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Biodiversity Net Gain Assessment

Land West of Arlington Business Centre
Allington Lane
West End
SO50 7DE

November 2023

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1.	EXECUTIVE SUMMARY	4
2.	INTRODUCTION AND BACKGROUND	6
3.	LEGISLATIVE AND POLICY BACKGROUND	8
	National Planning Policy	8
4.	METHODOLOGY	11
5.	BIODIVERSITY NET GAIN ASSESSMENT	14
6.	RESULTS AND EVALUATION	19
7.	CONCLUSION	20
8.	REFERENCES	21
	APPENDICES	

QUALITY CONTROL		
The information which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.		
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This report remains valid for 12 months from date of issue. Survey data are valid for 12-24 months from the date the survey was undertaken.		

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The views and opinions contained within the document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to works.

1. EXECUTIVE SUMMARY

- 1.1. This report has been produced to provide the results of the Biodiversity Net Gain calculation at Land West of Arlington Business Centre, Allington Lane, West End, SO50 7DE in order to ensure compliance with the *National Planning Policy Framework (2023)* regarding no net-loss of biodiversity.
- 1.2. The site proposals are for the construction of a static mobile home with associated landscaping and outbuildings.
- 1.3. This report should be read in conjunction with Ecological Impact Assessment - Land West of Arlington (Darwin Ecology Ltd. October 2023), and the Arlington Business Centre Model.
- 1.4. Biodiversity Net Gain Assessments calculate the change in ecological value at a site by comparing the number of 'biodiversity units' within the site pre- and post-construction, for both linear habitats and areas of habitat, and demonstrating measurable loss or gain. The ecological value of the site is expressed as a percentage change in total Biodiversity Units following implementation of the proposals. Various forms of the metric are available, the most current being *DEFRA: The Biodiversity Metric 4.0*, which has been used to complete this assessment.
- 1.5. This assessment has been informed by a habitat walkover survey and habitat condition assessment.
- 1.6. Baseline habitats include artificial unvegetated, unsealed surface, neutral grassland, buildings (sealed surface), individual trees, a stream, and bare ground.
- 1.7. The proposal comprises the extension of the existing hardstanding (unvegetated, unsealed surface) area and the construction of a static mobile home with associated outbuildings. An ecological buffer zone will be left between the hardstanding areas and the stream to reduce impacts on and encroachment to the stream. The areas of bare earth will be lost as part of the proposals. The scattered trees and stream will be retained throughout the works and in perpetuity. The neutral grassland will be enhanced, native hedgerows will be planted on the eastern and western borders of the surveyed site and the wider ownership, and eight small trees (preferably alder) will be planted along the stream.
- 1.8. Proposed habitats include developed land/sealed surface (hardstanding areas and buildings), individual trees, a stream, hedgerows, and neutral grassland.
- 1.9. The total area of pre-development habitat is 0.43 ha with a total of 0.80 habitat units, 0 hedgerow units, and 0.85 watercourse units. The post development values are 0.97 habitat units onsite, 0.40 hedgerow units and 0.85 watercourse units.. Therefore, a total of 0.17 habitat units will be created as a result of the proposals.
- 1.10. The Biodiversity Metric 4.0 demonstrates a 21.46% change in habitats, and an increase in hedgerow units. There will be no quantifiable net gain of hedgerow features as there is no

baseline. The watercourse is not being impacted by the works, resulting in neither a gain nor loss of watercourse habitat units.

- 1.11. The watercourse will be enhanced during the proposals via the removal and management of Himalayan balsam and the addition of eight alder trees to stabilise the banks. However, a quantifiable change in condition, and therefore change in watercourse units, is not currently available.
- 1.12. The results of the metric are summarised in **Figure 1**.
- 1.13. Provided the proposed habitats are managed competently, the proposed development will be in compliance with the NPPF. It is recommended that a biodiversity enhancement and management plan (BEMP) is written to ensure the habitats created met their target score.

