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ECOLOGICAL CONSULTANTS



# Biodiversity Net Gain Assessment

# Stairfoot Glassworks

Project No: PottIn01.1 | Client: Potters Ballotini Ltd. and Hanson Packed Products Ltd | Date: 22/10/2024

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The information and advice contained in this report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

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# 1 INTRODUCTION

## 1.1 Scope of Report

This report has been prepared by Peak Ecology Ltd on behalf of Potters Ballotini Ltd. and Hanson Packed Products Ltd. It provides the results of a Biodiversity Net Gain Assessment associated with the proposed development at Stairfoot Glassworks. The proposals include the construction of a waste glass recycling and repurposing facility.

The purpose of this report is to:

- Describe the ecological baseline of the site, including existing habitats, and assess the biodiversity value of each habitat;
- Calculate the post-development change in biodiversity units, and identify the extent of the net-loss or net-gain in biodiversity as a result of the development;
- Highlight opportunities for ecological enhancement where appropriate; and
- Set out requirements for post-development habitat monitoring.

In relation to planning and development, this report provides all relevant details to support a planning application, however, it should be read in conjunction with any other ecological surveys that have been undertaken for the site.

The approach to this assessment follows best practice published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2016) and the British Standards Institution (BSI, 2013). Details of individual survey methods and associated supporting information are provided in Section 2.

## 1.2 Site Description

The site extends to approximately 6.6ha of land (shown by the blue line boundary in Figure 1) located to the north east of Wombwell on the south eastern outskirts of Barnsley (central grid reference: SE 37915 04997). The site is dominated by brownfield where the historic brickwork buildings had been demolished and rubble piles left across the site. The Trans Pennine Trail defines the northern boundary of the site with Wombwell Lane (A633) located adjacent to the southern boundary. The immediate surrounding landscape was dominated by industrial and agricultural use; however, restored quarries lie adjacent to the north east of the site. Low density residential is located along Wombwell Lane, with the larger residential developments of Ardsley and Kendray located approximately 200m north east and 800m west of the site respectively.

The location of the site is shown on the plan in Figure 1 below.

**Figure 1: Location Plan***




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## 1.3 Planning Context and Legislation

The National Planning Policy Framework 2023 states that when assessing a planning application all Local Planning Authorities (LPAs) must consider potential impacts on biodiversity that may result from the proposals.

In relation to habitats, the LPA requires sufficient information about the value of the current habitats on site and the likely value of the proposed habitats on site, to **secure measurable net gains for biodiversity** as a result of the development. This is in order to satisfy the NPPF requirement of using planning to help improve biodiversity (Paragraphs 180 to 186).

As of the 12th February 2024, under Schedule 7a of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021) all major developments in England must deliver a Biodiversity Net Gain of 10%. This ensures that development results in a measurable increase in size or improvement in quality of natural habitats, and will be a material consideration in determining a planning application.

In addition to this, county and borough councils typically have biodiversity policies within their Local Development Frameworks that they must also comply with.

For Barnsley Metropolitan Borough Council this is covered by policy BIO1 Biodiversity and Geodiversity within the Local Plan (Adopted 2019);

> *"Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:*
>
> *Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan.*
>
> *Maximising biodiversity and geodiversity opportunities in and around new developments.*
>
> *Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors.*
>
> *Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.*
>
> *Protecting ancient and veteran trees where identified.*
>
> *Encouraging provision of biodiversity enhancements.*
>
> *Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient woodland, will not be permitted unless effective mitigation and/or compensatory measures can be ensured.*
>
> *Development which adversely effects a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest (IROPI)"*

Barnsley Biodiversity Action Plan identifies the following Priority Habitats as [targets for protection, restoration and enhancement]: Upland Oakwood, Lowland Mixed Deciduous Woodland, Wet Woodland, Wood Pasture, Hedgerows, Arable Field Margins, Floodplan Grazing March, Lowland Meadows, Lowland Dry Acidic, Lowland and Upland Heathland, Blanket Bog, Purple Moor Grass, Reedbeds, Ponds, Rivers, Open Mosaic on Previously Developed Land.

In practice, this means that potential impacts on Priority Habitats, including those listed under Local Biodiversity Action Plans and the UK Post-2010 Biodiversity Framework (JNCC, 2012) (formerly the UK Biodiversity Action Plan) are all material planning considerations.

# 2 METHODOLOGY

## 2.1 Desk Study

An online data search was carried out prior to the site visit, to identify the presence of any Priority Habitats, statutory designated sites, and records of notable indicator species to help inform the assessment of the site's biodiversity value. Data sources including the Multi-Agency Geographical Information for the Countryside (MAGIC) (DEFRA, 2022) tool, and the NBN Atlas (NBN, 2022). An analysis of aerial mapping was also carried out to identify any recent changes to baseline habitats.

## 2.2 Habitat Survey

The habitat assessment was undertaken on the 27th June 2023 by Helen Staton and further updated by Chloe Pritchard and Emily Stephenson on 21st November 2023. A re-assessment of the site was undertaken 12th August 2024 by Jessica Eades, in relation to Open Mosaic Habitat (OMH). Surveyors are experienced in the identification of vascular plants and the use of the UK Habitat Classification survey methodology (UKHab, 2023 and Butcher *et al*, 2020).

The survey comprised a walkover of the site to classify and map the extent of habitat types, based on the identification of individual plant species. Any evidence of invasive plants such as Japanese knotweed *Reynoutria japonica* was also noted.

Habitats were recorded using the UK Habitat Classification to allow conversion of habitat types to those listed within the Statutory Biodiversity Metric Calculation Tool. Condition assessments were then attributed to the habitats present on site, as shown in Section 3 (Table 1), using the Statutory Biodiversity Metric Technical Annexe 1. Some habitat conditions have been listed as "N/A"; these habitats do not require a condition assessment within the Biodiversity Metric.

