed Development is quantified in **Table 4**. The existing onsite habitats can be found in **Appendix 1**.

6.1.2 The results of the Statutory Biodiversity Metric calculation indicates that a total of **0.61** Habitat Units lost as a result of the Proposed Development, with **0.90** habitat units retained and **0.17** habitat units generated through the enhancement of existing habitats (**Table 4**).

Table 4: Summary of baseline habitat biodiversity value through retention and enhancement.

Statutory Biodiversity Metric Reference	Statutory Biodiversity Metric Habitat	Retained		Enhanced		Lost	
		Area (Ha)	Unit	Area (Ha)	Unit	Area (Ha)	Unit
1	Other neutral grassland	0.00	0.00	0.00	0.00	0.12	0.48
2	Other neutral grassland	0.00	0.00	0.0432	0.17	0.00	0.00
3	Urban trees	0.0326	0.26	0.00	0.00	0.02	0.13
4	Urban trees	0.0529	0.63	0.00	0.00	0.00	0.00
	Total (area excl. urban trees)	0.00	0.90	0.04	0.17	0.14	0.61

6.1.3 The Proposed Development will see the retention of the native hedgerow and line of trees onsite to facilitate the development. The loss, retention, and enhancement of hedgerows as a result of the Proposed Development is quantified in **Table 5**. The existing onsite hedgerows can be found in **Appendix 1**.

6.1.4 The results of the Statutory Biodiversity Metric calculation indicates that a total of **0.00** Hedgerow Units are to be lost as a result of the Proposed Development, with **0.55** hedgerow Units retained and **0.00** Hedgerow Units generated through habitat enhancement.



Table 5: Summary of baseline hedgerow biodiversity value through retention and enhancement.

Statutory Biodiversity Metric Reference	Statutory Biodiversity Metric Hedgerow	Retained		Enhanced		Lost	
		Area (km)	Unit	Area (km)	Unit	Area (km)	Unit
1	Line of trees	0.029	0.06	0.00	0.00	0.00	0.00
2	Native hedgerow with trees	0.054	0.43	0.00	0.00	0.00	0.00
	Total	0.08	0.55	0.00	0.00	0.00	0.00

6.2 Habitats to be Retained

6.2.1 Any development should apply the Mitigation Hierarchy (British Standards Institution (BSI), 2013; shown below in Figure 1).

6.2.2 Development proposals should first seek to **avoid** impacts by retaining habitats. Second, development proposals should look to minimise the impact by producing plans that are designed to limit habitat disturbance, damage, and loss, thereby mitigating against any unavoidable impacts. Third, proposals should look to restore any damaged or degraded habitats. Then, only as a last resort should proposals compensate for unavoidable residual impacts to damaged or lost habitats that remain after avoidance and mitigation measures.



Figure 1: The mitigation hierarchy (BSI, 2013)

6.2.3 The Proposed Development will see the urban trees onsite to facilitate the development. The retention of these habitats will avoid any direct impacts of loss of habitat.



6.2.4 The Proposed Development will see the retention of all hedgerows and lines of trees onsite to facilitate the development. The retention of these hedgerows will avoid any direct impacts of loss of habitat.

6.3 Habitats to be Enhanced

6.3.1 The Proposed Development will see the enhancement of remaining other neutral grassland onsite to facilitate the development. This will involve the enhancement from **poor** condition to **good** condition by passing at least **5 out of 6** of the following criteria (including essential criteria **A** and **F**):

- Criteria A – The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type. **Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**
- Criteria B – Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
- Criteria C – Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.
- Criteria D – Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.
- Criteria E – Combined cover of species indicative of sub-optimal condition and physical damage accounts for less than 5% of the total area. If any invasive non-native plant species are present, this criterion is automatically failed.
- Criterion F – There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type. **Note – this criterion is essential for achieving Good condition for non-acid grassland types only.**

6.3.2 The Proposed Development will see the enhancement of none of the hedgerows onsite to facilitate the development.



6.4 Habitats to be Lost

6.4.1 The Proposed Development will see the partial loss of other neutral grassland and one urban tree onsite to facilitate the development. Both other neutral grassland and urban trees are medium distinctiveness habitats. Loss of trees can be mitigated against through the planting of new trees; however, it is not possible to avoid the loss of grassland due to the small scale of the site. Therefore, offsite compensation will be required to satisfy the Trading Rules regarding the loss of habitat areas.