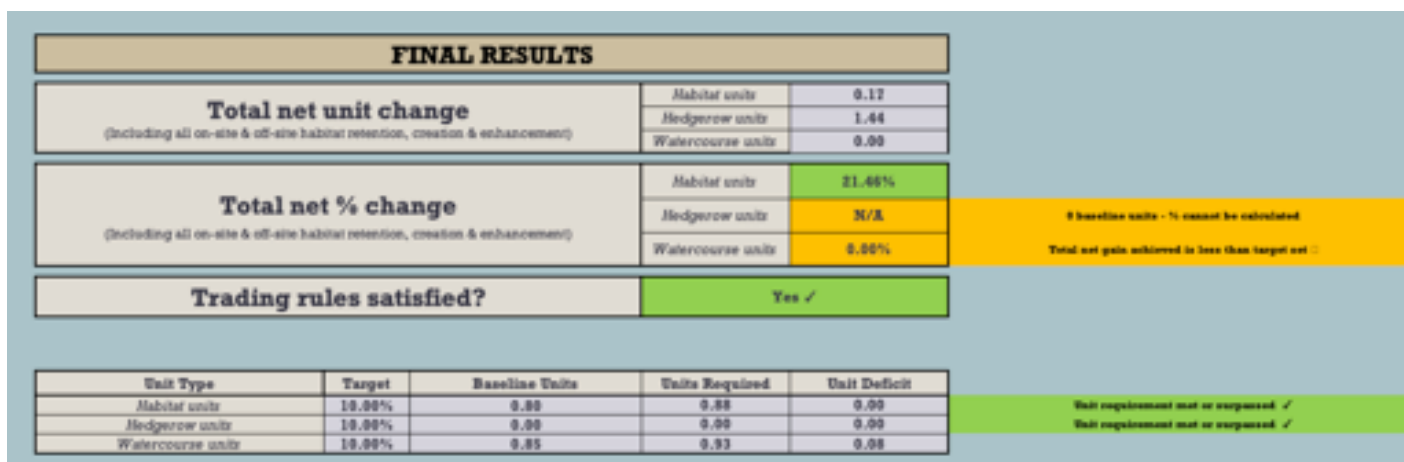


Figure 1: Final Results of the Biodiversity Metric 4.0 for the Land West of Arlington Business Centre

2. INTRODUCTION AND BACKGROUND

- 2.1. This report has been produced to provide the results of the Biodiversity Net Gain calculation at Land West of Arlington Business Centre, Allington Lane, West End, SO50 7DE in order to ensure compliance with the *National Planning Policy Framework (2023)* regarding no net-loss of biodiversity.
- 2.2. The proposals are for the construction of a static mobile home with associated landscaping and outbuildings.
- 2.3. This assessment is based on the landscape proposals as shown in **Appendix 1**.

Site Overview

- 2.4. The site is located within a static mobile home park in a rural area approximately 7.42km northeast of Southampton city centre, and 3.61km east of Eastleigh town centre.
- 2.5. The site boundary comprises a 0.43ha area of bare earth and hardstanding comprising two plots for static mobile homes. The wider ownership is an approximately 1.5ha area of hardstanding (developed land/sealed surface), ornamental planting (vegetated garden), and modified grassland comprising ten plots for static mobile homes (inclusive of the two assessed). The site is bordered by a stream to the north, with the land north of the stream comprising pastoral fields, and by pastoral fields and scattered woodland to the south and east. The site is bordered on the southwestern aspect by a small patch of woodland and a collection of industrial buildings, and by pastoral fields on the northwestern aspect (see **Figure 2**).
- 2.6. The wider landscape comprises a mosaic of scattered, small areas of woodland and pastoral fields bordered by lines of trees, hedgerows, and a network of streams. The town of Eastleigh lays 2.51km west of the site comprising dense commercial and residential areas, and Southampton airport is situated 2.27km southwest of the site. The dense residential areas comprising the villages of Bishopstoke and Horton Heath lay 1.20km north and 1.78km east of the site respectively. Itchen Valley Country park, with associated forest, recreational grassland, and waterbodies, makes up the landscape south of the site, with its closest boundary being situated just south of the railway which lays 300m south of the site. Further, the River Itchen runs parallel to the site 634m west of the site. The M27 is situated 2.16km south of the site (see **Figure 3**).



Figure 2: Site location within the local landscape. The red line displays the assessed area which will be impacted by the works, the blue line displays the curtilage of the site. (Copyright Google Earth Pro, 2023).



Figure 3: Site location within the wider landscape (Copyright Google Earth Pro, 2023).

3. LEGISLATIVE AND POLICY BACKGROUND

National Planning Policy

3.1. The *National Planning Policy Framework (2023)* aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 'Conserving and enhancing the natural environment' details what local planning policies should seek to consider with regard to planning applications.

3.2. Planning policies and decisions should contribute to and enhance the natural and local environment by:

174 a) Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

174 b) Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

174 d) Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

175) Plans should: distinguish between the hierarchy of international, national and local designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries;

176) Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and Broads. The scale and extent of development within all these designated areas should be limited, while development within their settings should be sensitively located and designed to avoid or minimise adverse impacts on the designated area.

3.3. Specific policies regarding habitats and biodiversity comprise:

179) To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation and
- b) Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species and identify and pursue opportunities for securing measurable net gains for biodiversity.

180) When determining planning applications, local planning authorities should apply the following principles:

- a) If significant harm to biodiversity resulting from a development cannot be avoid (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) Development on land within or outside of Sites of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the feature of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d) Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around development should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181) The following should be given the same protection as habitats sites:

- a) Potential Special Protection Areas and possible Special Areas of Conservation;
- b) Listed or proposed Ramsar sites; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

4. METHODOLOGY

Biodiversity Net Gain Assessment

- 4.1. Biodiversity Net Gain Assessments calculate the change in ecological value at a site by comparing the number of 'Biodiversity Units' within the site pre and post construction for both linear habitats and areas of other habitats. The ecological value of the site is expressed as a percentage change in total Biodiversity Units following the completion of the proposed development. This is an indicator of what the proposed development's impact would be on the site's existing ecological value and will establish if a net loss of biodiversity has been avoided.
- 4.2. Baseline Biodiversity Units (pre-development) are calculated by assessing the "Condition" of the identified habitat area, with additional factors regarding the habitats connectivity and strategic significance. Post-intervention Biodiversity Units (post-development) are calculated for created and enhanced habitat areas using similar metrics of target "Condition", habitat connectivity and strategic importance, and additional factors to account for the time anticipated to achieve target condition and the difficulty of creation or enhancement.
- 4.3. The biodiversity calculations were undertaken using the Biodiversity Metric 4.0, the User Guide, Technical Supplement and Condition Assessment Sheets.