It should be noted that any habitats on site that have evidently been recently destroyed or intentionally degraded will be recorded as the pre-degradation habitat. The habitat lost will be assigned high distinctiveness and good condition in the absence of evidence to the contrary.

Nomenclature for vascular plant species follows the New Flora of the British Isles (Stace, 2019). A full species list for the site including binomial nomenclature is provided in Appendix A.

The fine scale Minimum Mapping Unit (MMU) (Butcher *et al,* 2020) was used throughout the survey area to allow the capture of small features and present any finer grain or mosaic of habitats. Minimum mapping units used were:

- 25m² for areas of habitat; and
- 5m for linear habitat.

Features smaller than the minimum mapping unit are denoted as point or line features, and assigned secondary codes or target notes.

## 2.3 Biodiversity Net Gain Assessment

The extent of each habitat on site was mapped, to allow the areas to be calculated for comparison with post-development habitats. Proposed habitat area calculations were produced using the Illustrative Landscape Mitigation Plan (REH2023N00908-RAM-ELS-DR-LX-00012) provided by the client.

Area figures were then added to the Statutory Biodiversity Metric Calculation Tool, with the associated condition and Strategic Significance of each habitat parcel, to assess whether the development would incur a biodiversity net loss or gain. Target conditions for proposed habitats have been assigned based on information provided within the landscaping plans, including extent of habitats and predicted management. The assessment of the Strategic Significance of existing and proposed habitat was made based on relevant habitat action plans or any inclusion within the local strategy.

All calculation tools and supporting documents used are from the February 2024 update of the Biodiversity Metric.

## 2.4 Limitations

### 2.4.1 *Survey Methods*

### 2.4.2 *Access*

Dense scrub towards the site's south western corner, and scrub along site boundaries was often impenetrable; however, it was possible to complete habitat classification and condition assessments from the vantage points available.

### 2.4.3 *Survey Timing and Conditions*

The habitat survey was undertaken within the optimal survey season (April to September, inclusive).

### 2.4.4 *Lifespan of Data*

The results and recommendations contained within this report are considered to be valid for up to two years from the date of the survey. After this period, or should amendments be made to the site proposals beyond those which may be recommended within this report, an updated calculation will be required to accompany the planning submission.

# 3 RESULTS

## 3.1 Desk Study

Three statutory designated sites were identified within the search area; Stairfoot Brickworks Site of Special Scientific Interest (SSSI), Dearne Valley Wetlands SSSI and Dearne Valley Park Local Nature Reserve (LNR).

Stairfoot Brickworks SSSI

Approximately 60m$^2$ of Stairfoot Brickworks SSSI overlaps onto the site, with the south eastern corner of the site falling within the SSSI Impact Risk Zone. Proposed works meet identified risk category of "all planning applications – except householder applications" as defined by Natural England and is considered, by definition, likely to cause an impact to the SSSI. As such, the Local Planning Authority (LPA) will be required to consult with Natural England prior to granting planning permission for any development on site.

Dearne Valley Wetlands SSSI

The site falls within Dearne Valley Wetlands SSSI Impact Risk Zone which is located 870m to the SSE. The proposed development does not strictly meet the listed risk categories, although Rural Non-Residential developments whose footprints exceed 0.2ha have been highlighted. The site is located in a semi-rural location so further action may not be required, although consideration should be given as to whether consultation with Natural England should proceed as a safeguard.

Sheffield Biological Records Centre (SBRC) provided details of six Local Wildlife Sites (LWS). This a non-statutory local designation, further details of which are provided in the table below.

**Table 1: Designated sites identified during the desk study**

| Name | Status | Reason for Designation | Approximate Distance & Direction from site |
|---|---|---|---|
| **Statutory Designated Sites** | | | |
| Stairfoot Brickworks | SSSI | Internationally important for geological interest. | Onsite and adjacent to the SE site boundary |
| Dearne Valley Wetlands | SSSI | Nationally important for the diverse assemblages of breeding birds of Lowland broadleaved, mixed and yew woodlands, and of Lowland fen, marsh and swamp. | 0.8km to SSE |
| Dearne Valley Park | LNR | Acidic Oak woodland with mosaic of wetland habitats. | 2km to NW |
| **Non-statutory Designated Sites** | | | |
| Horse Carr Wood | LWS | Ancient woodland, Lowland mixed deciduous woodland, some unimproved neutral grassland. | 1.5km NE |
| Pearson Wood | LWS | Ancient woodland, Lowland mixed deciduous woodland, some unimproved neutral grassland. | 1.9km NE |

| Name | Status | Reason for Designation | Approximate Distance & Direction from site |
|---|---|---|---|
| Stairfoot Disused Railway | LWS | Habitats of Lowland mixed deciduous woodland, ponds, rivers, grasslands, and scrub. | 1.2km NNW |
| Sunny Bank | LWS | Ancient woodland, Lowland mixed deciduous woodland, some unimproved neutral grassland. | 1.9km NNE |
| Sunny Bank Wood | LWS | Ancient woodland, Lowland mixed deciduous woodland, some unimproved neutral grassland. | 1.9km NNE |
| Wombwell Wood | LWS | Ancient woodland, Lowland mixed deciduous woodland, ponds. Remnants of heath. | 1.8km SW |

