

Former Bartons Infant School, Romney Broadwalk, North Bersted, West Sussex

Biodiversity Net Gain Report



Former Burtons School – BNG
Report
EHM Ltd



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Executive Summary

EHM Ltd has been commissioned to carry out a Biodiversity Net Gain (BNG) assessment of a disused school in North Bersted, West Sussex.

The local planning authority requires the development to demonstrate a net gain in biodiversity. The measurement for assessing biodiversity net gain will be the Natural England Biodiversity Metric 3.1. This will be used to provide a baseline assessment of habitats on site and a projected value of habitats post development following the proposed enhancements.



The Biodiversity Metric 3.1 includes a rule that requires that lost habitats must be compensated for like for like” or “like for better” basis. New or restored habitats should aim to achieve a higher distinctiveness and/or condition than those lost.

Results

The headline results of the DEFERA Metric 3.1 calculations are shown below. As can be seen the on-site net change in Habitat units is 11.88%. This is largely met by retaining and enhancing scrub habitat on the east of the site as well as retaining several medium and large trees. The score is further helped by the inclusion of wildflower areas in the post development landscaping as well as several new trees.

The onsite hedgerow units show a net gain of over 13%. This is achieved by creating a species rich hedgerow to the east of the site.

On-site baseline	Habitat units	3.91
	Hedgerow units	0.83
	River units	0.00
On-site post-intervention (including habitat retention, creation & enhancement)	Habitat units	4.37
	Hedgerow units	0.92
	River units	0.00
On-site net % change (including habitat retention, creation & enhancement)	Habitat units	11.88%
	Hedgerow units	13.17%
	River units	0.00%
Off-site baseline	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (including habitat retention, creation & enhancement)	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	6.46
	Hedgerow units	8.11
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	11.88%
	Hedgerow units	13.17%
	River units	0.00%

Recommendations

Recommendations are made, including:

- Compile detailed biodiversity enhancement and management plans

1. Introduction

EHM Ltd has been commissioned to carry out a Biodiversity Net Gain (BNG) assessment of a disused school in North Bersted, West Sussex. This assessment follows on from a Preliminary Ecological Assessment (PEA) conducted by EHM Ltd¹.

1.1 Development outline

EHM Ltd understands that the development will involve the demolition of the existing school buildings on site and construction of approximately 21 dwellings on the site. The proposed development will be carried out by West Sussex Property Development LLP.

1.2 Site Description and Context

The site covers an area of approximately 6100m² and is located within the centre of the town of North Bersted near Bognor Regis in West Sussex. The site consists of the buildings and grounds of the Former Bartons Infant school. The site is accessed off Romney Broadwalk to the west of the site via a surfaced driveway that opens out into parking areas. The site contains a relatively large flat roofed building with a pitched tiled section to the north. Habitats present include areas of amenity grassland, scrub, introduced shrubs as well as some mature and semi-mature trees. The site had evidently been vacant for some time with some of the habitats appearing overgrown, though the grassland appeared to be regularly mown. The buildings had been bordered up and secured with security doors.

The site is located within an urban residential area, bordered by housing to the north, south and west. The eastern edge of the site appeared to border an area of mature trees following the course of a ditch that is connected to an open greenspace located to the north east of the site. The local landscape is dominated by residential areas with a few pockets of open green space dotted across the local area. Though within an urban area the open countryside is located within 500m to the north of the site and the coast is located within 3km to the south.

The site (as shown on figure 1) is located in North Bersted, West Sussex; SU 9253 0090. A location of the habitats is shown on the map in appendix 1.

¹ James Webster (EHM Ltd.), 01/11/21. Former Bartons Infant School, Romney Broadwalk, North Bersted, West Sussex. Preliminary Ecological Assessment. RP-HED-040.



Figure 1: Approximate boundary of the site.

1.4 limitations

The contents of this report are based on a single site visit and a search of the local records bureau. Though the survey and interpretations of the data were carried out by a competent ecologist there may be things that have been overlooked or missed.