Calculation Components

- 4.4. The Biodiversity Metric 4.0 takes account of all the habitats on site prior to development and post development using UK Habitat Classification System (UKHabs). Therefore, Phase 1 Habitat types have been converted to UKHabs Habitats for the purposes of this assessment. Using this metric, area habitats are measured in hectares and inputted to three decimal places. Linear habitats are measured in Kilometres to the nearest three decimal places.
- 4.5. The Biodiversity Metric further assesses all habitats using the following:
- 4.6. *Distinctiveness*- Habitats are automatically given a distinctiveness score based on habitat type. This ranges from 'High' to 'low'. 'High' distinctiveness habitats include those listed as Habitats of Principal Importance under the NERC act. Habitats of low wildlife value (such as ornamental planting) are given a 'low' distinctiveness score.
- 4.7. *Condition*- Habitat conditions are assessed for each individual habitat type using the technical supplement. Habitat condition uses criteria such as botanical diversity and invasive species cover.
- 4.8. *Strategic Significance*- This relates to the spacial location of a habitat type and if the location is 'ecologically desirable'. Habitats located in areas considered desirable are given larger weighting within the metric.

- 4.9. Once the post-development Biodiversity Units have been calculated, the mitigation hierarchy is applied. Application of the mitigation hierarchy is one of the guiding principles for biodiversity no net loss / net gain proposals. Through its application, the hierarchy highlights actions to avoid, minimise or restore biodiversity losses on site, and account for unavoidable losses off site.
- 4.10. Following the finalisation of the development design after applying any onsite mitigation proposals, the Biodiversity Units are updated to reflect any proposed changes.
- 4.11. The difference between the baseline Biodiversity Units and those calculated on the proposed development design indicate the number of units that would be needed to deliver no net loss or a net gain for biodiversity. Using this information the habitat types and the size of the area that would be needed off site to deliver no net loss or net gain can be identified if required.
- 4.12. The area calculations of existing and proposed habitat areas are made using QGIS.
- 4.13. The proposed habitats were calculated from the site landscaping proposals.

Good Practice Principles

- 4.14. Good practice principles for biodiversity net gain are set out in Table 1.1 of the Biodiversity Net Gain: Good Practice Principles for Development (Baker *et al*, 2019). The key principles include:
- Apply the Mitigation Hierarchy (CIEEM, 2018) and be additional by achieving outcomes that exceed existing obligations.
 - Avoid losing biodiversity which cannot be off-sett elsewhere for example irreplaceable habitats such as ancient woodland.
 - Address any risk (e.g. difficulty of achieving habitat creation or enhancement for net gain.
 - Make a measurable net gain contribution for the site and ensure it is achievable.

Assumptions and Limitations

- 4.15. The accuracy of the habitat area measurements is limited by the form of the baseline data collection and resolution of development proposals plans. In this instance the baseline habitats for the site have been calculated by cross referencing illustrative habitat plans and aerial imagery. Post development habitats have been measured using QGIS by geo-referencing the proposed layout to the baseline dataset.
- 4.16. The proposed habitat baseline is calculated using both the landscaping plans and professional opinion on the target conditions that can be attained for each habitat type with proficient management. Therefore, all proposed habitat types rely on implementation of a

long-term management plan and planting in line with the provided landscape proposals. Further information on this is provided in the conclusion.

- 4.17. There is no net gain for hedgerow features on site as you cannot get a net gain without a baseline, there are no hedgerow features present within the baseline.
- 4.18. There is no net gain for watercourse features on site as a quantifiable improvement in condition cannot be calculated at this time. The watercourse is not being impacted negatively by the works, and will be enhanced through the management of Himalayan balsam and the planting of alder trees.

5. BIODIVERSITY NET GAIN ASSESSMENT

Pre-development Habitats/Baseline

- 5.1. Below is a summary of the habitats and condition assessments recorded on site during the Habitat Walkover Survey undertaken by Assistant Ecologist Eleanor Kemp BSc (Hons) MSc on 3rd October 2023.

g3c other neutral Grassland, cleared. (Secondary codes 510, 511, 517, 524)

- 5.2. The site appeared to have been cleared within the past few months, leaving large areas bare ground on the northeastern half of the site. Some areas of the bare earth had not been spread/removed, creating piles across the site. This habitat was assessed as bare ground with the metric due to its condition at the time of the survey.
- 5.3. There were moderate levels of encroachment from hardy vegetation, with recorded species including Yorkshire fog *Holcus lanatus*, dandelion *Taraxacum spp.*, chickweed *Stellaria media*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, cut-leafed cranesbill *Geranium dissectum*, chamomile species *Chamomile spp.*, mullein *Verbascum thapsus*, ribwort plantain *Plantago lanceolata*, and willow saplings *Salix spp.*. The majority of the encroaching vegetation had a short sward height of around 10cm, but this increased towards the edges of the site and the river bank.
- 5.4. Himalayan balsam was present in the northeastern corner of the bare earth habitat, along the banks of the stream.
- 5.5. This habitat passed 1 of 3 essential criteria and was therefore assessed as having **poor condition**.

u1c Artificial unvegetated - unsealed surface (secondary code: 840)