## 3.2 Habitat Survey

**Table 2: Summary of Habitat Assessment - Area Habitats**

| UK Habitat Classification | BNG Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Condition Assessment |
|---|---|---|---|
| g3c – other neutral grassland | Grassland – other neutral | Two small grassland areas were located towards south eastern boundary, measuring 0.073ha. Grassland species included perennial ryegrass, false oat-grass, cock's-foot and Yorkshire fog. Forb species include rosebay willowherb, spear thistle, common nettle, white clover and broadleaved plantain. | **Poor:** the grassland failed essential criterion A**,** lacking a high proportion of characteristic indicator species. |
| g3c 80 – other neutral grassland; Open mosaic habitats on previously developed land | Urban – open mosaic habitats on previously developed land | Towards the northern side of the site were two large areas of unmanaged grassland measuring 1.4ha which form part of the OMH. Onsite ephemeral/short perennial had succeeded into other neutral grassland with a dominance of grass species which included dense patches of false oat-grass interspersed with red fescue, Yorkshire fog and timothy. Perennial rye-grass with occasional cock's-foot also noted onsite. Forb species that were also recorded in these areas were dominated by greater plantain, creeping buttercup, white clover, common ragwort, herb-Robert and ribwort plantain. Abundant coltsfoot and groundsel. Occasionally occurring species also included red clover, toadflax, bush vetch, curled leaf dock, cinquefoil and fox-and-cubs. Species that were rarely occurring, mainly in the grassland in the northern section of the site included oxeye daisy, shepherd's purse, hawkbits, common daisy, creeping thistle, dandelion, common mouse-ear, sweet | **Moderate:** passed criterion A and C being varied in structure and lacking invasive non-native plant species. Criteria B and D failed due to the botanical species present having limited flowering times, and the area was limited to three early successional communities. |

| UK Habitat Classification | BNG Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Condition Assessment |
|---|---|---|---|
| | | melilot, bird's-foot trefoil, dove's-foot cranesbill and wild strawberry. | |
| g3c 16 – other neutral grassland; tall forbs | Grassland – other neutral | Other neutral grassland with interspersed tall ruderal vegetation was present in the south east of the site due to the lack of management in the grassland field. Species were dominated by rosebay willowherb, mugwort, hogweed and common nettle with rarely occurring spear thistle, goat willow saplings and cow parsley. | **Poor:** the grassland failed essential criterion A**,** lacking a high proportion of characteristic indicator species. |
| g3c 81 – other neutral grassland; Ruderal or ephemeral | Grassland – other neutral | Around the northern and western boundaries were earth bunds vegetated with dominant other neutral grassland, species as listed above, interspersed with low growing plants such as frequent greater plantain, creeping buttercup, common fumitory, nettle, occasional cleavers, oxeye daisy, fox-and-cubs, weld, creeping thistle, common hogweed, rosebay willowherb and hairy willowherb. | **Poor:** the grassland failed essential criterion A**,** lacking a high proportion of characteristic indicator species. |
| h3h – mixed scrub | Heathland and shrub – mixed scrub | Scrub areas were dominated by bramble with occasional species including blackthorn, hawthorn, dog-rose and elder. The largest section of dense scrub divided the tall ruderal field in the west of the site, from the adjacent woodland with a linear section present along the sites north eastern boundary. | **Moderate:** passed criterion A, B, C and D. The scrub is >80% native with at least three woody species, presents a varied age range (from seedlings to mature), lacks presence of invasive species and has well developed edges traversing onto grassland ruderals. |
| u1b – developed land, sealed surface | Urban – developed land; sealed surface | Located centrally was a large area of hard standing with little or no vegetative cover (<10%). | **N/A** |
| u1f 80 – sparsely vegetated urban land, Open mosaic habitats on previously developed land | Urban – open mosaic habitats on previously developed land | Two areas of artificial unvegetated, unsealed surface were present onsite, towards the southern boundary and adjacent to a woodland area. Here vegetation cover was <10% and substrate comprised bare ground which showed recent evidence of disturbance. | **Poor:** passed criterion C only. Criteria A and B failed due to a lack of structure and limited botanical variation. Failed criteria D due to only two early successional communities being present. |
| u1f 80 – sparsely vegetated | Urban – open mosaic habitats on | A 0.6ha area of sparsely vegetated urban land is present towards the NW side of the site, with vegetation cover 10-50% | **Moderate:** passed criteria A and C being varied in structure and |

| UK Habitat Classification | BNG Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Condition Assessment |
|---|---|---|---|
| urban land, Open mosaic habitats on previously developed land | previously developed land | comprising largely ephemeral/short perennial with evidence of recent vehicular disturbance noted. | lacking invasive non-native plant species. Criteria B and D failed due to the botanical species present having limited flowering times, and the area was limited to two early successional communities. |
| w1g – other broadleaved woodland | Woodland and forest – lowland mixed deciduous woodland | Areas of woodland were located along the eastern and northern boundaries of the site.<br>The woodland on the south easterly side had a canopy height ranging from approximately 8m-15m. Species including alder, ash, field maple, oak, common lime, aspen, silver birch, rowan and elder recorded.<br>The woodland sections towards the northern sections of the site, and along the boundaries were of varying canopy height from approximately 10-12m. Species diversity was similar in these areas of woodland with additional species including crack willow and sessile oak.<br>The understories of all the woodland areas were sparsely vegetated with heavy leaf litter and areas of bare ground. Scrub level vegetation was present including dogwood, bramble, snowberry and dog-rose. | **Moderate:** the woodland areas comprised native canopy and understorey species, representing two age classes. No significant browsing damage evident, invasive species accounted for <10%, two regeneration classes identified within woodland, tree mortality <10%. The woodlands lacked veteran trees and open spaces. Total condition score: 26. |
| w1g – other broadleaved woodland | Woodland and forest – other woodland; broadleaved | Planted woodland along the south western boundary of the site dominated by sycamore and hawthorn with a sparse understorey. | **Poor:** the woodland areas comprised native canopy of two species, lacking an understorey. No significant browsing damage evident, invasive species accounted for <10%, Tree mortality <10% with no veteran trees or deadwood recorded. Total condition score: 22. |
| 32 – scattered trees | Individual trees – Urban tree | Immature trees scattered throughout the site, within areas of scrub and along earth bunds; primarily silver birch. | **Poor:** passed criteria A and B. |

