

Hainsworth Road, Silsden

Biodiversity Net Gain Assessment



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Declaration of Compliance

This report has been undertaken in accordance with British Standard 8683:2021 “Process for designing and implementing Biodiversity Net Gain – Specification” (BSI, 2021), the CIEEM’s Code of Professional Conduct (CIEEM 2019) and Guidelines for Ecological Report Writing (CIEEM 2017).

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EXECUTIVE SUMMARY

This report assesses the potential for the residential development at Hainsworth Road, Silsden to deliver Biodiversity Net Gain (BNG). Both a quantitative and qualitative assessment were undertaken to determine the potential for the proposed residential development to deliver BNG. The quantitative assessment calculated the habitat and hedgerow unit value of the development site in its current state, as well as a developed scenario, to determine the overall net gain or loss in habitat and hedgerow units. Following this, a qualitative assessment was conducted to identify any additional biodiversity features not accounted for through the quantitative assessment and provided recommendations for achieving BNG for these.

Quantitative assessment

Habitats currently present on site include: modified grassland (g4), native hedgerow with trees (h2), developed land sealed surface (u1b), artificial unvegetated unsealed surface (u1c), urban bare ground (u1 510) and individual urban trees. These habitats will all be removed by the development with the exception of the hedgerow which will be retained. Proposed habitats on site following development will include: modified grassland, built linear features, developed land sealed surface, introduced scrub and, vegetated garden and planted urban trees. Several native hedgerows will also be created within the development. Table 1 (below) provides a summary of the current and proposed habitat unit values at the site. Potential enhancement areas within the proposed 'Scenario 1' were identified and these were outlined in the Appendix D – Scenario 1 Map.

Scenario 1 achieves BNG for habitats on site, with a net gain of 0.40 habitat units

(+71.41% biodiversity gain on site).

Scenario 1 achieves BNG for hedgerows on site, with a net gain of 0.08 hedgerow units

(23.49% biodiversity gain on site).

Table 1: Current and proposed habitat and hedgerow unit values at Hainsworth Road.

	Baseline Habitat Unit Value	Scenario 1 Habitat Unit Value	Net Unit Change	Net Percent change
Habitats	0.57	0.97	+ 0.40	+ 71.41 %
Hedgerows	0.35	0.43	+ 0.08	+ 23.49 %

Qualitative Assessment

In addition to the proposed habitat and hedgerow enhancements identified during the quantitative assessment, there are a number of qualitative enhancements that could further provide BNG at the site, and mitigate the loss of some hedgerow habitat. These include:

1. Creation of additional nesting bird habitat;
2. Creation of bat roosting habitat;
3. Use of sympathetic and wildlife-friendly lighting;
4. Creation of log pile hibernacula.

1. INTRODUCTION

1.1. TERMS OF REFERENCE

PBA Applied Ecology Ltd (PBA) was commissioned by Skipton Properties to undertake a Biodiversity Net Gain (BNG) assessment of the proposed development area at DAVRIC land, Hainsworth Road. The assessment is based upon current baseline habitat conditions, as well as proposed conditions at the new development (Drawing ref: 2077SPL/HRS/SL02 – Appendix C). PBA will survey, map, and calculate the current biodiversity units supported at the site, then calculate the potential BNG possible under the current proposed site plans. The results of these assessments are used to determine if the site meets the BNG requirements set out by the Environment Bill 2020. This assessment is undertaken in line with *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide* (Baker, Hoskin, & Butterworth, 2018); the *Biodiversity Metric 4.0: User guide* (detailed) (Parks et al. 2022) and the *British Standard 8683:2021 Process for designing and implementing net gain – Specification* (BSI, 2021), as well as other relevant reference material detailed within.

1.2. PERSONNEL SKILL AND EXPERIENCE

The authors of this report have the relevant experience to undertake this assessment. Project Ecologist Sebastian Ashton MA (oxon) has led on the delivery of the BNG assessment. He has delivered multiple BNG projects and has received internal training in the application of the Biodiversity Metric. Sebastian is experienced in undertaking habitat and condition assessments. He is experienced in using GIS, and as such he is suitably experienced to undertake this study. Operations Director Neil Wilkinson MSc ACIEEM assisted with the field surveys at the site and has received training in the application of the Biodiversity Metric 4.0 from CIEEM and has been involved in multiple Q&A sessions. He has overseen the delivery of this BNG Assessment, undertaken quality control, and approved the report for submission.

1.3. SITE LOCATION AND CONTEXT



Figure 1: Site location (Bing,2023)

1.4. DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development is expected to include the construction of five new residential buildings with an access road, planted trees and gardens (Drawing ref: GL1749 03B - Appendix C).