- 5.6. Artificial unvegetated, unsealed surface of a compacted gravel and tarmac construction dominated the majority of the site.
- 5.7. This surface was had low levels of vegetation encroachment by broad-leaved dock in places.
- 5.8. The condition of artificial unvegetated, unsealed surface is **not applicable** under the biodiversity Metric 4.0.

g3c other neutral Grassland (secondary codes: 32, 502, 521)

- 5.9. An area of neutral grassland was present along the southwestern and northern banks of the stream. It was dominated by stands of Himalayan balsam.
- 5.10. The sward height of the grassland was moderately uniform, reaching a height of around 30cm. Recorded species included creeping thistle *Cirsium arvense*, ground ivy *Glechoma*

hederacea, bramble *Rubus fruticosus*, Yorkshire fog, common hogweed *Heracleum sphondylium*, rushes *Juncaceae spp.*, dandelion, and high levels of Himalayan balsam.

5.11. This grassland passed 3 of 6 criteria, passing essential criteria A.

- The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present.

5.12. The grassland failed 3 of 6 criteria:

- Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens
- Combined cover of species indicative of sub-optimal condition 2 and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species 3 (as listed on Schedule 9 of WCA 4) are present, this criterion is automatically failed.
- There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**

5.13. Therefore, due to passing three criteria, but failing one of the essential criteria for moderate condition, this area of modified grassland was assessed as having **poor condition**.

Scattered trees

5.14. A collection of around ten alder trees *Alnus glutinosa* were present along the southeastern bank of the stream. All the trees were fairly young, reaching a height of around 8-12m and only being around 20-30cm in diameter at chest height.

5.15. Each alter tree was assessed individually, but due to the trees all being of the same age and character, they were all assessed to have the same condition. These trees scored 5 of 6 criteria, failing criteria C (The tree is mature/more than 50% of trees within the block are mature). Therefore, these trees were assessed as having **good condition**.

Manmade Structures

5.16. A timber stable building had been constructed on the southwestern aspect of the site, being situated on the area of hardstanding. This structure was one-storey and of a timber panel construction. It had a multi-pitched roof of corrugated metal construction.

5.17. The building was recorded as being developed land/sealed surface. The condition of developed land/sealed surface is **not applicable** under the biodiversity Metric 4.0.

Linear Habitats

Hedgerows

- 5.18. No hedgerows were present on the site at the time of the habitat walkover.

Watercourse

- 5.19. A small stream bordered the northeastern aspect of the site. This stream was around 3m wide at its widest point, but on average was around 1.5m wide. The watercourse was around 50cm deep at the deepest point, but on average was around 20-30cm deep.
- 5.20. The water was very clear, and the stream only contained low levels of litter, comprising a couple of large items such as a scooter. The flow was slow to medium speed, and the stream contained only low levels of algal weed, but no other vegetation.
- 5.21. The water quality appeared to be moderate to good, and no fish or waterfowl were recorded. There is no physical barrier between the pastoral land bordering the stream to the north and the stream. This pastoral land is used to farm cattle, likely leading to nutrient run-off from the fields into the stream, resulting in low levels of nutrient pollution.
- 5.22. MAGIC.defra has this watercourse classified as a “low certainty chalk stream”.
- 5.23. No condition assessment is currently available for streams under the Biodiversity Metric 4.0. However, the stream was assessed as having **moderate condition** by the surveyor during the habitat walkover survey.

Baseline

- 5.24. The total area of pre-development habitat is 0.43 ha with a total of **0.80 baseline Habitat Units.**
- 5.25. The proposals will retain 0.0143 ha of sealed surface, and 0.0448 individual rural trees. Within the proposals 0.20ha of artificial unvegetated, unsealed surface will be replaced with developed land/sealed surface. Therefore, the proposals will result in the loss of 0.33 ha of habitats which reduces the biodiversity value of the site by -0.27 habitat units.
- 5.26. 0 km of hedgerows/ line of trees are present bounding the site which provide a total of **0 baseline Hedgerow Units.**
- 5.27. 0.082km of watercourse (stream) are present bounding the site to the north, which provides a total of **0.85 baseline Watercourse Units.** 0.082 km of watercourse will be retained throughout the works and in perpetuity, retaining a total of 0.85 Watercourse Units.

Post Development Habitats

- 5.28. The post-development proposals for the site comprise the construction of a static mobile home with associated landscaping and outbuildings.

- 5.29. The habitats which will result from the associated landscaping include hardstanding (developed land/sealed surface), buildings (developed land/sealed surface), neutral grassland, hedgerow planting (both on-site and off-site), and individual rural trees.
- 5.30. The only new habitats created through the proposals are the neutral grassland, hedgerow planting, and tree planting. The areas of developed land/sealed surface will increase in size as part of the proposals.
- 5.31. 0.082km of watercourse will be retained throughout the works and in perpetuity, retaining a total of **0.85 Watercourse Units**, resulting in a net change of 0%.

Creation

Neutral grassland

- 5.32. A buffer zone of 0.0335ha neutral grassland will be created between the area of hardstanding and the stream. The creation of this habitat will include:
- The use of Emorsgate EM1 or a similar species mix with a combination of wildflowers and numerous grasses. Management of this wildflower patch will include an annual hay cut to approximately 5cm in the first year and approximately 7.5cm once established.
 - Removal and management of Himalayan balsam
 - Areas of this grassland will be allowed to grow longer, with other areas being kept short, creating a grassland with variable sward heights
 - Scrub, such as bramble, will be managed and kept to levels below 5%, with bracken being managed to <20%.
- 5.33. With appropriate management, a **moderate condition** is achievable for this grassland.
- 5.34. The proposed creation of this neutral grassland will result in +0.22 habitat units.