**Table 3: Summary of Habitat Assessments - Linear Habitats**

| Hedgerow No. | UK Habitat Classification | BNG Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Condition Assessment |
|---|---|---|---|---|
| 1 | h2 – native hedgerow | Native hedgerow | A hawthorn dominated hedgerow was located on the sites' south western boundary. It measured approximately 46m in length and was approximately 2.5m in height. It was semi mature, largely unmanaged and gappy at the base. | **Moderate:** achieved criterion A1, A2 (>1.5m length and width), B2 (gaps forming <10% of length), D1 (lack of invasive species). |

## 3.3 Proposed Habitats

### 3.3.1 *Development Proposals*

The proposed works include the erection of perimeter security fencing, construction of a metal clad building for internal processing works, construction of a workshop and admin office, construction of; a gatehouse and weighbridge, external cullet bays, external processing area, lorry park, storage areas, car park and access.

The following habitats will be retained onsite;

- g3c 80 – other neutral grassland; Open mosaic habitats on previously developed land– a large proportion of the existing grassland/OMH on the sites north eastern side of the site will be retained and enhanced.
- u1f 80 – sparsely vegetated urban land, Open mosaic habitats on previously developed land – a section of the OMH located towards the north western side and southern side of the site will be retained and enhanced.
- h3h mixed scrub – two sections of existing mixed scrub, on the northern boundary and toward the southeastern corner of the site will be retained and enhanced.
- w1f lowland mixed deciduous woodland – the onsite woodland will be retained onsite and enhanced through understory planting and management.
- w1g other broadleaved woodland – the onsite woodland will mostly be retained onsite and enhanced through understory planting and management.
- Trees – with the exception of a single tree to the southeast of the site entrance, all existing scattered trees onsite will be retained.

### 3.3.2 *Habitat Creation*

**Table 4: Habitat Creation**

| Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Target Condition |
|---|---|---|
| Urban – developed land; sealed surface | Buildings and hard standing will be created onsite. | **N/A** |
| Urban – open mosaic habitats on previously developed land | Within the southeast corner, northern section and northwestern corner of the site, areas of open mosaic will be created. The existing poor-quality grassland and scrub will be removed to facilitate this. | **Moderate:** the created OMH will aim to pass a minimum of criterion A, C and D |
| | Within the areas to be created, 0.4474ha of moderate condition OMH will be translocated (substrate and seedbank). | **Moderate**: the translocated habitat passes criterion A and C.<br><br>The translocation of already established moderate condition OMH accelerates the created habitats target condition by an estimated two years (reflected within the biodiversity metric calculator). |
| Urban – other green roof | A green roof will be installed on the admin building. | **N/A** |
| Heathland and shrub – mixed scrub | Native scrub and shrub planting to be incorporated across the site. On the landscaping plan, these areas are depicted as 'woodland understorey and scrub and shrub planting for bund stability' and 'native shrub/scrub planting'. This habitat will predominantly be planted around the northern, northwestern and eastern edges. | **Moderate:** the scrub should aim to pass criterion A, C and D with >80% of species native and of at least three woody species, no invasive species will be present and the scrub will be managed to have a well-developed edge. |
| Heathland and shrub – mixed scrub | Native scrub planting alongside the building and carpark. | **Poor:** the scrub should aim to pass criterion A and C with >80% of species native and of at least three woody species, and no invasive species will be present. |
| Urban – introduced shrub | Small pockets of ornamental shrub/scrub will be planted around the car park area towards the southeastern end of the site. | **N/A** |
| Woodland and forest – other woodland; broadleaved | Areas of native broadleaved woodland will be planted onsite, predominantly along the site's southwestern boundary. Lower growing woodland edge habitat will also be incorporated into the landscaping scheme. | **Poor:** The woodland should aim to achieve good in Categories B, C, D, E, H and M. Woodland should be planted with a minimum of five native species such as oak, ash, beech, field maple, hornbeam and elm.<br>**Total score: 18** |

| Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Target Condition |
|---|---|---|
| Grassland – other neutral grassland | Species rich neutral grassland will be planted/created around the northwestern section of the site, and within pockets around the carpark and woodland areas. | **Moderate:** This area should be a good representation of this habitat type. Wild flower seed mix should be used to increase the diversity of species within the grassland and increase its condition. It should be kept free of invasives, scrub and bracken should be less than 5% and the sward height should be varied.<br>Target conditions achieved: A, B, C, D |
| Urban – Sustainable Drainage System | An attenuation pond will be created within the sites northeastern corner | **Good:** passes A, B, C, E1 and E2. Vegetation structure will be varied and contain different plant species with no invasives present. The plant species will be native and suited to the environmental conditions (wetland). |
| Urban – Bioswale | A bioswale will be created in the southwestern section the site as part of the Sustainable Drainage System (SuDS). It will be planted with a grassland and associated aquatic mix. | **Good:** the bioswales should aim to achieve all conditions through providing a varied vegetative structure, of different native species, lacking invasives. |

### 3.3.3 *Hedgerow Creation*

**Table 4: Hedgerow Creation**

| UK Habitat Classification | BNG Habitat Type | Description (Latin nomenclature for species provided as an Appendix) | Condition Assessment |
|---|---|---|---|
| h2a5- Species rich native hedgerow | Species rich native hedgerow | Three native hedgerows will be planted onsite measuring a total of 309.6m. | **Moderate:** All hedgerows should contain a minimum of five native woody species such as hawthorn, blackthorn, hazel, elder, dogwood, oak, elm, field maple.<br>Hedgerows should be a minimum of 1.5m wide and 1.5m tall and continuous with no gaps in the length or in the base (excluding access points).<br>They should be free of invasives and excessive or inappropriate management.<br>Conditions achieved: A2, B1 B2, D1 and D2. |