1.5. LEGISLATION

The requirement for the conservation of biodiversity and now a net gain in biodiversity during development is expected to be established in UK planning policy and environmental legislation in the very near future. While there is no mandatory requirement for BNG within the current planning system, many local councils have already adopted the policy in order to quantify a development's impacts on the natural environment. This is in an attempt to create a step-change in how we conserve and enhance the natural environment and deliver ecological function and associated services. Developers will be responsible for ensuring that habitats are managed for a minimum of 30 years. At the end of the 30 years the habitats should match those set out in the proposed plans. BNG is designed to supplement current environmental and ecological legal protections and designations such as those for protected sites, species, and irreplaceable habitats. Relevant net gain legislation and policy documents include:

- UK National Planning Policy Framework (MHCLG, 2019)
- Natural Environment and Rural Communities Act 2006
- Environment Bill 2020

2. ASSESSMENT OBJECTIVES

In order to assess the development proposals potential to deliver BNG, it is necessary to set out measurable objectives. Ideally these objectives are created through a combination of local and national planning targets, such as minimum percentage requirements for habitat unit gains, project specific targets (such as those pertaining to specific habitat types or species), or those associated with spreads of habitat types in delivered habitat units.

In this assessment a series of objectives have been identified against which to assess the proposals potential to deliver BNG. These are set out below:

- Deliver a 10% gain in total habitat units across the lifetime of the development (30 years).
- Deliver a 10% gain in each habitat type recorded in the site baseline across the lifetime of the development (30 years).
- Deliver enhancements to ecological features and protected species utilisation of the site consistent with those identified in initial baseline surveys, including Preliminary Ecological Appraisals (PEA) and Bat Scoping and Activity Surveys.

3. METHODS

3.1. ASSESSMENT CONTENTS

This BNG assessment includes two main elements:

- A quantitative BNG assessment using the Natural England Biodiversity Metric 4.0. This calculates the total number of habitat units present on the site prior to development, and the estimated number of habitat units which the development will deliver following completion.
- A qualitative BNG assessment. This incorporates additional biodiversity features at the site (which are not already included in the quantitative assessment). These qualitative features are assessed prior to development, and recommendations made for how they can be enhanced through delivery of the development and subsequent management.

Through these two components, this BNG assessment provides a comprehensive evaluation of current biodiversity features, and the potential for the proposal to deliver enhancements to biodiversity during its lifetime.

Through this assessment the following mitigation hierarchy is applied:

1. Avoid harm to biodiversity.
2. Minimise any unavoidable impacts to biodiversity through adjustments to project design and delivery.
3. Compensate for any remaining adverse impacts to biodiversity resulting from delivery of the development.

The context of the development's potential for biodiversity and its associated assessment are recorded as well as all limitations. The precautionary principle is applied to limit the likelihood of underestimating biodiversity value of a site prior to development or overestimate the biodiversity value of the site through the development's lifetime. In addition, the qualitative assessment provides information on immeasurable aspects of the site's biodiversity, as well as potential for enhancement through the project design, delivery, and development lifetime.

3.2. ASSESSMENT CONTEXT

The assessment is based on the proposed residential development plan for works on the Hainsworth Road site. The baseline assessment (including habitat unit calculations) was undertaken within an area defined by a red line boundary provided by Skipton Properties at the time of the initial Hainsworth Road PEA & Bat Scoping survey (PBA Ecology 2022). This assessment was undertaken following the completion of an 'Extended' habitat survey using UK Habitat Classifications (UK Habitat Classification Working Group, 2018), as part of the PEA. During the PEA the condition of habitats was assessed, using the *Biodiversity Metric 4.0 - Habitat Condition Assessment Sheets*.

For this BNG assessment, PBA calculated the number of habitat units required to deliver BNG, the range of habitat types required, and the potential for the proposed development plan to deliver these objectives. In addition, a wider qualitative assessment was conducted to assess the value of the site for protected and notable species, as well as any intangible biodiversity value. This assessment applies the mitigation hierarchy, including minimisation and avoidance measures when considering the delivery of the proposed development and associated BNG strategy. The strategic significance of a habitat type is considered in relation to the Bradford Metropolitan District Council Local Plan (Bradford Council, 2021).

3.3. MAPPING

Following the walkover survey of Hainsworth Road, the site was mapped in GIS (QGIS 3.24) using the Biodiversity Metric 4.0 QGIS template. Habitats were mapped using UK Habitat Classifications. This template allows for calculation of the areas and lengths of habitat parcels and linear features. Errors in the area of each habitat type could potentially occur as a result of the incorrect delineation of boundaries between habitat parcels, or due to inaccuracies when digitising habitat polygons and lines. This process was repeated for both the baseline and the post development scenario (Skipton Properties proposed plans – Appendix C).

3.4. BNG CALCULATIONS

The *Biodiversity Metric 4.0 GIS import tool* was used to import the data for the habitat parcels into the *Biodiversity Metric 4.0 Auditing and accounting for biodiversity Calculation tool*. This was used to calculate the baseline habitat units on site, and the habitat units that Scenario 1 delivers. The metric also calculates whether trading rules in relation to what habitat type can replace other lost habitat types.

3.5. ASSESSMENT LIMITATIONS

Throughout this report, assumptions have had to be made regarding the proposed final conditions and expected habitat areas post-development, which result in limitations in interpretation. To enable these assumptions and limitations to be considered when reviewing this document, all assumptions will be detailed and highlighted at each stage of the assessment (see Justification Table, Appendix B). Due to these necessary assumptions, all reported numbers of units (both within the baseline scenario and

enhancement strategies), remain estimates until final designs are accepted by the local planning authority, and in the case of the final scenario, until management and monitoring confirm final conditions.

4. BASELINE ASSESSMENT

The baseline map (Appendix A) was produced following a PEA carried out by Operations Director Neil Wilkinson MSc ACIEEM and Project Ecologist Sebastian Ashton MA (oxon) in March 2023.