1.5 Relevant Legislation and Planning policies

A full list of UK wildlife legislation and designations can be seen in the appendix. Relevant legislation implications for this site include;

- The Conservation of Habitats and Species Regulations 2010 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way Act 2000;
- The Natural Environment and Rural Communities Act (NERC Act) 2006;

1.5.1 Planning Policies

Planning policies, both local and national, may affect any proposed development. The proposals were assessed against policy guidance provided by the National Planning Policy Framework (NPPF, 2021) as well as local and district planning policies. The Arun Local Plan 2011-2031² (adopted July 2018) contained relevant policies such as;

- Policy GI SP1: Green Infrastructure and development
- Policy ENV SP1: Natural Environment
- Policy ENV DM1: Designated Sites of biodiversity or geological importance
- Policy ENV DM3: Biodiversity Opportunity Areas
- Policy ENV DM4: Protection of Trees
- Policy ENV DM5: Development and Biodiversity

² <https://www.arun.gov.uk/adopted-local-plan/>

2. Methods

A Biodiversity Net Gain Assessment has been conducted using the DEFERA Biodiversity Metric 3.1. This was conducted by a competent and qualified ecologist. The methodology set out the Biodiversity Metric 3.1 User guide was followed³. Biodiversity metric 3.1 uses habitats, the places in which species live, as a proxy to describe biodiversity. These habitats are converted into 'biodiversity units'. These biodiversity units are the 'currency' of the metric.

2.1 Mitigation Hierarchy

Biodiversity metric 3.1 supports and reinforces the application of the mitigation hierarchy which is an important principle of ecological good practice. Applying the mitigation hierarchy means aiming to retain habitats in situ and avoiding or minimising habitat damage so far as possible, before looking to enhance or recreate habitats. This sequential approach is encouraged by biodiversity metric 3.1 because it allows overall biodiversity gains to be achieved more easily through the avoidance of on-site habitat losses, rather than relying solely on the creation of new habitat or the enhancement of existing habitat. It works this way because the metric applies multipliers that are based on the risks inherent in creating or restoring habitat, and which are not applicable when existing habitat is safeguarded.

2.1.1 Statutory Obligations

The use of the Biodiversity metric does not negate the projects statutory obligations in relation to protected species and habitats. The PEA should be referenced for details of these obligations in particular the potential impact to protected species such as nesting birds, bats, amphibians and reptiles.

2.2 Calculating Units

Biodiversity units are calculated using the size of a parcel of habitat and its quality. The metric uses habitat area (measured in hectares) as its core measurement, except for linear habitats (hedgerows and lines of trees and rivers and streams) where habitat length (measured in kilometres) is used.

To assess the quality of a habitat biodiversity metric 3.1 scores:

- Habitats of different types, such as woodland or grassland, according to their relative biodiversity value or distinctiveness. Habitats that are scarce or declining typically score highly relative to habitats that are more common and widespread.
- The condition of a habitat. Scoring the biodiversity value of the habitat relative to others of the same type.

³ STEPHEN PANKS A, NICK WHITE A, AMANDA NEWSOME A, MUNGO NASH A, JACK POTTER A, MATT HEYDON A, EDWARD MAYHEW A, MARIA ALVAREZ A, TRUDY RUSSELL A, CLARE CASHON A, FINN GODDARD A, SARAH J. SCOTT B, MAX HEAVER C, SARAH H. SCOTT C, JO TREWEEK D, BILL BUTCHER E AND DAVE STONE A 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England.

- Being 'better' and 'more joined-up' are important facets of habitats that can contribute to halting and reversing biodiversity declines, so the metric also accounts for whether or not the habitat is sited in an area identified, typically in a relevant local strategy or plan, as being of strategic significance for nature.

