

# LAND OFF BERRY HILL ROAD ADDERBURY BANBURY

## BIODIVERSITY NET GAIN ASSESSMENT



Ecology  
Archaeology  
Arboriculture  
Landscape Architecture



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## 1.0 EXECUTIVE SUMMARY

- 1.1 In November 2022, ACD Environmental Ltd was commissioned by Hayfield Homes to carry out a Biodiversity Net Gain assessment of a parcel of land off Berry Hill Road, Adderbury; hereafter referred to as ‘the Approved Development Site’.
- 1.2 Reserved matters pursuant to outline planning permission 19/00963/OUT were permitted in November 2022 (22/00959/REM) by Cherwell District Council.
- 1.3 Condition 11 of the reserved matters states that:

*“Notwithstanding the details submitted, the development shall not be occupied unless and until an updated Biodiversity Impact Assessment has been submitted to and approved in writing by the Local Planning Authority. The approved biodiversity net gain measures and habitat creation shall be implemented in accordance with the approved details prior to the first occupation of the development unless an alternative timescale is agreed by the Local Planning Authority as part of that Biodiversity Impact Assessment and shall be maintained as such thereafter.*

*Reason: For the avoidance of doubt, to maintain and improve biodiversity, to ensure that the development is carried out only as approved by the Local Planning Authority and comply with Policy ESD10 of the Cherwell Local Plan 2011-2031 and Government guidance contained within the National Planning Policy Framework.”*

- 1.4 The Approved Development Site is c.3.9 hectares and is located on the edge of Adderbury (Grid Reference SP 469 348). The Approved Development Site is currently used for agricultural purposes as a horse paddock and stables.
- 1.5 The Approved Development Site lies on the edge of Adderbury along Berry Hill Road, which forms the southern boundary. It is adjacent to residential properties along part of the western boundary. The eastern boundary is an existing established mature tree line with open fields beyond. A disused railway line is located approximately 180m to the north and the river Cherwell is located approximately 100m to the north east of the Approved Development Site.
- 1.6 To discharge Condition 11, the Warwickshire Biodiversity Impact Calculator (BIC) has been used to measure and account for biodiversity losses and gains as a result

of the proposed development. The results of the BIC can be summarised as follows:

<b>On site baseline</b>	Habitat Units	7.73
	Hedgerow Units	8.88
<b>On site post intervention</b>	Habitat Units	8.22
	Hedgerow Units	9.64
<b>Total net unit change</b>	Habitat Units	0.49
	Hedgerow Units	0.26

- 1.7 The BIC demonstrates that the development will result in a 0.49 unit gain in habitats and 0.26 unit gain in linear features.
- 1.8 Providing the soft landscaping proposals and the measures outlined within this report are adhered to, the proposed development will achieve a net gain in both habitat and hedgerow units.
- 1.9 The original plan was to retain and enhance the existing habitats, however enhancement is not feasible due to how the new grassland would be created and this has negatively impacted the score. The net gain is dependant on large areas of wildflower grassland being fenced off from public access which increases the target condition.

## 2.0 INTRODUCTION

- 2.1 In November 2022, ACD Environmental Ltd was commissioned by Hayfield Homes to carry out a Biodiversity Net Gain assessment of a parcel of land off Berry Hill Road, Adderbury; hereafter referred to as 'the Approved Development Site'.
- 2.2 Reserved matters pursuant to outline planning permission 19/00963/OUT were permitted in November 2022 (22/00959/REM) by Cherwell District Council.
- 2.3 Previous applications have been supported by an Extended Phase 1 Habitat Survey Report<sup>1</sup> and an Ecological Addendum<sup>2</sup>. The Warwickshire Biodiversity Impact Assessment Calculator<sup>3</sup> was utilised in 2019 as part of the outline planning application. This calculator showed that the parameters put forward at outline were capable of delivering a 0.31 gain in habitats and a 10.25 gain in linear features.
- 2.4 ACD Environmental Ltd carried out an update walkover survey in 2022 and produced an Ecological Enhancement Strategy<sup>4</sup> as part of the reserved matters.
- 2.5 The ecological reports have identified habitats of low ecological value and potential presence of protected and/or notable species was considered unlikely. Subsequently, impacts of the development were concluded to be negligible, and with the adoption of enhancement measures, the development will contribute to biodiversity net gain in both hedgerow and habitat units.