### 3.3.4 *Habitat Enhancement*

**Table 5: Habitat Enhancement**

| UK Habitat Classification | BNG Habitat Type | Current condition | Target Condition |
|---|---|---|---|
| g3c 80 – other neutral grassland; Open mosaic habitats on previously developed land | Urban – open mosaic on previously developed land | **Moderate:** passed criteria A and C being varied in structure and lacking invasive non-native plant species. Criteria B and D failed due to the botanical species present having limited flowering times, and the area was limited to three early successional communities. | **Good:** annual plants should be incorporated into the habitat to include plants with varied flowering times. It should be kept free of invasives and any scrub encroachment controlled.<br>Target conditions achieved: A, B, C and D |
| u1f 80 – sparsely vegetated urban land, Open mosaic habitats on previously developed land | Urban – open mosaic on previously developed land | **Poor:** passed criterion C only. Criteria A and B failed due to a lack of structure and limited botanical variation. Failed criterion D due to only two early successional communities being present. | **Moderate:** annual plants and grasses should be incorporated into the habitat to include species with varied flowering times. It should be kept free of invasives and any scrub encroachment controlled.<br>Target conditions achieved: A, B and C. |
| h3h – mixed scrub | Heathland and shrub – mixed scrub | **Moderate:** passed criterion A, B, C and D. The scrub is >80% native with at least three woody species, presents a varied age range (from seedlings to mature), lacks presence of invasive species and has well developed edges traversing onto grassland ruderals. | **Good:** the scrub will be enhanced through active management to create clearings, glades and rides.<br>Target conditions achieved: A, B, C, D and E. |

### 3.4 Biodiversity Net Gain Calculations

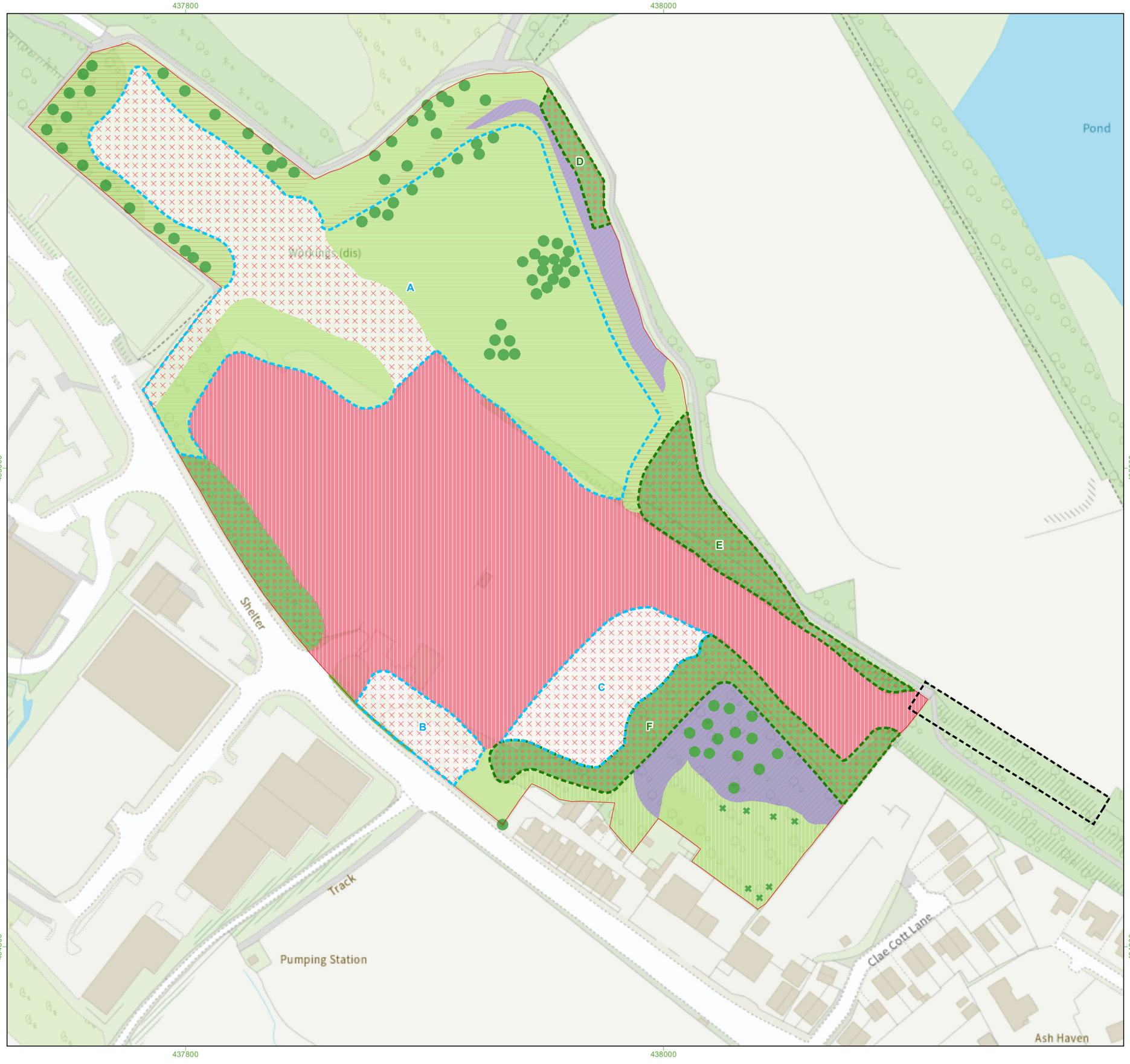
The results of the BNG assessment indicate that, based on the current proposals, the development of the site would result in the following:

| | | |
|---|---|---|
| Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 4.55 |
| | *Hedgerow units* | 2.17 |
| | *Watercourse units* | 0.00 |

| | | |
|---|---|---|
| Total net % change (Including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 10.06% |
| | *Hedgerow units* | 1014.33% |
| | *Watercourse units* | 0.00% |

| | |
|---|---|
| Trading rules satisfied? | Yes ✓ |

The Biodiversity Metric calculation tool will be submitted alongside this report.