2.3 Principles and Rules of the Biodiversity Matrix

2.3.1 Principles

The Biodiversity matrix works under the following principles;

- **Principle 1:** The metric does not change the protection afforded to biodiversity. Existing levels of protection afforded to protected species and habitats are not changed by use of this or any other metric. Statutory obligations will still need to be satisfied.
- **Principle 2:** Biodiversity metric calculations can inform decision-making where application of the mitigation hierarchy and good practice principles¹⁴ conclude that compensation for habitat losses is justified.
- **Principle 3:** The metric's biodiversity units are only a proxy for biodiversity and should be treated as relative values. While it is underpinned by ecological evidence the units generated by the metric are only a proxy for biodiversity and, to be of practical use, it has been kept deliberately simple. The numerical values generated by the metric represent relative, not absolute, values.
- **Principle 4:** The metric focuses on typical habitats and widespread species; important or protected habitats and features should be given broader consideration.
 - Protected and locally important species needs are not considered through the metric, they should be addressed through existing policy and legislation.
 - Impacts on protected sites (e.g. SSSIs) and irreplaceable habitats are not adequately measured by this metric. They will require separate consideration which must comply with existing national and local policy and legislation. Data relating to these can be entered into the metric, so as to give an indicative picture of the biodiversity value of the habitats present on a site, but this should be supported by bespoke advice.
- **Principle 5:** The metric design aims to encourage enhancement, not transformation, of the natural environment. Proper consideration should be given to the habitats being lost in favour of higher-scoring habitats, and whether the retention of less distinctive but well-established habitats may sometimes be a better option for local biodiversity. Habitat created to compensate for loss of natural or semi-natural habitat should be of the same broad habitat type (e.g., new woodland to replace lost woodland) unless there is a good ecological reason to do otherwise (e.g., to restore a heathland habitat that was converted to woodland for timber in the past).
- **Principle 6:** The metric is designed to inform decisions, not to override expert opinion. Management interventions should be guided by appropriate expert ecological advice and not just the biodiversity unit outputs of the metric. Ecological principles still need to be applied to ensure that what is being proposed is realistic and deliverable based on

local conditions such as geology, hydrology, nutrient levels, etc. and the complexity of future management requirements.

- **Principle 7:** Compensation habitats should seek, where practical, to be local to the impact. They should aim to replicate the characteristics of the habitats that have been lost, taking account of the structure and species composition that give habitats their local distinctiveness. Where possible compensation habitats should contribute towards nature recovery in England by creating 'more, bigger, better and joined up' areas for biodiversity.
- **Principle 8:** The metric does not enforce a mandatory minimum 1:1 habitat size ratio for losses and compensation but consideration should be given to maintaining habitat extent and habitat parcels of sufficient size for ecological function. A difference can occur because of a difference in quality between the habitat impacted and the compensation provided. For example, if a habitat of low distinctiveness is impacted and is compensated for by the creation of habitat of higher distinctiveness or better condition, the area needed to compensate for losses can potentially be less than the area impacted. However, consideration should be given to whether reducing the area or length of habitat provided as compensation is an appropriate outcome.

2.3.2 Rules

The following rules apply to the biodiversity matrix;

- **Rule 1:** Where the metric is used to measure change, biodiversity unit values need to be calculated prior to the intervention and post-intervention for all parcels of land / linear features affected.
- **Rule 2:** Compensation for habitat losses can be provided by creating new habitats, or by restoring or enhancing existing habitats. Measures to enhance existing habitats must provide a significant and demonstrable uplift in distinctiveness and/or condition to record additional biodiversity units.
- **Rule 3:** 'Trading down' must be avoided. Losses of habitat are to be compensated for on a "like for like" or "like for better" basis. New or restored habitats should aim to achieve a higher distinctiveness and/or condition than those lost. Losses of irreplaceable or very high distinctiveness habitat cannot adequately be accounted for through the metric.
- **Rule 4:** Biodiversity unit values generated by biodiversity metric 3.0 are unique to this metric and cannot be compared to unit outputs from version 2.0, the original Defra metric or any other biodiversity metric. Furthermore, the three types of biodiversity units generated by this metric (for area, hedgerow and river habitats) are unique and cannot be summed.
- **Rule 5:** It is not the area/length of habitat created that determines whether ecological equivalence or better has been achieved but the net change in biodiversity units. Risks associated with creating or enhancing habitats mean that it may be necessary to create or enhance a larger area of habitat than that lost, to fully compensate for impacts on biodiversity.