### Purpose

2.6 The purpose of this assessment is to:

- Determine the impact of the development on biodiversity by:
  - Establishing the theoretical value of biodiversity within the Application Site before and after development.
  - Assessing how the value of biodiversity within the Application Site would change following development.
- Make detailed design recommendations to ensure that the proposed development delivers a net gain to biodiversity or if it

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<sup>1</sup> REC (2017) Extended Phase 1 Habitat Survey Report. REC REFERENCE: 103828EC1R1

<sup>2</sup> E3P (2019) Preliminary Ecological Appraisal. Ref: 80-195-L1-2

<sup>3</sup> Collington, O (2019) Warwickshire Biodiversity Impact Assessment Calculator.

<sup>4</sup> ACD Environmental (2022) Ecological Enhancement Strategy. HAY23648\_EES\_Rev C

cannot achieve this then propose suitable offsetting.

## 3.0 METHODOLOGY

### Habitat Survey

- 3.1 An updated site walkover was carried out by ACD Environmental Ltd on the 3<sup>rd</sup> February 2022. This site walkover used the Phase 1 Habitat Survey methodology<sup>5</sup> to classify the Approved Development Site into habitat types and note points of difference from the ecological baseline.

### **Limitations and Precautionary Approach**

- 3.2 The update walkover survey was carried out in the winter, which is outside of the optimal season for botanical surveys. As such, the habitat assessments carried out as part of the previous Extended Phase 1 Habitat Survey and 2019 Biodiversity Impact Assessment Calculator have been used in the BIC.

### Warwickshire Biodiversity Impact Calculator

- 3.3 The Warwickshire, Coventry and Solihull Biodiversity Impact Calculator (BIC) was used to calculate the biodiversity net gain for the Approved Development Site. This BIC was used instead of the generally accepted Biodiversity Metric 3.1 so that there is consistency between the outline application and reserved matters.
- 3.4 The BIC was used in line with the Guide to Warwickshire, Coventry and Solihull Biodiversity Offsetting Biodiversity Impact Assessment Calculator v19 manual<sup>6</sup>.
- 3.5 Area is measured in hectares and the area of the habitat is either entered as individual parcels or in combination. The area of a habitat is calculated to the centre line of the boundary feature. Boundaries must not overlap or have gaps. Hedgerows and connectivity features are the centrelines of the features measured in kilometres (km).
- 3.6 Distinctiveness scores are automated once a habitat is selected.
- 3.7 Each habitat is given a distinctiveness score as part of its biodiversity value:

- High: 6

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<sup>5</sup> JNCC, (2010), *Handbook for Phase 1 habitat survey - a technique for environmental audit*. JNCC, Peterborough.

<sup>6</sup> Warwickshire County Council (2018) Guide to Warwickshire, Coventry and Solihull Biodiversity Offsetting Biodiversity Impact Assessment Calculator v19.0

- Medium-High: 5
- Medium: 4
- Medium-Low: 3
- Low: 2

3.8 Some habitat types have an automated condition score, otherwise, condition scores within the metric are as follows:

- Good: 3
- Moderate: 2
- Poor: 1

3.9 If there are exceptional reasons why a condition assessment was not able to be made for a habitat then a reasonable precautionary approach has been followed and an appropriate condition entered.

3.10 Risk factors are automated once a habitat is selected.

3.11 Defra/Natural England stipulate the following risk factors:

- Temporal Factor (aka Time to target condition): this compensatory factor accounts for the time it takes for a habitat to become fully functional to the prescribed Distinctiveness and Condition.
- Difficulty of create/restore: This compensatory factor accounts for the probability of failure for the habitat to establish within the prescribed time or that habitat not becoming what was originally intended.
- Spatial Factor: This is an incentivising factor associated to offsite compensation and is not considered in the Biodiversity Impact Assessment Sheet. However, it does affect the financial contribution calculation within the Biodiversity Compensation Sheet.



## 4.0 ASSESSMENT

### Site Habitat Baseline

#### Habitats

4.1 Habitats within the Approved Development Site based on the baseline results and updated site walkover are as follows:

- Improved grassland;
- Hedgerows and Trees;
- Dry ditch; and
- Bare Ground.

#### Improved Grassland

4.2 The majority of the Approved Development Site comprises improved, species-poor grassland, with varying sward heights as a result of its mixed-use for grazing animals. Species included in this grassland were perennial ryegrass *Lolium perenne*, cocksfoot *Dactylis glomerata*, annual meadow grass *Poa annua*, creeping buttercup *Ranunculus repens*, mouse ear *Cerastium fontanum*, field speedwell *Veronica persica* and white clover *Trifolium repens*.