4.1. BASELINE HABITATS

Prior to analyses, the habitat types were classified, and their condition assessed based upon data collected during the PEA. A comprehensive list of justifications for allocation of habitat conditions can be found in Appendix B.

The following provides a summary of the habitat categories identified within the survey area, and the justifications for their condition allocations. Detailed habitat descriptions can be found in the PEA report (PBA Ecology, 2022).

4.1.1. MODIFIED GRASSLAND (G4)

The site contains three strips of modified grassland.

All strips are dominated by perennial ryegrass *Lolium perenne*, Yorkshire fog *Holcus lanatus*, nettle *Urtica dioica*, and thistle *Cirsium* sp. Other occasional to rarely occurring species included ivy *Hedera helix*, rose *Rosa* sp., and cleavers *Galium aparine*.

All 3 strips were assigned 'moderate' condition due to a lack of visible Invasive Non-Native Species (INNS), lack of bracken, and the species diversity. This habitat is not identified in the Bradford Council local plan, and therefore a low strategic significance is recorded.

4.1.2. NATIVE HEDGEROW WITH TREES (H2)

The southern extent of the site is bordered by a hedgerow that consists of elder *Sambucus nigra*, holly *Ilex aquifolium*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, and ivy in approximately equal proportions.

The hedgerow was assigned 'moderate' condition due to undesirable perennial vegetation, current damage, and the gap at the hedge base. The habitat is adjacent to a local wildlife site for species-rich hedgerow and therefore a high strategic significance is recorded.

4.1.3. DEVELOPED LAND SEALED SURFACE (U1B)

A significant proportion of the site has already been developed and supports an industrial building. This habitat type does not require a condition assessment and is of low strategic significance.

4.1.4. ARTIFICIAL UNVEGETATED UNSEALED SURFACE (U1C)

Some of the site consists of hardstanding, this is classified as 'urban developed land – unsealed surface'.

This habitat type does not require a condition assessment and is of low strategic significance.

4.1.5. BARE GROUND (U1 2° CODE 510)

Some of the site consists of bare earth surrounded by grassland,

This habitat was assessed as having poor condition and is of low strategic significance.

4.2. BASELINE RESULTS

The baseline assessment of habitat areas and associated units on site are reported in Table 2. Overall, the 0.2 hectare site is estimated to support 0.41 habitat units and 0.35 hedgerow units (Table 2).

Table 2: Baseline habitat, hedgerow and river features results.

Habitats							
Habitat	UK Habs	Area (Metres Squared)	Area (Hectares)	Distinctiveness	Condition	Strategic significance	Units
Grassland - modified grassland	g4	921	0.0921	Low	Moderate	Area/compensation not in local strategy	0.37
Urban – developed land; sealed surface	u1b	251	0.0251	V. Low	Condition assessment N/A	Area/compensation not in local strategy	0.00
Urban - artificial unvegetated, unsealed surface	u1c	509	0.0509	V. Low	Condition assessment N/A	Area/compensation not in local strategy	0.00
Urban – bare ground	u1 510	178	0.0178	Low	Poor	Area/compensation not in local strategy	0.04
Individual trees – urban tree	N/A	41	0.0407	Medium	Poor	Area/compensation not in local strategy	0.16
Hedgerows							
Hedgerow type	UK Habs	Length (m)	Length (km)	Distinctiveness	Condition	Strategic significance	Units
Native Hedgerow with trees	h2	38	0.38	Medium	Moderate	Formally identified in local strategy	0.35

Table 3. Headline baseline results

Habitat Units	0.572
Hedgerow Units	0.35

5. DEVELOPMENT SCENARIO 1 ASSESSMENT

Scenario 1 maps and calculates the BNG score as per the proposed plans set out by Skipton Properties (Drawing ref: 2077SPL/HRS/SL02 - Appendix C & D) and a modified version of the Landscape Plan by e.g. Golby & Luck Ltd (Drawing ref: GL1749 03B).

Only the native hedgerow with trees (h2) is planned to be retained in this scenario, all other habitats will be lost. In addition, a mountain ash (*Sorbus aucuparia*) tree suffering from bacterial fireblight just outside the red line boundary will be lost (see Tree Impact Report, Bowland Tree Consultancy Ltd, 2023)..

5.1. PROPOSED HABITAT AND HEDGEROW CREATION

Within the design of the development there are a number of areas available for habitat and hedgerow creation. Habitats on site post-development will include: native hedgerow (h2a), vegetated gardens (u 2° code 828), modified grassland (g4), built linear features (u1e), developed land sealed surface (u1b) and introduced shrub (u 1160). A number of individual urban trees and hedgerows (native and non-native) will be included within the development. The separate BEP (PBA Ecology, 2023b) provides further details on these recommendations, and how these can be achieved.

5.1.1. VEGETATED GARDENS (U 2° CODE 828)

Every property will have an area of vegetated garden. Any species planted within these should be native, and homeowners should be strongly discouraged from paving gardens or replacing with artificial grass. Condition assessments are not required for this habitat type.