- **Rule 6:** Deviations from the published methodology of biodiversity metric 3.0 need to be ecologically justified and agreed with relevant decision makers. While the methodology is expected to be suitable in the majority of circumstances it is recognised that there may be exceptions. Any local or project-specific adaptations of the metric must be transparent and fully justified.

3 Habitats Present

3.1 Habitat Description (on-site)

The following habitat descriptions are taken from the PEA report. The location and extent of the habitats are shown in the figure in appendix 1. TN refers to a target note, and the habitat codes refer to the Phase I habitat classification. The UKHAB habitat description has been added following the habitat translation table set out in the DEFRA metric.

3.1.1 Hardstanding (J3.5) & Buildings (J3.6)/ Urban- developed land; sealed surfaces

The site contains a single building that is located towards the north west of the site. The building predominately constructed of brick walls with a flat felt roof. This was largely single storey apart from a section on the eastern side which was two storeys' high. To the north of the building is a pitched tiled roof section with two ridges, at 90 degrees to each other forming a rough L shape.

As will be discussed the building was assessed for its potential to support protected and notable species. The building is considered as having a benefit at a site level.

A wooden pavilion is located in the southeast corner of the site. This was an open structure with a pitched roof.

Areas of hardstanding were located around the site. These were mainly concreted areas around the building that were likely previously used for car parking and play areas. Some surfaced pathways are also located across the site. The areas of hardstanding are becoming overgrown with shrubs in places though in general provide little opportunities for wildlife.

3.1.2 Amenity Grassland (J1.2)/ Modified grassland

The site contains relatively large areas of amenity grassland that appeared to be regularly mown. Though the majority of the grassland was uniform in structure some taller sections were noted in particular in the south east corner amongst some tall trees (TN1) and against the edges of the scrub to the east. Species present included; Meadow Grass (*Poa annua*), Yorkshire Fog (*Holcus lanatus*), Fleabane (*Pulicaria dysenterica*), Wood Avens (*Geum urbanum*), Ragwort (*Jacobaea vulgaris*), Yarrow (*Achillea millefolium*) and Hawkbit (*Leontodon hispidus*). The amenity grasslands extends across the majority of the south east of the site, to the rear of the building, as well as in patches to the west of the buildings, at the front of the school.

The grassland mainly consisted of short uniform sward though there were some longer more structurally diverse sections around the edges. The short uniform sward across the majority of

the habitat will likely limit the possibility of protected and notable species being present, though the areas of longer sward provide some opportunities.

3.1.3 Mixed Scattered Trees (A3.3)/ Urban Trees

The site contains a number of mature and semi mature scattered trees. These have been labelled on the habitats map in appendix 1 and are summarised here.

T1- This is a group of semi mature trees, located on the northeast of the site, species included; Alder (*Alnus glutinosa*), Silver Birch (*Betula pendula*) and Cherry trees (*Prunus spp.*). Cherry trees appeared to be in poor health. The scattered trees along with the dense scrub in this area create woodland like habitat.

T2- This is a group of mature Oak (*Quercus robur*) trees that run along the fence line to the east of the site. These were tall trees clad in Ivy that overhung the site.

T3- Is a group of mixed large mature trees located towards the south east of the site. This small copse of trees consisted mainly of Ash (*Fraxinus excelsior*) with some Silver Birch also present. These trees were tall and mature in nature.

T4- Consisted of three semi mature Cherry trees, located to the south west of the site in front of the school buildings.

T5- Contained a large Maple (*Acer spp.*) tree on site with an Alder tree on the bordering property, overhanging the site. These were tall mature trees clad in Ivy (*Hedera helix*).

T6- Was a group of three tall and mature Alder trees located to the north of the site in front of the main entrance.

Other smaller scattered trees were located across the site including some relatively newly planted trees still attached to tree stumps.