| Survey Information | |
|---|---|
| | Site boundary (63,627.0m$^2$) |
| **Priority Habitats** | |
| | Open mosaic habitat on previously developed land (A-C) |
| | A - 18,600.7m$^2$, B - 1,166.3m$^2$, C - 2,724.5m$^2$ |
| | Lowland mixed deciduous woodland (D-F) |
| | D - 479.5m$^2$, E - 2,093.0m$^2$, F - 2,705.5m$^2$ |
| **UKHab Habitat Survey** | |
| | g3c - Other neutral grassland (731.9m$^2$) |
| | g3c - Other neutral grassland, 80 (14,081.5m$^2$) |
| | g3c - Other neutral grassland, 16 (2,338.7m$^2$) |
| | g3c - Other neutral grassland, 81 (4,570.7m$^2$) |
| | h3h - Mixed scrub (3,473.3m$^2$) |
| | u1b - Developed land; sealed surface (21,703.2m$^2$) |
| | u1f - Sparsely vegetated urban land, 80 (10,122.6m$^2$) |
| | w1g - Other broadleaved woodland (6,605.1m$^2$) |
| | h2 - Hedgerows (46.5m) |
| | 10 - Scattered scrub |
| | 32 - Scattered trees |
| | Target note |
| | Stairfoot Brickworks SSSI |

**Secondary Codes:**

16 - Tall forbs
80 - Open mosaic habitats on previously developed land
81 - Ruderal or ephemeral

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0 10 20 40
Metres

PROJECT TITLE

*STAIRFOOT BRICKWORKS*

DRAWING TITLE

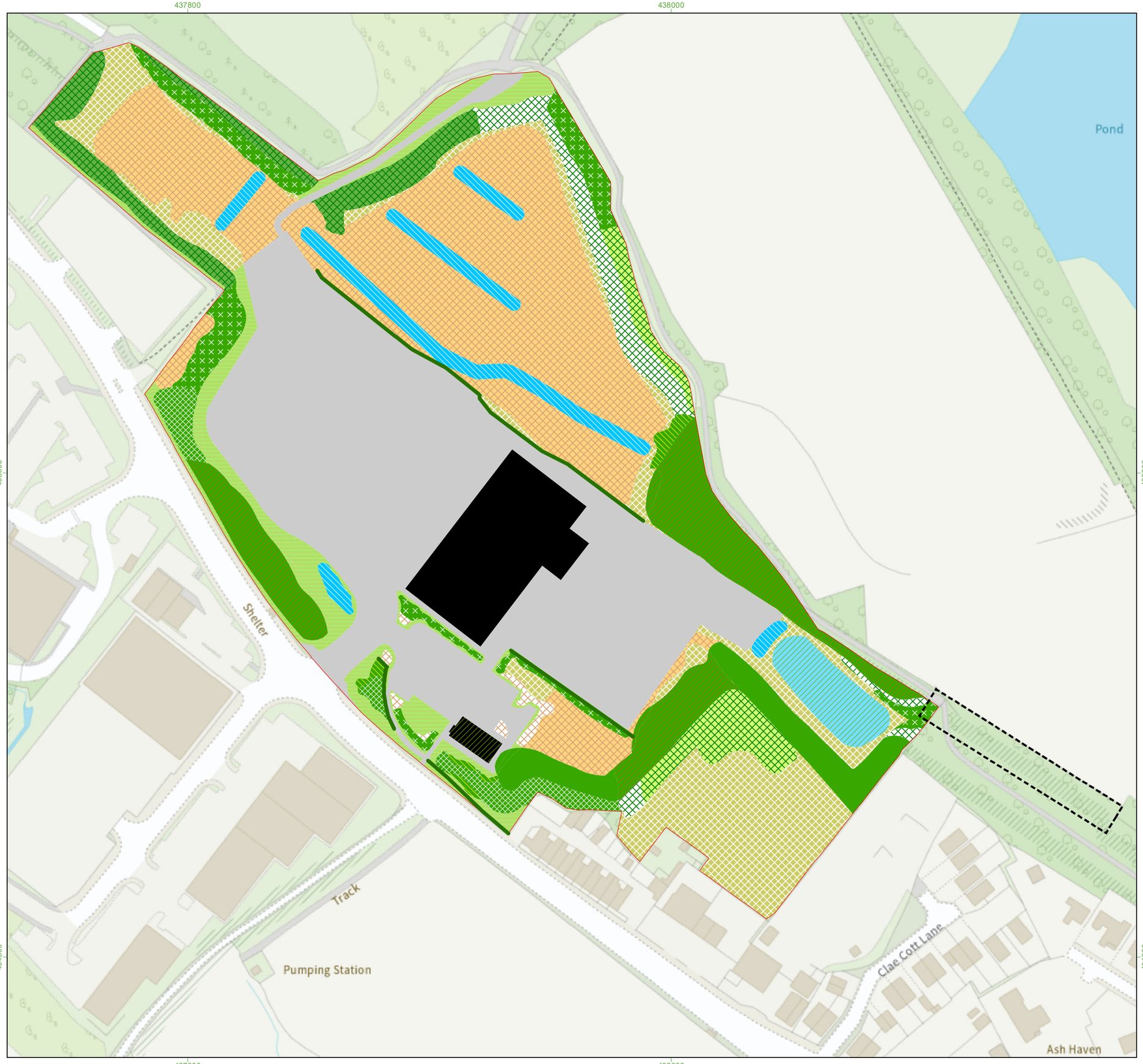
## Figure 3. Priority Habitats

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1.1 | 05/09/24 | PH | MP | JE |