5.1.2. MODIFIED GRASSLAND (G4)

Areas of poor condition modified grassland will be created adjacent to 2 of the structures. Following horticultural best practice guidelines, the ground shall be cultivated to a fine tilth incorporating 150mm of topsoil to finished formation level. All areas shall be free of weed growth prior to turfing/seeding. Followed by annual management via mowing.

Modified grassland is defined as vegetation dominated by a few fast-growing grasses on fertile, neutral soils.

This scenario assumes the grassland will remain in poor condition.

5.1.1. NATIVE HEDGEROW (H2A)

A native hedgerow is defined as a hedgerow with greater than 8-% canopy cover of UK native or archaeophyte woody species. The proposed plan has 37m of cumulative small hedgerows around the site.

The latest landscape plan shows these hedgerows as consisting entirely of common box *Buxus sempervirens*.

This scenario assumes the hedgerow will remain in poor condition.

5.1.1. BUILT LINEAR FEATURES (U1E)

Areas of built linear feature will be created throughout the site, surrounding the houses. Built linear features are defined as roads, railways, walls, fences, and surfaced paths. Condition assessments are not required for this habitat type.

5.1.1. DEVELOPED LAND; SEALED SURFACE (U1B)

Areas of developed land - sealed surface will be created in the form of the houses in the centre of the site. Condition assessments are not required for this habitat type.

5.1.2. INTRODUCED SHRUB (U 2° CODE 1160)

Areas of introduced urban shrubs will be created bordering several of the houses and in small patches in the west and south of site. Shrubs to be planted in accordance with horticultural best practice guidelines. Planting beds to be mulched with 75 mm layer of bark.

Introduced shrub habitat is defined as non-native phanerophytes planted in a garden or park setting. Condition assessments are not required for this habitat type.

5.1.1. INDIVIDUAL URBAN TREES

Eight medium and two small trees will be planted, with an overall estimated canopy cover of 0.3 ha.

This scenario assumes the trees will be maintained in poor condition.

5.2. SCENARIO 1 RESULTS

The assessment of habitat areas and associated units on site as per the proposed plans (Appendix C) are reported in Table 4: *Scenario 1 habitat and hedgerow features results*. Overall, proposed plans are estimated to **gain 0.40 habitat units, and gain 0.08 hedgerow units**. This achieves a **net gain with habitats of 71.41%, and in hedgerow units with gains of 23.49%** (Table 5: *Headline results for Scenario 1.*) **if the condition criteria above are met**

Table 4: Scenario 1 habitat and hedgerow features results.

Habitats							
Baseline habitat types	Post-intervention habitat type	Area (Hectares)	Distinctiveness	Baseline condition	Proposed condition	Proposed strategic significance	Units delivered
Created							
Grassland	Modified grassland	0.0094	Low	Moderate	Poor	Low strategic significance	0.02
Grassland, Urban – developed land; sealed surface, artificial unvegetated, unsealed surface and bare ground	Built linear features	0.0879	V. Low	Moderate	N/A - Other	Low strategic significance	0.00
Grassland	Developed land; sealed surface	0.0319	Low	Moderate	Condition Assessment N/A	Low strategic significance	0.00
Grassland	Introduced shrub	0.0144	Low	N/A - other	Condition Assessment N/A	Low strategic significance	0.03
Grassland	Vegetated garden	0.0423	Medium	Moderate	Moderate	Low strategic significance	0.08
Grassland & developed land sealed surface	Urban tree	0.3013	Medium	N/A/poor	Poor	Low Strategic Strategy	0.84
Hedgerows							
Baseline hedgerow type	Post-intervention hedgerow type	Length (km)	Distinctiveness	Baseline condition	Proposed condition	Proposed strategic significance	Units delivered
Retained							
Native hedgerow with trees	Hedgerow with trees	Retained: 0.038	Medium	Moderate	Moderate	High strategic significance	0.35
Created							
To be created	Native Hedgerow	0.037	Low	To be created	Poor	High strategic significance	0.08

Table 5: *Headline results for Scenario 1.*

	Baseline unit value (2 d.p.)	Scenario 1 unit value (2 d.p.)	Total net unit change	Total net percent change (%)
Habitat units	0.57	0.97	+ 0.40	+ 71.41
Hedgerow units	0.35	0.43	+ 0.08	+ 23.49

5.2.1. PROPOSALS LIMITATIONS

The current proposal aims to improve habitats across the site, in a wide-reaching approach which is consistent with the broadest view of BNG. When planning the habitat enhancement and creation measures, there was limited land available to utilise. The proposed option utilises the land available in the best possible way to maintain and improve the diversity of habitats lost due to development

6. QUALITATIVE ASSESSMENT

6.1. MEASURES TO DELIVER A QUALITATIVE NET GAIN FOR WILDLIFE POST-CONSTRUCTION

In addition to the metric calculation, the PEA provides a framework to assess the qualitative value of the site for biodiversity. The following ecological measures are required to deliver a qualitative net gain after the development has been completed, ensuring the long-term conservation value of the site to wider biodiversity. Appendix E provides a visual guide to suggested locations of enhancement measures and the separately produced BEP (PBA Ecology, 2023) provides further details, including long term management recommendations, for the enhancements. These measures should ensure the development meets the local planning authority requirements to conserve and enhance local biodiversity.