#### Hedgerows and Trees

4.3 Hedgerows are present spanning the southern, northern and eastern boundaries of the Approved Development Site. The hedgerows are species-rich with standard trees and appear mature. Species within the hedgerows comprise hazel *Corylus avellana*, oak *Quercus robur*, blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna* and bramble *Rubus fruticosus* agg.

#### Dry ditch

4.4 A dry ditch is present on the road facing side of the southern hedgerow, not within the Approved Development Site.

### Bare ground

- 4.5 Small patches of bare ground are present within the Approved Development Site. These were not noted in previous reports. This contained typical species of disturbed ground including dandelion *Taraxacum officinale*, thistle *Cirsium vulgare*, ribwort plantain *Plantago lanceolata* and broadleaved dock *Rumex obtusifolius* and was likely the result of livestock presence within the Approved Development Site.
- 4.6 All of the grassland and bare ground is to be cleared to facilitate the development. The hedgerow with trees and the dry ditch are being retained as part of the proposals.

### Site Habitat/ Hedgerow Creation

- 4.7 The following habitats are proposed as part of the redevelopment of the Approved Development Site:
- Other neutral grassland;
  - Modified grassland;
  - Introduced shrub;
  - Developed land; sealed surface – buildings and hardstanding;
  - Vegetated garden;
  - SUDS Basin;
  - Urban trees; and
  - Hedgerows:
    - Species poor native hedgerow; and
    - Native species rich hedgerow.

### Other neutral grassland

- 4.8 To compensate for the anticipated loss of the improved grassland, areas of other neutral grassland will be incorporated into the design of the development. 0.7 ha

of other neutral grassland will be created within communal areas of open space. EM2 general purpose meadow mixture, EM8 meadow mix for wetlands, EG10 tussock grass mixture for wetlands and EN1 hedgerow mixture will be used to create areas of more species rich grassland within the Approved Development Site.

- 4.9 Species diverse grassland will be created alongside the retained hedgerow, and in the public open space in the north of the development. The wetland meadow mixes will be utilised in and around the SUDS basin.
- 4.10 EM2 Flowering Meadow Mix will be used in areas of the open space in the north of the Approved Development Site and will be fenced off to achieve target habitat condition. This seed mix is dominated by wildflowers, which are of value in their own right and because they attract and support invertebrates. This seed mix comprises: common knapweed *Centaurea nigra*, yarrow *Achillea millefolium*, wild carrot *Daucus carota*, tufted vetch *Vicia cracca*, bladder campion *Silene vulgaris*, common sorrel *Rumex acetosa* and field scabious *Knautia arvensis*.
- 4.11 To successfully establish the species rich grassland, it is essential that ground preparation and management is appropriate. To prepare a seed bed, weeds should be removed through repeated cultivation. The area should then be ploughed or dug to bury the surface vegetation, harrowed or raked to produce a medium tilth, and rolled to produce a firm surface.
- 4.12 Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown either by machine or hand.

#### First year management

- 4.13 The area should be cut regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain a balance between faster growing grasses and slower developing wild flowers. Any residual perennial weeds such as docks *Rumex* spp. should be dug out.
- 4.14 Going forward, the grassland should not be cut from spring through to late July/August to give the sown species an opportunity to flower.

### Tussocky Grassland

- 4.15 EG10 tussock grass mixture for wetlands will be utilised in the north and west of the Approved Development Site. This mix includes species such as cocksfoot *Dactylis glomerata*, crested dogs-tail *Cynosurus cristatus*, quaking grass *Briza media* and red fescue *Festuca rubra*. This mix will provide cover and food for invertebrates, birds, amphibians, reptiles and small mammals.
- 4.16 Once established, tussocky grassland requires minimal maintenance.
- 4.17 Unwanted perennial weeds may need control by occasional spot treatment with a herbicide. To control scrub and bramble development, tussocky areas may need cutting every 2-3 years, between October and February. For wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge.
- 4.18 Areas of tussocky grassland should be maintained along the base of hedgerows within the public spaces, through annual management with a strimmer or mower with a blade height set to at least 15cm. This will benefit invertebrates, birds and hedgehog.

### Modified grassland

- 4.19 0.11 ha of modified grassland will be created within communal areas using good quality grass turves.
- 4.20 This grassland will be kept short to enable amenity use.

### Introduced shrub

- 4.21 Introduced shrub planting in communal areas will include a sensory shrub mix. Species of value to pollinators such as hebe sp. *Hebe albicans*, *Sarcococca hookerana humilis* and *Viburnum davidii* will be used.

### Developed land; sealed surface - buildings and hardstanding

- 4.22 A total of 1.34 ha of buildings and hard standing is proposed within the Application Site.