6.5 Proposed Habitat Creation

6.5.1 It is proposed that the following habitats be created as part of the Proposed Development:

- Developed land; sealed surface.
- Vegetated garden.
- Urban trees – 11 medium-sized trees.
- Built linear features.

6.5.2 The proposed habitats onsite can be found within **Appendix 2**.

6.5.3 **Table 6** below summarises the value of all habitats that are to be created as part of the Proposed Development. In total, **+0.62** Habitat Units are to be created within the Proposed Development.

Table 6: Summary value of onsite habitat proposals.

Biodiversity Metric Reference Number	Statutory Biodiversity Metric Target Habitat Type	Total Area onsite (Ha)	Distinctiveness	Target Condition	Strategic Significance	Habitat Unit Value
1	Developed land; sealed surface	0.0797	V.Low	N/A	Area/compensation not in local strategy/no strategy	0.00
2	Vegetated garden	0.0364	Low	N/A	Area/compensation not in local strategy/no strategy	0.07
3	Urban tree	0.1791	Medium	Moderate	Area/compensation not in local strategy/no strategy	0.55
4	Built linear features	0.0036	V.Low	N/A	Area/compensation not in local strategy/no strategy	0.00
	Total (area excl. trees)	0.12	–	–	–	0.62



6.5.4 The urban trees have a target condition of **moderate**, this can be achieved by meeting at least **3 out of 6** of the following criteria:

- Criteria A – The tree is a native species (or at least 70% within the block are native species).
- Criteria B – The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5m wide.
- Criteria C – The tree is mature (or more than 50% within the block are mature).
- Criteria 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.
- Criteria E – Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy, or loose bark.
- Criteria F – More than 20% of the tree canopy area is overhanging vegetation beneath.

6.5.5 All habitats were given strategic significance of 'Area/compensation not in local strategy/ no local strategy' due to the site and habitats onsite not being identified within the local strategy or Biodiversity Action Plan.

6.5.6 **Table 7** below summarises the value of all hedgerows that are to be created as part of the Proposed Development. In total, **+0.08** Hedgerow Units for hedgerows are to be created within the Proposed Development.

Table 7: Summary value of onsite hedgerow proposals.

Biodiversity Metric Reference Number	Statutory Biodiversity Metric Target Hedgerow Type	Total Length onsite (Km)	Distinctiveness	Target Condition	Strategic Significance	Hedgerow Unit Value
1	Native hedgerow	0.041	Low	Poor	Formally identified in local strategy	0.09
	Total	0.04	–	–	–	0.09

6.5.7 All hedgerows are listed as priority habitats under the Derbyshire BAP (**Table 1**), therefore, the native hedgerow was listed as 'Formally identified in local strategy' in the Strategic Significance section.



6.6 Proposed Development Summary of Net Impacts

6.6.1 **Table 8** and **Table 9** below summarises the Habitat Unit and Hedgerow Unit value of the Proposed Development together with the unit value of any biodiversity impacts or onsite habitat creation/enhancement proposals.

6.6.2 This shows that on balance, the Proposed Development would result in a **net gain** of **+0.21** Habitat Units, equivalent to a **net gain** of **+12.59%** and a **net gain** of **+0.09** Hedgerow Units, equivalent to a **net gain** of **+16.40%**, however, the Proposed Development has **not satisfied** the trading rules for habitats due to a loss of **-0.28** Habitat Units of medium distinctiveness grassland habitats.

Table 8: Summary of Biodiversity Metric results for habitats.

Habitat Units	
Existing Site habitat biodiversity value	1.68
Value of gross habitat biodiversity loss	0.61
Value of retained and proposed onsite habitat creation and enhancement	1.89
Onsite net change of Habitat Units	+0.21

Table 9: Summary of Biodiversity Metric results for hedgerows.

Hedgerow Units	
Existing Site hedgerow biodiversity value	0.55
Value of gross hedgerow biodiversity loss	0.00
Value of retained and proposed onsite hedgerow creation and enhancement	0.65
Onsite net change of Hedgerow Units	+0.09



7. Conclusion

7.1.1 In accordance with the NPPF, where a biodiversity impact cannot be avoided or mitigated then compensation measures must be provided. If this cannot be achieved onsite through further avoidance, mitigation or compensatory habitat creation or enhancement measures, then offsite compensation measures will be required.