1. Compensation for loss of nesting bird habitat through integrated boxes within the fabric of new buildings.
2. Compensation for loss of bat roosting habitat through integrated boxes within the fabric of new buildings.
3. Sympathetic lighting is to be used across the site.
4. Provision of log-pile hibernacula in shrub area that will provide refuge for a range of wildlife.

6.1.1. COMPENSATION FOR LOSS OF NESTING BIRD HABITAT

Scattered scrub, grassland habitat, and two individual trees will be lost through the development works. To compensate for the loss in bird nesting habitat, 8 integrated bird boxes will need to be included into the design of the new build properties. These will provide immediate nesting opportunities while the created habitats mature, ultimately resulting in a net gain in bird nesting habitat.

It is considered that the following numbers of bird boxes would be sufficient to compensate for the habitats lost and be suitable for the types of species likely to be present on site.

- 2 x Sparrow terrace box – house sparrows, redstarts, and wagtails.
- 2 x 28 mm diameter hole – range of small tit species.
- 2 x 32 mm diameter hole – house sparrow.
- 2 x Swift boxes.

6.1.2. CREATION OF BAT ROOSTING HABITAT

As it is likely that bats utilise this site for foraging there is potential to provide suitable roosting opportunities within the development. The **inclusion of 2 pairs of boxes (4 in total) is intended to improve upon the original number of potential roost features across the site** as one moderate potential feature for roosting was identified during surveys and will not be retained by the development.

6.1.3. SYMPATHETIC LIGHTING TO BE USED ACROSS THE SITE

Artificial lighting can be a major deterrent to nocturnal animals, preventing foraging and disturbing roosting, therefore sympathetic lighting should be used across the site. **No artificial lighting should directly illuminate any artificial faunal box** (especially bat roost boxes).

6.1.1. PROVISION OF LOG-PILE HIBERNACULA THAT WILL PROVIDE REFUGE FOR A RANGE OF WILDLIFE

Any logs produced from felling on site should be retained and used to provide hibernacula within the landscaped area at the south of site. There is currently limited provision for invertebrates on site, thus a log pile hibernaculum would provide a gain in provisions for these species.

7. DISCUSSION

PBA used Biodiversity Metric 4.0 to calculate the BNG at Hainsworth for the proposed plan set out by Skipton Properties, (see Appendix D – Scenario 1 Map). This achieved a net biodiversity habitat gain of **+71.41%** and a hedgerow gain of **+23.49%** and therefore meets the 10% BNG target set out by Bradford Metropolitan District Council.

Following the mitigation hierarchy this plan aimed to retain the different habitat types lost to development and improve the condition where possible. Habitats lost which should be replaced were included in the proposals. The plan achieves a qualitative net gain in roosting opportunities for bats and birds, as well as a significant gain in habitat units and hedgerow units.

8. RECOMMENDATIONS

The current proposals set out by PBA in Section 5 are based on the site plan proposed by Skipton Properties and will result in a net gain of biodiversity on the site. In order to deliver this, the changes outlined to the landscape plan must be followed and a separate Biodiversity Enhancement Plan (BEP) should be produced.

The BEP will detail:

- How negative impacts on ecology can be limited during the construction phase of the development.
- Further information regarding how the habitat enhancement and creation strategies and qualitative biodiversity enhancements outlined in this report can be delivered and maintained for the 30+ years that is required by BNG.

9. REFERENCES

Baker, J., Hoskin, R., & Butterworth, T. (2018). *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide*. CIRIA.

Cosher, I., Gold, S., Heaver, M., Heydon, M., Moore, L., Panks, S., . . . White, N. (2019). *The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019)*. Natural England.

Crosher, I., Gold, S., Heaver, M., Heydon, M., Moore, L., Panks, S., . . . White, N. (2019). *The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019)*. Natural England.

Bradford Council. *Biodiversity Action Plan*.

MHCLG. (2019). *National Planning Policy Framework*. UK Government.