### Vegetated Gardens

- 4.23 Large areas of private residential gardens (0.46ha) will be created as part of the development.

#### SUDS

- 4.24 A SUDS basin will be created in the north of the Approved Development Site. This will be fenced with a 450mm high knee rail for safety. EM8 meadow mixture for wetlands is proposed within the basin with aquatic species planted around the perimeter. This will include sweet flag *Acorus calamus*, lesser pond sedge *Carex acutiformis*, yellow flag iris *Iris pseudacorus*, purple loosestrife *Lythrum salicaria* and water forget-me-knot *Myosotis scorpioides*.

#### Urban trees

- 4.25 Small and medium trees will be planted throughout the Approved Development Site with a total canopy area of 0.18ha. The following tree species will be planted: hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, silver birch *Betula pendula*, wild cherry *Prunus avium*, saucer magnolia *Magnolia soulangiana*, oak *Quercus robur*, apple *Malus sylvestris*, field maple *Acer campestre*, rowan *Sorbus aucuparia* and wild service tree *Sorbus torminalis*.

#### Hedgerow - native species-rich

- 4.26 0.03km of mixed native species rich hedge is to be planted in a double staggered row, 300mm apart and at 400mm centres in each row. They are to be maintained at 1m in height and 1.8m in height adjacent to site boundaries. Species will include hazel, hawthorn, dogwood *Cornus sanguinea*, guelder rose *Viburnum opulus* and dog rose *Rosa canina*.

#### Hedgerow - native species poor

- 4.27 0.03km of hornbeam *Carpinus betulus* hedge is to be planted in a double staggered row 300mm apart and at 400mm centres in each row.

#### Hedgerow – non-native species poor

- 4.28 0.24km of Japanese holly *Ilex crenata* hedge is to be planted in a double staggered row 300mm apart and at 400mm centres in each row.

## 5.0 RESULTS AND EVALUATION

5.1 The full results of the BIC have been provided separately as an Excel document. Assessor comments have been added where they are deemed necessary to provide reasoning or justification for certain aspects of the calculation. A summary of results can be found in **Table 2** below.

**Table 2: Summary of Results**

<b>On site baseline</b>	Habitat Units	7.73
	Hedgerow Units	8.88
<b>On site post intervention</b>	Habitat Units	8.22
	Hedgerow Units	9.64
<b>Total net unit change</b>	Habitat Units	0.49
	Hedgerow Units	0.26

5.2 The proposed development is achieving a **0.49 unit net gain** in habitats and a **0.26 unit net gain** in linear features.

### **Faunal Enhancements**

5.3 It is important to note that the BIC does not explicitly deal with fauna. Instead, it uses habitat types as a proxy for the biodiversity 'value' of the species communities that make up those different habitats and its results must be considered in conjunction with other measures. To this end, a suite of artificial enhancements, which provide opportunities for fauna, will be incorporated into the scheme.

5.4 The following species-specific enhancements will be provided on-site:

5.5 As described in the original ecology report, permanent roosting provision in the form of bat boxes are to be incorporated on retained mature trees or on buildings. Bat boxes should be installed at a minimum height of 4m on a south or west facing elevation with a clear flight path to and from the boxes and of reach from cats:

- 6x Vivara Pro Build-in Woodstone Bat Tube and;

- 9x Habitat Bat Boxes- style 001 integrated into buildings.

5.6 Nesting boxes are to be incorporated into the development on the retained mature trees and are to be installed at a minimum of 2.5m on a north or east facing elevation to provide permanent nesting opportunities. Swift boxes will be installed by the eaves of houses, situated with no foliage underneath, ideally at a height of 5m or more;

- 9x Schwegler Brick Box Type 24,
- 9x Manthorpe Swift Brick and;
- 9x Vivara Pro WoodStone House Sparrow Nest Box.

5.7 To allow hedgehogs to continue foraging effectively within the development, holes will be installed in the garden fences (Appendix 2). The holes must be a minimum of 13x13cm and will be marked as a hedgehog highway. New residents are to be provided with information sheets explaining the purpose of the holes and ensuring as far as possible that the passes remain unblocked.