7.1.2 The BAA identified that the Proposed Development would have a **net gain** of **+0.21** Habitat Units, equivalent to a **net gain** of **+12.59%** and a **net gain** of **+0.09** Hedgerow Units, equivalent to a **net gain** of **+16.40%**, however the Proposed Development has **not satisfied** the trading rules for habitats due to a loss of **-0.28** Habitat Units of medium distinctiveness grassland habitats. As such, the client should seek to undertake one or a combination of the following recommendations to achieve an overall biodiversity net gain in habitat BU and hedgerow BU, whilst meeting the Trading Rules:

- Incorporate onsite habitat creation/enhancement to compensate for the loss of medium distinctiveness habitat to achieve a minimum of 10% net gain whilst satisfying the Trading Rules. This can be achieved by incorporating **0.28** habitat units of medium distinctiveness grassland habitats, or **0.28** habitat units of any higher distinctiveness habitat.
- If onsite habitat creation/enhancement is not possible, then offsite habitat creation/enhancement will be required. This can be achieved by the purchase of additional land designated as a compensatory biodiversity offset site to compensate for the loss of **0.28** grassland habitat units, reach 10% net gain, and satisfy the Trading Rules.
- If neither onsite nor offsite compensation is possible, statutory biodiversity credits will need to be purchased as a last resort. Guidance can be found at <https://www.gov.uk/guidance/statutory-biodiversity-credits>.

7.1.3 Further details of the Statutory Biodiversity Metric calculations and associated condition assessments can be found within the Statutory Biodiversity Metric Calculator Tool excel spreadsheet and the Statutory Biodiversity Metric Habitat Condition Assessment Sheets accompanying this report.

7.1.4 Should the Proposed Development be subject to future change, the conclusions and recommendations in this report will need to be revised. This is to be undertaken via the recalculation of the impact assessment element through the most up-to-date biodiversity metric.



8. References

Biodiversity Metric Guidance:

Business and Biodiversity Offsets Programme (BBOP). (2012). *Standard on Biodiversity Offsets*.
https://www.forest-trends.org/wp-content/uploads/bbop/bbop_standard_on_biodiversity_offsets_1_feb_2013-pdf.pdf.

The British Standards Institution (BSI). (2013). *Biodiversity — Code of practice for planning and development*.
<https://www.omegawestdocuments.com/media/documents/43/43.35%20BSI%20Biodiveristy%20Code%20of%20Practice.pdf>.

CIEEM, CIRIA & IEMA. (2016). *Biodiversity Net Gain: Good practice principles for development*.
<https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/>.

DEFRA (2023). *Statutory biodiversity metric tools and guides*. Includes User Guides, Metric Calculation tools, and Condition Assessment sheets. <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Department for Levelling Up, Housing and Communities & Ministry of Housing, Communities and Local Government. (2019). *Guidance: Natural environment*. Available at: <https://www.gov.uk/guidance/natural-environment>.

Ministry for Housing Communities and Local Government. (2021). *National Planning Policy Framework*. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>.

UKHab. (2023). *The UKHab Classification System Version 2.01*. Available at: <https://ukhab.org/>.

Relevant Legislation:

Wildlife and Countryside Act (WCA) 1981 (as amended)

- <http://jncc.defra.gov.uk/page-3614>
- <https://www.legislation.gov.uk/ukpga/1981/69/contents>

The Conservation of Habitats and Regulations (CHSR) 2017.

- <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

- <https://www.legislation.gov.uk/uksi/2019/579/contents/made>

Natural Environment and Rural Communities (NERC) Act 2006

- <https://www.legislation.gov.uk/ukpga/2006/16/contents>

Environment Act 2011

- <https://www.legislation.gov.uk/ukpga/2011/30/contents/enacted>

Protection of Badgers Act 1992

- <https://www.legislation.gov.uk/ukpga/1992/51/contents>

Countryside and Rights of Way Act 2000

- <https://www.legislation.gov.uk/ukpga/2000/37/contents>



Appendices



Appendix 1: Baseline Habitat Map