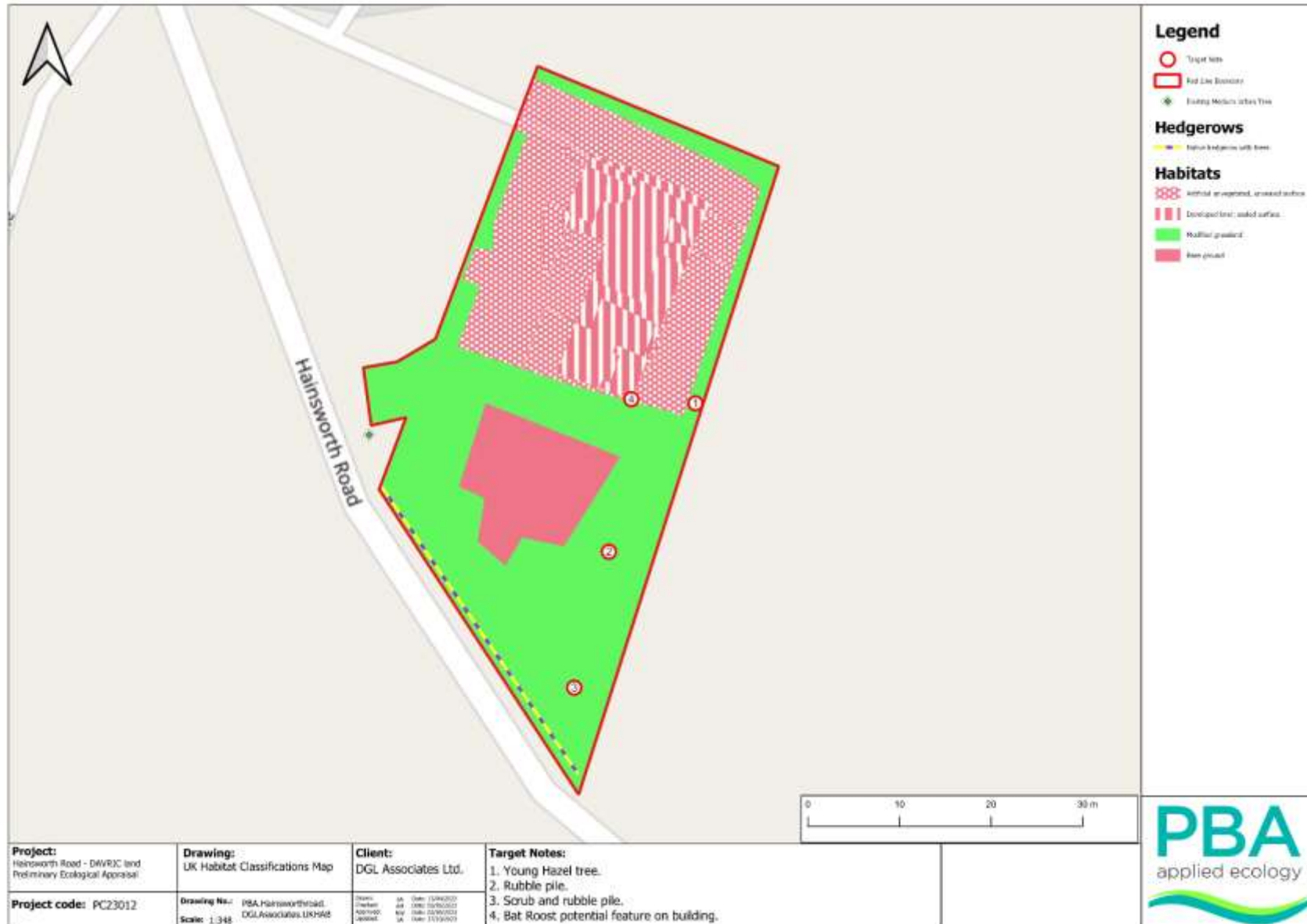
PBA Applied Ecology Ltd. 2023. Hainsworth Road - Preliminary Ecological Appraisal.

PBA Applied Ecology Ltd. 2023b. Hainsworth Road - Biodiversity Enhancement Plan.

UK Habitat Classification Working Group. (2018). *UK Habitat Classification – Habitat Definitions V1.0*.

Bowland Tree Consultancy Ltd. 2023. *Arboricultural Impact Assessment in relation to Proposed Five-unit Residential Development at DAVRIC Construction Projects Ltd, hainsworth Road, Silsden, West Yorkshire, BD20 0LY.*

Appendix A – Baseline Map



Appendix B – Net Gain Justification Table

Habitat type (UK Habitat Classification)	Habitat Type Justification	Condition	Condition Justification	Strategic Significance	Strategic Significance Justification
Grassland 1 - modified grassland	Habitat definition of 'modified grassland' is accurate for the habitats observed on site.	Moderate	Meets condition criteria 3, 4, 5, 6 and 7. Fails criteria 2 and 3 due to lack of varied sward height and species diversity per m ² .	Low	Area/compensation not in local strategy.
Grassland 2 - modified grassland	Habitat definition of 'modified grassland' is accurate for the habitats observed on site.	Moderate	Meets all condition criteria except for criteria 1. Fails due to lack of species diversity which is essential for achieving good condition.	Low	Area/compensation not in local strategy.
Grassland 3 - modified grassland	Habitat definition of 'modified grassland' is accurate for the habitats observed on site.	Moderate	Meets condition criteria 2, 4, 5, 6 and 7. Fails criteria 1 and 3 due to lack of species diversity per m ² and greater than 20% scrub cover.	Low	Area/compensation not in local strategy.
Urban – developed land; sealed surface	Habitat definition of 'developed land - sealed surface' is accurate for the habitats observed on site.	N/A	Does not require condition assessment.	N/A	Area/compensation not in local strategy.
Urban - artificial unvegetated, unsealed surface	Habitat definition of 'artificial unvegetated unsealed surface' is accurate for the habitats observed on site.	N/A	Does not require condition assessment.	N/A	Area/compensation not in local strategy.
Native Hedgerow with trees	Habitat definition of 'native hedgerow with trees' is accurate for the habitats observed on site. Hedgerow consists of only native tree species.	Moderate	Passes condition criteria A1, A2, B2, C1, D1, E1 and E2. Fails B1, C2 and D2 due to large gaps, undesirable ground vegetation and pollution.	High	Formally identified in local strategy.

Appendix C – Development Proposal

Specification Notes:

All plants shall conform to BS 3934 and be in accordance with the National Plant Specification. Supplying nurseries shall be Registered under the NTA Nursery Certification Scheme. All plants shall be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE.