The scattered trees provide an important habitat resource on site and provide connectivity across the local landscape. They have potential to support nesting birds and likely provide suitable commuting and foraging habitat for bats.

The scattered trees have been classified as urban trees for the purpose of the BNG calculations as this best describes this habitat on site.

3.1.4 Scrub (A2.1)/ Heathland and Shrub- mixed scrub

The site contains areas of dense scrub mostly located around the edges of the site. A dense section of scrub is located in the north east corner of the site. This is dominated by Bramble (*Rubus fruticosus*) and Blackthorn (*Prunus spinosa*), with occasional ornamental shrub. Some saplings were noted along with a ground flora including Yarrow, Wood Avenues, Hawkbit (*Leontodon hispidus*) and Ribwort Plantain (*Plantago lanceolata*). Brush piles were noted in the corner. The eastern perimeter of the site was dominated by bramble scrub that extended over the fence line. Blackthorn and Hawthorn (*Crataegus monogyna*) were present along with Ivy, Dock (*Rumex obtusifolius*) and Ragwort. The scrub became thicker towards the south east

corner of the site and contained a varied margin with patches of longer grass present in places. Patches of dense Buddleia (*Buddleja spp.*) scrub was located around the building.

A strip of scrub is located along the eastern edge of the site outside of the boundary fence running along the top of a steep bank. This consists mainly of dense bramble with pockets of Blackthorn, hawthorn and elder with occasional Buddleia. The scrub is located amongst some of the mature Oka trees located on the edge of the site. This section of scrub borders an open area located adjacent to a small stream known as Aldingbourne Rife.

The scrub provides a suitable habitat for species of mammal such as hedgehog and likely supports nesting birds. The patches of scrub on site provide a varied habitat and increase the micro-habitat diversity on site.

3.1.5 Hedgerows (J2.1.2)/ Native Species Rich Hedgerow

A native species diverse hedgerow runs along the southern boundary of the site. This contained a gap towards the eastern end. This was an established hedgerow that is tall and scrubby in places with a more formal square shape towards the eastern end. Species present included; Hazel (*Corylus avellana*), Field Maple (*Acer campestre*), Hornbeam (*Carpinus betulus*), Hawthorn, Elder (*Sambucus nigra*), Bramble and Ash.

A tall dense conifer hedgerow is located in south west boundary of the site. This appeared to be maintained into a rough square shape.

The hedgerow along the southern boundary provides a suitable habitat for nesting birds as well as small mammal species. The hedgerow likely provides suitable habitat for foraging and commuting bats.

3.1.6 Introduced shrub (J2)/ Introduced shrub

The site contains a number of areas of introduced or ornamental shrubs. Dense shrubs with ornamental shrubs are located along the North West boundary of the site below some overhanging trees. This contained species such as Laurel and Cotoneaster with thickets of bramble. Dense and tall in places with Ivy, Bindweed (*Convolvulus arvensis*) and Common Nettle (*Urtica dioica*) also present. Other ornamental planting is located along the east side of the building and included species such as bamboo. Patches of smaller shrubs were present across the site.

The shrubs, though ornamental in nature, contained a varied structure and contain a good diversity of species.

5. Biodiversity Net Gain (BNG) Assessment

5.1 Net Gain Assessment

Mandatory net gain as per the Environment Act (2022) is likely to come into effect until late 2023. EHM understands that Adur and Worthing Council will be updating their local plan to include a minimum 10% net gain, at present projects are encouraged to achieve a 10% net gain or at least show a net gain. Therefore, this assessment will proceed on the basis that the goal is to achieve a 10% net gain or at least demonstrate a biodiversity net gain.

The measurement for assessing biodiversity net gain will be the Natural England Biodiversity Metric 3.1⁴. This will be used to provide a baseline assessment of habitats on site and a projected value of habitats post development following the proposed enhancements.

The Biodiversity Metric 3.1 includes a rule that requires that lost habitats must be compensated for like for like” or “like for better” basis. New or restored habitats should aim to achieve a higher distinctiveness and/or condition than those lost.