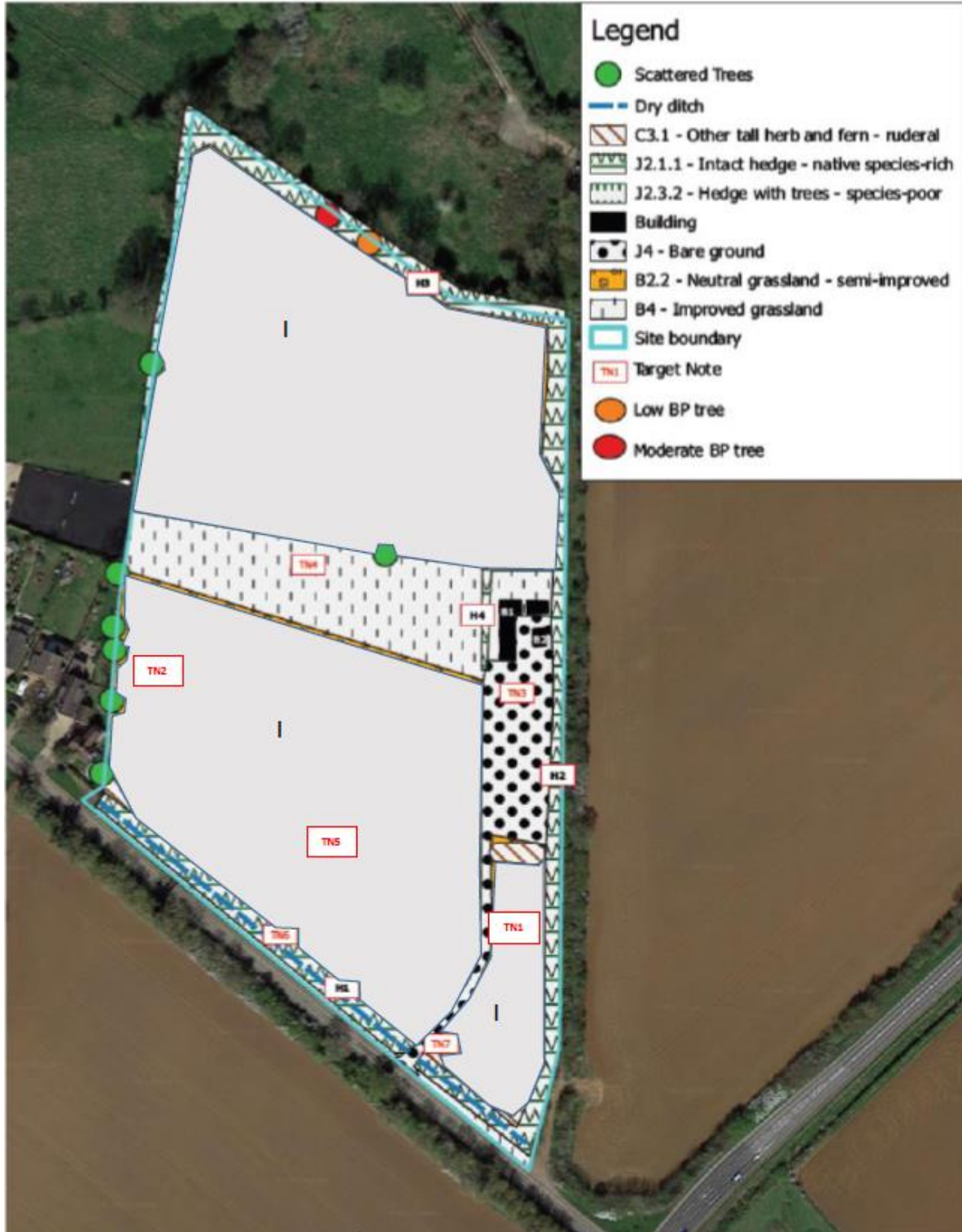
5.8 Hedgehog highways will facilitate the movement of other species that may be using The Site, such as amphibians, reptiles, rabbits and small mammals.

## 6.0 CONCLUSION

- 6.1 The proposals will deliver a **0.49 unit net gain in habitats** and a **0.26 unit net gain in linear features**.
- 6.2 These results are dependent on adherence to the *Soft Landscaping Proposals* and measures outlined within this report.
- 6.3 Faunal enhancements in the form of bat and bird boxes and hedgehog holes in fences will also contribute to an increase in biodiversity.
- 6.4 The original plan was to retain and enhance the existing habitats, however enhancement is not feasible due to how the new grassland would be created and this has negatively impacted the score. The areas of EM2 wildflower grassland will be fenced off from public access and this will increase the target condition to achieve a net gain in habitat units.



# APPENDIX 1: BASELINE HABITAT PLAN<sup>7</sup>



<sup>7</sup> REC 2017- Preliminary Ecological Appraisal

## APPENDIX 2: HABITAT CREATION PLAN





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