Native Hedgerow

- 5.35. 0.12km of moderate condition native hedgerow is planned to be planted on the eastern and western borders of the site.
- 5.36. This planting will result in the addition of 0.40 hedgerow units to site.
- 5.37. 0.31km of moderate condition native hedgerow is planned to be planted on the eastern and western borders of the off-site areas of curtilage. This planting will result in the addition of 1.04 hedgerow units.
- 5.38. In total, the proposed hedgerow planting will result in the increase in hedgerow units by 1.44 units.

Rural Trees

- 5.39. An additional eight small trees, totalling an area of 0.0326, will be planted along the banks of the stream to improve the stability of the banks.

- 5.40. These will preferably be common alder or crack willow trees to match the existing species on site.
- 5.41. These trees will be managed to a moderate condition.
- 5.42. The proposed planting of these trees will result in +0.10 habitat units.

Enhancement

Neutral grassland

- 5.43. The current poor condition neutral grassland banks will be enhanced to moderate condition neutral grassland.
- 5.44. This will be achieved through:
- Removal and management of Himalayan balsam
 - The use of Emorsgate EM1 or a similar species mix with a combination of wildflowers and numerous grasses. Management of this wildflower patch will include an annual hay cut to approximately 5cm in the first year and approximately 7.5cm once established.
 - Areas of this grassland will be allowed to grow longer, with other areas being kept short, creating a grassland with variable sward heights
 - Scrub, such as bramble, will be managed and kept to levels below 5%, with bracken being managed to <20%.
- 5.45. With appropriate management, a **moderate condition** is achievable for this grassland.
- 5.46. This proposed grassland enhancement will result in +0.12 habitat units.

Stream

- 5.47. The stream will be retained throughout the works, and enhanced. This condition change, and therefore the watercourse unit change are not currently quantifiable, and are subsequently not included within the Biodiversity Metric 4.0 calculations.
- 5.48. This enhancement will be achieved through:
- The removal and management of Himalayan balsam
 - The semi-regular management of river weed. Plant other native chalk stream species, such as stream water Crowfoot, brook water Crowfoot, and starworts, within the stream to encourage a diversity of plant life.
 - Planting native trees along the stream banks to reduce erosion and increase shade.

6. RESULTS AND EVALUATION

- 6.1. Overall, the site will achieve a **21.46% (+0.17units) net gain for habitats and +0.40 units net gain for hedgerows** within the site based on the current proposals as set out in the **Appendix**.
- 6.2. Due to the off-site hedgerow planting, the proposed works will result in a net gain of 1.04 hedgerow units. Overall, the net increase in hedgerow units on-site and offsite is 1.44 hedgerow units.
- 6.3. A summary of these results within the metric can be found below (Figure 4):
- 6.4. The Metric 4.0 in an excel spreadsheet will also be provided along with comments where deemed necessary.

FINAL RESULTS		
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.17
	Hedgerow units	1.44
	Watercourse units	0.00
Total net % change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	21.46%
	Hedgerow units	N/A
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	0.00	0.00	0.00
Hedgerow units	10.00%	0.00	0.00	0.00
Watercourse units	10.00%	0.00	0.00	0.00

0 baseline units - % cannot be calculated

Total net gain achieved is less than target net ☹️

Unit requirement met or surpassed ✓

Unit requirement met or surpassed ✓

Figure 4: Final Results of the Biodiversity Metric 4.0 for the Land West of Arlington Business Centre

Further Recommendations

- 6.5. A biodiversity enhancement and management plan (BEMP) should be written for the site to ensure that all habitats created obtain their target scores. The Biodiversity Net Gain Principles document stipulates that created habitats must be maintained over a period of at least 25-30 years, along with providing monitoring and review, therefore any management plan must take this into account.
- 6.6. Further enhancements for biodiversity, such as the provision of bird and bat boxes have been recommended in line with the Ecological Impact Assessment provided by Darwin Ecology Ltd. 2023.
- 6.7. Enhancement work should be undertaken to improve the condition of the stream. This is not included in the biodiversity metric assessment as the stream is not being impacted directly by the works. Enhancement measures will be recommended in the BEMP.

7. CONCLUSION

- 7.1. Biodiversity net gain for the site has been achieved onsite with a 21.46% net gain for onsite habitats, with no off-site habitat unit increases occurring. Linear habitats have been created, although this cannot be quantified through the metric due to a lack of baseline value.
- 7.2. Provided the habitats are sufficiently managed, the development at Land West of Arlington Business Centre will be in line with the NPPF.

8. REFERENCES

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland*.