DRAWING NUMBER: PeakEcology/StairfootBrickworks/PH

peakecology LIMITED
ECOLOGICAL CONSULTANTS
Arden House,
Deepdale Business Park,
Bakewell,
Derbyshire.
DE45 1GT.
www.peakecology.co.uk

| | |
|---|---|
| DATUM | OSGB |
| PROJECTION | BNG |
| PLOT SIZE | A3 |
| SCALE | 1:1,550 |







| Survey Information | |
|---|---|
| | Site boundary (63,627.0m$^2$) |
| | Stairfoot Brickworks SSSI |
| **UKHab Habitat Survey** | |
| | Open mosaic habitat - enhanced |
| | Open mosaic habitat - created |
| | Retained woodland management planting |
| | Retained woodland management with understory planting |
| | Retained woodland management with understory and scrub planting |
| | Woodland planting |
| | Woodland edge planting |
| | Native shrub / scrub planting |
| | Scrub - enhanced |
| | Scrub planting and trees retained |
| | Species rich neutral grassland |
| | Swale grassland |
| | Ornamental shrub planting |
| | Attenuation basin |
| | Building |
| | Building with green roof |
| | Developed land |
| | h2 - Hedgerows |

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0 10 20 40
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PROJECT TITLE

*STAIRFOOT BRICKWORKS*

DRAWING TITLE

**Figure 2. Proposed Habitat Plan**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 8.1 | 25/09/24 | Proposed | MP | HS |

DRAWING NUMBER:
PeakEcology/StairfootBrickworks/Proposed

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| | |
|---|---|
| DATUM | OSGB |
| PROJECTION | BNG |
| PLOT SIZE | A3 |
| SCALE | 1:1,550 |

# 4 EVALUATION AND RECOMMENDATIONS

## 4.1 Open Mosaic Habitat

The Statutory Biodiversity Metric User Guide sets out that when creating and enhancing high and very high distinctiveness habitats it should be proven how the very specific environmental requirements to successfully establish such habitats will be met.

The largest area of OMH creation in the southeast corner of the site currently comprises scrub and other neutral grassland, habitats of which are nutrient loaded and therefore not conducive of OMH. Other areas around the northeast and northwestern sections, currently comprise other neutral grassland. Pre works, soil samples will be taken to allow for monitoring of the conditions (PH and nutrient content). It is then proposed that the existing habitat will be removed by turf stripping and deep ploughing (where necessary based on soil sampling results) to remove nutrients from the top layer. This newly disturbed habitat will then be receptive to translocation (discussed below) and natural recolonisation. With regards for the created OMH on existing developed land; sealed surfaces, these areas are already nutrient deprived so through the mechanical disturbance (i.e. breaking of the surface, removal of large sections of hardcore), natural recolonisation and translocation should be easily achieved.

Under the proposals 0.45ha of moderate OMH will be lost. However, the substrate and seedbank of these will not be removed from site, instead they will be translocated to pre-cleared OMH creation areas to aid in the habitat's establishment and to retain local species diversity. The translocated habitat will not be 'diluted' as it will be translocated on an area like-for-like basis, to increase success.

It has been brought to our attention that a 'near threatened' plant species – common cudweed *Filago vulgaris* is present onsite and located within an area to be lost. Seeds of this, and of other species recorded onsite, can remain viable in the soil for several years, thus allowing the plant to quickly colonize disturbed areas. The common cudweed will be mechanically removed (avoiding flowering and late dormancy), along with the substate containing the seeds, and redistributed elsewhere onsite within OMH creation areas and within the OMH enhanced areas. Within the OMH enhanced sections, scrub clearance and management will result in the ground disturbance suitable as a receptor for this and other plant species.

## 4.2 Habitats

The results indicate that the development of the site, based on the current landscaping plan, will result in a net gain in biodiversity of 4.55 habitat units (10.06%) and 2.17 hedgerow units (1014.33%); exceeding the requirement for securing measurable net gains of over 10%.

A Habitat Management and Monitoring Plan (HMMP) should be produced for habitats on site; to include details of appropriate ground preparation, sowing, and ongoing management techniques and responsibilities that will be required to guarantee the proposed habitats reach their target condition within the timeframe predicted by the calculator.

Additional documents relating to vegetation clearance and management may be required for the site; such as precautionary method statements for protected species, as recommended within the Preliminary Ecological Appraisal (Peak Ecology, 2023). An Invasive Species

Management Plan will also be prepared to ensure the development works do not cause further spread of snowberry, identified within the woodland on site. Management practices within the HMMP will be tailored to consider recommendations made within these documents.

Methods of habitat maintenance should be secured prior to the commencement of the proposed works.