No species, variety, size or position to be amended without the Landscape Architects prior approval.

If the formation level is compacted it should be ripped through before topsoiling. Topsoil depths to be 300mm for shrub beds and 150mm for grass areas.

All landscape proposals must be referred to by the Structural Engineer during foundation design.

All planting has been indicated making every effort to avoid conflict with highway land. Prior to submission it is the clients responsibility to ensure that all landscaping is reviewed by the project manager/highway engineer to ensure there is not conflict with highway land and future obligations.

Before trees are planted, the Landscape Contractor shall ascertain the location of drains from the site manager, and shall if necessary make minor adjustments to tree positions to ensure that they are planted at least 1.5m from drains. They should however be planted no closer to houses/garages than is shown on the drawing and if shown located in shrub beds, the shape of the latter should be adjusted if necessary to accommodate the revised tree position.

If planting conditions are particularly poor e.g. waterlogged/lean ground or poor soils, the Site Manager must be notified. All works will not until conditions are considered acceptable.

All trees, ornamental planting and identified native planting to be matched to a depth of 75mm and in accordance with horticultural best practice guidelines ensuring plants are not buried.

All bare root stock shall be root dipped in an approved water-retaining polymer. If planting is required outside the October-March season, bare root trees will be replaced by a containerised equivalent to be approved by the project landscape architect.

Planting in pedestrian visibility zones: Any planting stock specified in pedestrian visibility zones and exceeding 0.60m in height is to be cut down to 0.45m in height at the time of planting. It shall be maintained at a height not exceeding 0.60m in height in perpetuity.

Trees: All tree locations and species must be taken into consideration by the project Structural Engineer to ensure that foundation design accords with the specifications set out under Chapter 4.2 of the HNSC Standards. If a Contractor's responsibility to ensure that all underground services have been located and identified in advance of free pit excavation. No tree species/location/specification will be amended without prior approval from the project Landscape Architect and/or the Client. Root barriers are to be provided as directed by the project engineer. All trees to be supplied with a minimum 1.8m clear stem unless clearly stated otherwise.

Specimen Shrubs: All specimen shrubs to be planted in accordance with horticultural best practice guidelines. No feature shrub or climber species, size or location should be altered without prior approval from the Landscape Architect. Planting beds to be matched with 75mm layer of bark.

Hedgerows: All ornamental hedgerow shrubs to be planted in accordance with horticultural best practice guidelines. No hedgerow shrub species, size or location should be altered without prior approval from the Landscape Architect. Planting beds to be matched with 75mm layer of bark.

Shrubs & herbaceous: All ornamental and amenity shrubs to be planted in accordance with horticultural best practice guidelines. No shrub species, size or location should be altered without prior approval from the Landscape Architect. Individual species to be planted in groups of 3-7 within mixed species beds. Planting beds to be matched with 75mm layer of bark.

Amenity turf & seeding: All turf and seeding to be completed in line with horticultural best practice. Seed to be applied at the rates (g/m²) advised by manufacturer/supplier. Prior to seeding, ground shall be cultivated to a fine 8th incorporating 150mm of topsoil to finished formation level. All areas shall be free of weed growth prior to turfing/seeding.

Bulbs: All bulbs to be planted in accordance with horticultural best practice guidelines.



Key

- Application Site Boundary
- Existing vegetation to be retained
- Existing vegetation to be removed

Soft Landscape Schedule

Trees

Abbr	Species	Supply Size	Size	Grth	Number
BEFE	Betula pendula	300-400cm	10-12cm	3	3
CARRET	Carpinus betulus	300-400cm	10-12cm	1	1
MALTRI	Malus domestica	300-400cm	10-12cm	1	1
SORAU	Sorbus aucuparia	300-400cm	10-12cm	1	1
ACECAM	Acer campestre	400-500cm	14-18cm	1	1
Total: 8					

Specimen Shrubs & Climbers

Abbr	Species	For Size	Height	Root	Number
PHOWAVA	Prunus lauro-coccinea	200	100-120cm	3m Ch.	2
Total: 2					

Single Species Hedgerows

Abbr	Species	For Size	Height	Root	Density	Number
BUXSE	Buxus sempervirens	50-60cm	Bushy	5.3C	125	Total: 125

Shrubs

Abbr	Species	For Size	Height	Root	Density	Number
COFALE	Camellia japonica	30	40-60cm	Branches	1.3C	19
AUCIA	Aucuba japonica	100	40-60cm	Bushy	1.3C	4
BRASU	Baccharis fortunei	100	40-60cm	Bushy	1.3C	11
CEATHR	Caraxifolia	100	40-60cm	Bushy	1.3C	18
CHOTES	Chamaecyparis thuyoides	100	40-60cm	Bushy	1.3C	18
ELAFUMA	Elaeagnus argentea	100	40-60cm	Bushy	1.3C	19
EUJOFONG	Eucalyptus globulus	100	40-60cm	Bushy	1.3C	37
HEBMAR	Hebe	100	40-60cm	Bushy	1.3C	38
HYFHI	Hydrangea	100	40-60cm	Bushy	1.3C	8
REBALRE	Rehderia	100	40-60cm	Bushy	1.3C	22
SKUARU	Skimmia	100	40-60cm	Bushy	1.3C	7
PEULAOL	Peucedanum	100	40-60cm	Bushy	1.3C	26
LAVANH	Lonicera	100	40-60cm	Bushy	1.3C	7
LONNBIG	Lonicera	100	40-60cm	Bushy	1.3C	8
PHOFREE	Photinia	100	40-60cm	Bushy	1.3C	4
CEATHR	Caraxifolia	100	40-60cm	Bushy	1.3C	12
COFALE	Camellia	100	40-60cm	Bushy	1.3C	8
ELAFUMA	Elaeagnus	100	40-60cm	Bushy	1.3C	4
HYFHI	Hydrangea	100	40-60cm	Bushy	1.3C	7
Total: 249						