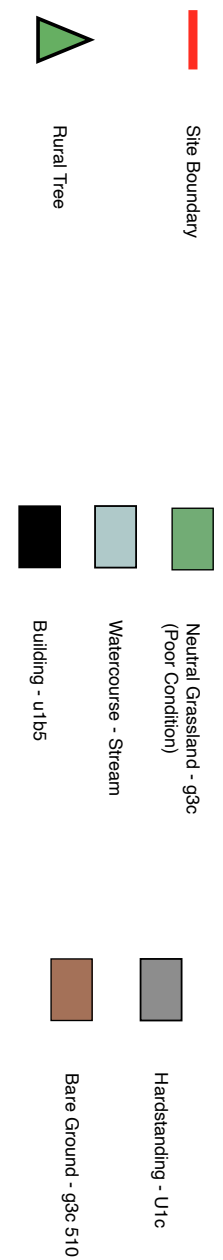
The Biodiversity Metric 4.0 - User Guide <https://publications.naturalengland.org.uk/publication/6049804846366720>

The Biodiversity Metric 4.0 - Technical Annex 1 - Condition Assessment Sheets and Methodology <https://publications.naturalengland.org.uk/publication/6049804846366720>

CIRIA, CIEEM, IEMA (2016) Biodiversity Net Gain: Good Practice Principles for Development [Available <https://cieem.net/wpcontent/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>]



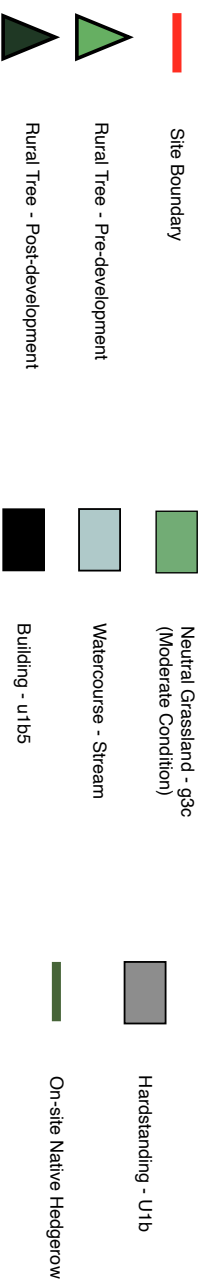
***NOTE** Areas are indicative and are not shown to exact scale.







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Project: Land West of Ailington
Business Centre, Ailington
Lane, West End, SO50 7DE

Appendix Figure: Post-
development habitats

Date: October 2023

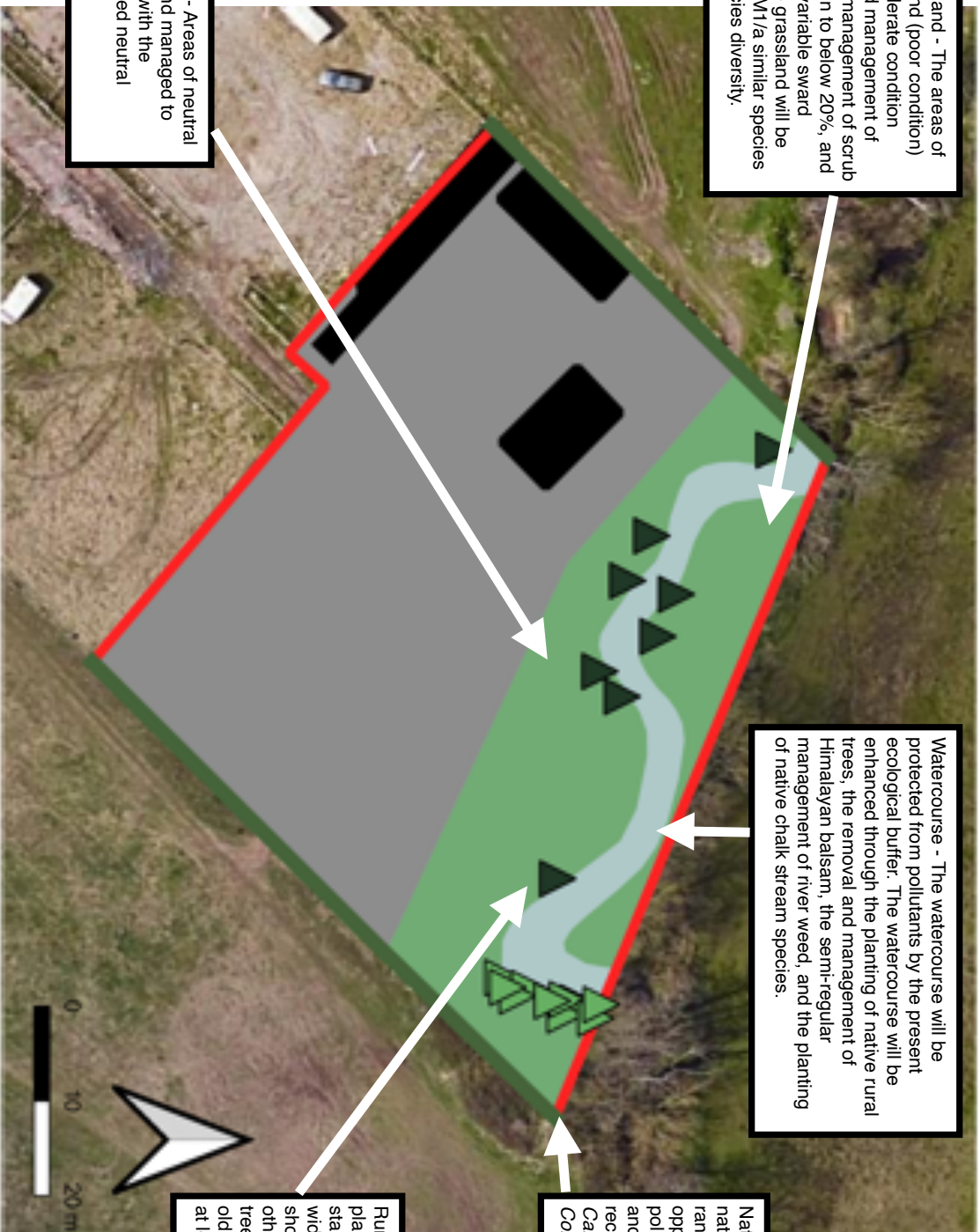
Retained Neutral Grassland - The areas of retained neutral grassland (poor condition) will be enhanced to moderate condition through the removal and management of Himalayan balsam, the management of scrub to below 5% and bracken to below 20%, and management to create variable sward heights. Additionally, the grassland will be sown with Emorsgate EMI/a similar species mix to increase the species diversity.