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# APPENDICES

APPENDIX A : Botanical Species Lists ..... 21

APPENDIX B : Site Photographs ..... 24

## APPENDIX A : Botanical Species Lists

| **Ephemeral/ short perennial vegetation** | |
|---|---|
| ***Forb species*** | |
| Black medic | *Medicago lupulina* |
| Bristly oxtongue | *Helminthotheca echioides* |
| Buddleia | *Buddleja davidii* |
| Colt's-foot | *Tussilago farfara* |
| Common bird's-foot-trefoil | *Lotus corniculatus* |
| Common daisy | *Bellis perennis* |
| Common toadflax | *Linaria vulgaris* |
| Creeping thistle | *Cirsium arvense* |
| Cut-leaved crane's-bill | *Geranium dissectum* |
| Dandelion | *Taraxacum officinale agg.* |
| Foxglove | *Digitalis purpurea* |
| Groundsel | *Senecio vulgaris* |
| Hawkweed sp. | *Hieracium sp.* |
| Oxeye daisy | *Leucanthemum vulgare* |
| Ribwort plantain | *Plantago lanceolata* |
| Rosebay willowherb | *Chamerion angustifolium* |
| Shepherd's purse | *Capsella bursa-pastoris* |
| Silver birch sapling | *Betula pendula* |
| sycamore sapling | *Acer pseudoplatanus* |
| Weld | *Reseda luteola* |
| Wood avens | *Geum urbanum* |
| Woody nightshade | *Solanum dulcamara* |
| Yarrow | *Achillea millefolium* |
| ***Grass species*** | |
| False oat grass | *Arrhenatherum elatius* |
| Perennial rye grass | *Lolium perenne* |
| Yorkshire fog | *Holcus lanatus* |
| **Species poor semi-improved grassland** | |
| ***Grass species*** | |
| Cock's-foot grass | *Dactylis glomerata* |
| False oat grass | *Arrhenatherum elatius* |
| Red fescue | *Festuca rubra* |
| Timothy grass | *Phleum pratense* |
| ***Forb species*** | |
| Bush vetch | *Vicia sepium* |
| Common bird's-foot-trefoil | *Lotus corniculatus* |
| Common mouse ear | *Cerastium fontanum* |
| Creeping buttercup | *Ranunculus repens* |

| | |
|---|---|
| Creeping cinquefoil | *Potentilla reptans* |
| Creeping thistle | *Cirsium arvense* |
| Curled dock | *Rumex crispus* |
| Dove's-foot cranesbill | *Geranium molle* |
| Fox-and-cubs | *Pilosella aurantiaca* |
| Greater plantain | *Plantago major* |
| Herb Robert | *Geranium robertianum* |
| Ragwort | *Jacobaea vulgaris* |
| Red campion | *Silene dioica* |
| Ribwort plantain | *Plantago lanceolata* |
| Sweet melilot | *Melilotus officinalis* |
| White clover | *Trifolium repens* |
| Wild strawberry | *Fragaris vesca* |
| **Tall ruderal vegetation** | |
| ***Forb species*** | |
| Colt's-foot | *Tussilago farfara* |
| Common nettle | *Urtica dioica* |
| Cow parsley | *Anthriscus sylvestris* |
| Creeping buttercup | *Ranunculus repens* |
| Goat willow | *Salix caprea* |
| Groundsel | *Senecio vulgaris* |
| Hard rush | *Juncus inflexus* |
| Hawthorn | *Crataegus monogyna* |
| Hedge bindweed | *Calystegia sepium* |
| Hogweed | *Heracleum sphondylium* |
| Mugwort | *Artemisia vulgaris* |
| Rosebay willowherb | *Chamerion angustifolium* |
| Spear thistle | *Cirsium vulgare* |
| ***Grass species*** | |
| False oat grass | *Arrhenatherum elatius* |
| **Scattered & dense scrub** | |
| Apple | *Malus sp.* |
| Blackthorn | *Prunus spinosa* |
| Common mallow | *Malva sylvestris* |
| Crack willow | *Salix fragilis* |
| Dog rose | *Rosa canina* |
| Dogwood | *Cornus sanguinea* |
| Elder | *Sambucus nigra* |
| Hawthorn | *Crataegus monogyna* |
| Hazel | *Corylus avellana* |
| Hedge bindweed | *Calystegia sepium* |
| Oak | *Quercus robur* |

| **Woodland** | |
|---|---|
| **Canopy species** | |
| Alder | *Alnus glutinosa* |
| Apple | *Malus sp.* |
| Ash | *Fraxinus excelsior* |
| Aspen | *Populus tremula* |
| Crack willow | *Salix fragilis* |
| Elder | *Sambucus nigra* |
| Field maple | *Acer campestre* |
| Hawthorn | *Crataegus monogyna* |
| Hazel | *Corylus avellana* |
| Oak | *Quercus robur* |
| Rowan | *Sorbus aucuparia* |
| Silver birch | *Betula pendula* |
| Sycamore | *Acer pseudoplatanus* |
| **Understorey species** | |
| Bramble | *Rubus fruticosus* |
| Buddleia | *Buddleja davidii* |
| Common nettle | *Urtica dioica* |
| Dog rose | *Rosa canina* |
| Dogwood | *Cornus sanguinea* |
| Guelder rose | *Viburnum opulus* |
| Snowberry | *Symphoricarpos albus* |

## APPENDIX B : Site Photographs

| No. | Description | Photograph |
|---|---|---|
| 1 | g3c – other neutral grassland |  |
| 2 | g3c, 80 – other neutral grassland, open mosaic on previously developed land |  |
| 3 | g3c,16 – other neutral grassland, tall forbs |  |

| No. | Description | Photograph |
|---|---|---|
| 4 | g3c, 80, 81 – other neutral grassland, ruderal or ephemeral, open mosaic on previously developed land |  |
| 5 | h3h – mixed scrub |  |
| 6 | u1b – developed land; sealed surface |  |

| No. | Description | Photograph |
|---|---|---|
| 7 | u1f – artificial unvegetated, unsealed surface |  |
| 8 | w1g – other broadleaved woodland |  |
| 9 | h2 – hedgerow |  |