5.2 Baseline Assessment

The baseline assessment is calculated by categorising the broad habitat and habitat type, the Phase I habitat category is converted into the corresponding UK Habitat Classification. This is based on the assessment carried out in section 3.1. The metric then assigns the habitat distinctiveness, the distinctiveness of a habitat is considered as a component of the quality of a habitat parcel. The distinctiveness band of each habitat has been preassigned in biodiversity metric 3.1.

A strategic significance is also assigned to each habitat type. Strategic significance relates to the spatial location of a habitat parcel and works at a landscape scale. It gives additional biodiversity unit value to habitats that have been identified as habitats of strategic importance to that local area. For this assessment the Biodiversity and Planning in Sussex document has been used which lists priority habitats⁵.

Biodiversity metric 3.1 uses habitat condition as one of the measures of habitat quality. The condition assessment approach used in biodiversity metric 3.1 measures a habitat parcel against the ecological optimum state for that habitat. The biodiversity matrix provides a list of assessment criteria for each habitat type. The condition of the habitat is then assessed against these criteria; the more criteria present within the habitat the higher the assessed condition.

⁴ STEPHEN PANKS A, NICK WHITE A, AMANDA NEWSOME A, MUNGO NASH A, JACK POTTER A, MATT HEYDON A, EDWARD MAYHEW A, MARIA ALVAREZ A, TRUDY RUSSELL A, CLARE CASHON A, FINN GODDARD A, SARAH J. SCOTT B, MAX HEAVER C, SARAH H. SCOTT C, JO TREWEEK D, BILL BUTCHER E AND DAVE STONE A 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England.

⁵ <https://tinyurl.com/2n9d1oo-cloudfront.net/files/sxsc-planning-guidance-2019.pdf>

5.2.1 Baseline assessment scores

The table below summarises the baseline habitat assessment. The majority of the trees on site will be classed as 'urban' trees. These are split into three categories; 'small' ($\leq 30\text{cm DBH}$), 'medium' ($30 < \leq 90\text{cm DBH}$) and 'large' ($> 90\text{ cm DBH}$).

Broad habitat	Habitat type	Area (ha)	Distinctiveness	Condition	Strategic Significance
On Site Area					
Urban	Developed land; sealed surface	2.5	V.Low	N/A - Other	Low Strategic Significance
Grassland	Modified grassland	0.38	Low	Poor	Low Strategic Significance
Urban	Introduced shrub	0.015	Low	Poor	Low Strategic Significance
Heathland and shrub	Mixed scrub	0.0604	Medium	Poor	Low strategic significance
Urban	Urban Tree	Small- #14 Medium- #19 Large- #7	Medium	Moderate	Medium strategic significance
On site Hedgerow					
Hedgerow	Native Species Rich Hedgerow	0.085	Medium	Moderate	High strategic significance
Hedgerow	Hedge Ornamental Non Native	0.034	V.Low	Low	Low strategic significance
On-site Area Baseline					3.91 Habitat Units
On site Hedgerow Baseline					0.82 Hedgerow Units

Table 1: Summary of BNG baseline assessment.

5.3 Proposed Enhancements and Post development assessment

It is understood that the project needs to achieve a 10% net gain in biodiversity. To help achieve this, several discussions within the design team have been carried out to develop a suitable design that allows the project to achieve a net gain in biodiversity. The final design includes retaining and enhancing habitats on site, creation of new habitats and off-site habitat creation.

Plans showing the approximate layout of the habitats can be seen in appendix 2. The tables below summarises the enhanced and created habitats based on the habitat classification used in the BNG calculations, the planting mixes shown in appendix 2 that each habitat classification represents are shown in parenthesis.

5.3.1 Retained/ Enhanced Habitats and created habitats.

The table below summarises the habitats that are recommended to be retained and created as well as the proposed enhancements required to meet the condition change. The proposed enhancements are designed to help ensure the retained habitats meet the Condition Assessment Criteria of the Biodiversity Matrix 3.1.