Watercourse - The watercourse will be protected from pollutants by the present ecological buffer. The watercourse will be enhanced through the planting of native rural trees, the removal and management of Himalayan balsam, the semi-regular management of river weed, and the planting of native chalk stream species.

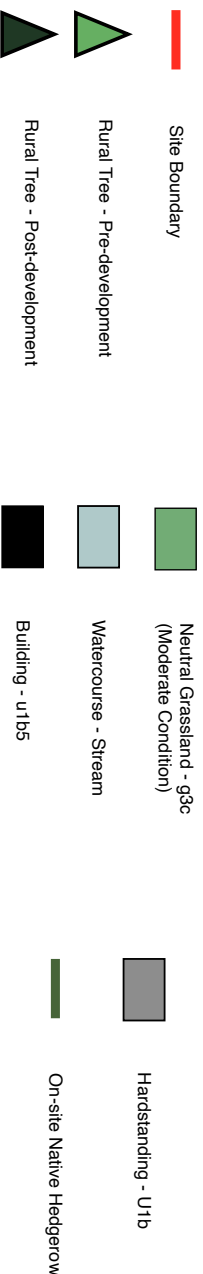
Native hedgerow - a hedgerow of native plant species, to benefit a range of wildlife including opportunities for nesting birds, pollinating insects, foraging bats and reptiles and amphibians. We recommend the species hornbeam *Carpinus betulus* and hazel *Corylus avellana* be included.

Rural Trees - Eight rural trees will be planted along the stream to increase stability and provide benefits to a wide variety of species. These trees should be alder, crack willow, or other native species, and all planted trees should be at least a few years old, with a diameter at chest height of at least 10cm.

Created Neutral Grassland - Areas of neutral grassland will be created and managed to moderate condition (in line with the management of the enhanced neutral grassland).



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Post-dev hedgerow
 Off-site Hedgerow
 Redline Boundary
 Google Satellite

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Site Boundary

Off-site Native Hedgerow



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Project: Land West of Arlington
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Appendix Figure: Off-site
 Post-development
 Enhancements

Date: October 2023

Condition Sheet: URBAN Habitat Type			
Habitat Type			
Where a parcel contains areas of higher distinctiveness habitats within it, then the area of higher distinctiveness habitat must be separated and recorded and assessed as such.			
Sparsely vegetated land - Ruderal/Ephemeral			
Sparsely vegetated land – Tall forbs			
Urban – Allotments			
Urban – Biodiverse green roof			
Urban - Bioswale			
Urban - Cemeteries and churchyards			
Urban - Facade-bound green wall			
Urban - Ground based green wall			
Urban - Intensive green roof			
Urban - Open mosaic habitats on previously developed land			
Urban - Rain garden			
Urban - Sustainable drainage system (SuDS)			
Urban - Vacant or derelict land			
Urban – Bare ground			
Habitat Description			
Bare Ground			
See Biodiversity Metric 4.0 User Guide for green roofs and UK Habitat Classification (UKHab) for other habitats:			UKHab – UK Habitat Classification
Site name and location	Land West of Arlington Business Centre	On-site or off-site	On-site
Limitations (if applicable)	NA	Survey reference (if relating to a wider survey)	NA
Grid reference	NA	Habitat parcel reference	NA
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
Core Criteria - must be assessed for all urban habitat types :			
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	N	
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	Y	A variety of encroaching vegetat
C	Invasive non-native plant species (listed on Schedule 9 of WCA ¹) and others which are to the detriment of native wildlife (using professional judgement) ² cover less than 5% of the total vegetated area ³ . Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	N	
Additional Criteria - must be assessed for Open mosaic habitat on previously developed land only:			
D1	The parcel shows spatial variation and forms a mosaic of at least four early successional communities (a) to (h) PLUS bare substrate. (a) annuals; (b) mosses/liverworts; (c) lichens; (d) ruderals; (e) inundation species; (f) open grassland; (g) flower-rich grassland; (h) heathland.	NA	
D2	The parcel contains pools of water such as permanent and ephemeral waterbodies.	NA	
Additional Criteria - must be assessed for Bioswale and SuDS habitat types only:			
E1	Plant species are mostly native. If non-native species are present, they should not be detrimental to the habitat or native wildlife ⁴ .	NA	
E2	The vegetation is comprised of plant species suited to wetland or riparian situations.	NA	
Additional Criterion - must be assessed for Intensive green roofs only:			
F	The roof has a minimum of 50% native and non-native wildflowers. 70% of the roof area is soil and vegetation (including water features).	NA	
Additional Criterion - must be assessed for Biodiverse green roofs only:			