Turf & Seeding

- Turf to plant frontages to be laid as Kilmac Meddair, or similar approved.
- Amenity grass - A22 low maintenance seed mixture, as supplied by Geminaf (www.geminaf.co.uk) or similar approved.



Project: Hainworth Road, Staden (Dorset)

Produced by: Landscape Proposals

Client: Skipton Properties Ltd

Date: 21/03/2023

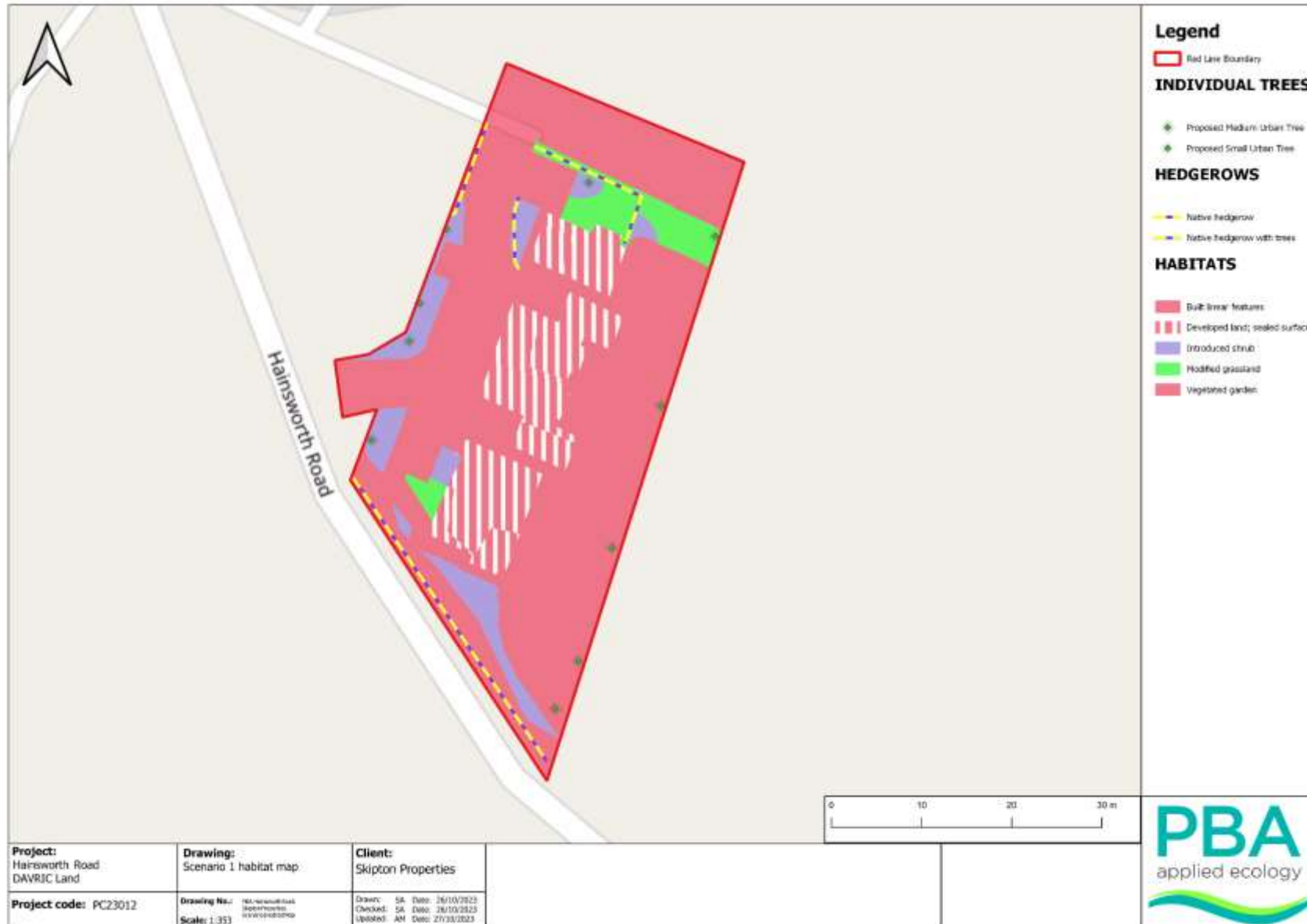
Scale: 1:250 @ A3

Drawn: AF

Checked: DC

Project No: GL1949 028

Appendix D – Scenario 1 Map



APPENDIX E – MAP OF QUALITATIVE RECOMMENDATIONS



Legend:

- Bird box - ●
- Bat box - ●
- Refugia Pile - ●