G	The roof has a varied depth of 80 – 150 mm; at least 50% is at 150 mm and is planted and seeded with wildflowers and sedums or is pre-prepared with sedums and wildflowers. Note – to achieve Good condition some additional habitat, such as sand piles, stones, logs etc are present.	NA	
Essential criteria relevant for habitat type achieved (Yes or No)			
Number of criteria passed			
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Results for habitats requiring assessment of 3 core criteria only (all listed urban habitats except Open mosaic habitat on previously developed land, Bioswale, SuDS and Green roofs) :			
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C.	Good (3)		
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)		
• Passes 0 or 1 of 3 core criteria.	Poor (1)	Poor	
Results for Green roofs (requiring assessment of 4 criteria only - core criteria plus additional criterion specified for habitat type):			
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C; AND • Passes additional criterion relevant to specific habitat type (F or G).	Good (3)	NA	
• Passes 2 or 3 of 4 criteria; OR • Passes 4 of 4 criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)	NA	
• Passes 0 or 1 of 4 criteria.	Poor (1)	NA	
Results for Open mosaic habitat on previously developed land, Bioswale or SuDS (requiring assessment of 5 criteria - core criteria plus additional criteria specified for habitat type):			
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C; AND • Passes all additional criteria relevant to specific habitat type (Group D or Group E)	Good (3)	NA	
• Passes 3 or 4 of 5 criteria; OR • Passes 5 of 5 criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)	NA	
• Passes 2 or fewer of 5 criteria.	Poor (1)	NA	
Suggested enhancement interventions to improve condition score			
Footnotes			

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.			
Please see separate Line of trees condition sheet for a line of Rural trees.			
Habitat Description			
A collection of 11 scattered individual alder trees. Whilst the condition of each tree was assessed individually , all the trees had the same size and character, and were therefore all assessed to be of the same condition.			
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		Land West of Arlington Business Centre	On-site or off-site
Limitations (if applicable)		NA	Survey reference (if relating to a wider survey)
Grid reference		NA	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).	Y	All trees are european alder
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).	Y	Predominantly continuous canopy
C	The tree is mature (or more than 50% within the block are mature).	N	The trees are all young trees
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.	Y	Little/no evidence of an adverse impact on tree health by human activities

E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Y	Some niches in the form of ivy, loose bark, and broken branches
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	Around 20-30% of canopy area is oversailing vegetation beneath
Number of criteria passed		5	
Condition Assessment Result (out of 6 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 5 or 6 criteria	Good (3)	Good	
Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)		
Note that ‘Fairly Good and Fairly Poor’ condition categories are not available for this broad habitat type.			
Suggested enhancement interventions to improve condition score			
NA			

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)			
UK Habitat Classification (UKHab) Habitat Type(s)			
Grassland - Lowland calcareous grassland Grassland - Lowland dry acid grassland Grassland - Lowland meadows Grassland - Other lowland acid grassland Grassland - Other neutral grassland Grassland - Tall herb communities (H6430) [Note Tall herb habitat that does not meet the Annex 1 definition should be recorded as ‘Other neutral grassland’] [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.] Grassland - Upland acid grassland Grassland - Upland calcareous grassland Grassland - Upland hay meadows			
Site name and location	Land West of Arlington	On-site or off-site	On-site
Limitations (if applicable)	NA	Survey reference (if relating to a wider survey)	NA
Grid reference	NA	Habitat parcel reference	NA
Habitat Description			
Other neutral grassland present on northern aspect of the site. Stands of himalayan balsam dominate the grassland.			
ukhab – UK Habitat Classification			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present. Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.	Y	Passess at least 3 of the 4 criteria.
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 insects, birds and small mammals to live and breed.	Y	Varied sward height
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens ¹ .	N	Bare ground evident within grassland. <10%, but >5%.
D	Cover of bracken <i>Pteridium aquilinum</i> is less than 20% and cover of scrub (including bramble <i>Rubus fruticosus</i> agg.) is less than 5%.	Y	Cover of these species is less than 20%
E	Combined cover of species indicative of sub-optimal condition ² and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴) are present, this criterion is automatically failed.	N	Himalayan Balsam present
Additional Criterion - must be assessed for all non-acid grassland types			
F	There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count). Note - this criterion is essential for achieving Good condition for non-acid grassland types only.	N	Does not have >10 vascular plant species per m squared
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		Y	
Number of criteria passed		3	
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Acid Grassland Types (Result out of 5 criteria)			
Passes 5 criteria	Good (3)		
Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)		
Non-acid grassland Types (Result out of 6 criteria)			

Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)		
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)		
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	Poor	
Suggested enhancement interventions to improve condition score			
Notes			
Footnote 1 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover. Footnote 2 - Species indicative of sub-optimal condition for this habitat type include:creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , creeping buttercup <i>Ranunculus repens</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> and cow parsley <i>Anthriscus sylvestris</i> . There may be additional relevant species local to the region and or site. Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement. Footnote 4 – Wildlife and Countryside Act 1981 (as amended).			