To achieve the desired condition of the enhanced and newly created habitats it will be important that appropriate measures are carried out. The tables above provide some broad actions and measures that will likely be required. The landscape plan shown in appendix 2 details some of the planting that will be carried out. The scrub in the east of the site will be enhanced with additional native scrub and wildflower planting. Undesirable species will be removed.

The central grassland area will consist predominantly of a wildflower grassland habitat that will resemble a neutral grassland habitat. A mixture of native and ornamental trees will be added to the site. The majority of newly planted trees will be within garden habitats so will be classed as 'vegetated garden' instead of urban trees. The only newly planted trees to be counted as 'urban tree' within the metric are those within communal areas (13x medium trees) as these can more easily be managed for the long term to ensure the desired condition is met. The retained trees within garden habitats will remain as urban trees and there will likely need to be a legal mechanism to ensure their long-term management and protection.

The PEA recommended that bat and bird boxes be included in the building and landscaping to provide additional ecological benefit. Log piles should also be added to areas of retained habitat to create and additional ecological benefit.

An additional section of hedgerow will be created on the eastern boundary of the site to ensure the required net gain is met.

Once the extent of the habitat creation and enhancement measures are agreed a specific and detailed biodiversity enhancement plan should be compiled. This will likely need to be agreed with the LPA as a condition of the development. A long term habitat management plan will also be required to ensure that the habitats reach their desired condition and are managed appropriately for biodiversity enhancement.

The category from the landscape plan (appendix 2) are shown in parentheses next to the metric habitat classification.

Newly Created Habitat	Area (ha)	Distinctiveness	Desired condition	Strategic Significance	Required Enhancements/ Management
Developed land; sealed surface	0.4677	V.Low	N/A - Other	Low Strategic Significance	Erect Bird and Bat boxes within fabric and on the building.
Urban tree-Retained (Existing tree retained)	Small- #5 Medium- #12 Large- #7	Medium	Good	Medium strategic significance	- Plant trees across site - Plant to required horticultural standards. - Manage to horticultural standard - Allow dead wood to be retained where possible - Manage to horticultural standard - Allow canopy/ micro habitat to develop
Urban Tree-planted (#6 proposed trees, #7 proposed multi-stem trees)	Medium- #13				
Vegetated garden (#1 lawn turf, #4 Ornamental shrub plantings, #5 native medium hedges,)	0.1702	Low	Poor	Low Strategic Significance	Condition fixed as 'poor'
Neutral Grassland ((#3 wildflower, #12 swale)	0.0175	Medium	Good	Medium Strategic Significance	- Sow wildflower mix with 9-15 species/ m². Example mix EM3⁶. - Varied sward height- >20% <7cm and >20% <7cm. - Maintain Bracken <20% and scrub <5%. - Maintain an absence of non native species and <5% undesirable species/ damage.
Modified Grassland ((#1 lawn turf, central area)	0.0119	Low	Good	Low Strategic Significance	- Suggest low grow meadow mix with at least 6-8 species/ m². Suggest wildflower lawns and meadows⁷. - Varied sward height- >20% <7cm and >20% <7cm. - Maintain Bracken <20% and scrub <5%. - Maintain an absence of non-native species and <5% undesirable species/ damage.
Ruderal/ Ephemeral (Native ground cover)	0.0021	Medium	Good	Medium strategic significance	- Create varied structure without a single ecotone not accounting for more than 80% of habitat. - Plant a diversity of native species - Maintain absence of non-native invasive species
Mixed scrub-retained (#10 Existing vegetation)	0.0349	Medium	Good	Medium strategic significance	Remove undesirable species; cherry laurel <i>Prunus laurocerasus</i>, snowberry <i>Symphoricarpos spp.</i>, buddleia <i>Buddleja spp.</i>, cotoneaster <i>Cotoneaster spp</i>

⁶ <https://wildflowerlawnsandmeadows.com/mixtures/view/3>

⁷ <https://www.wildflowerlawnsandmeadows.com/product/wild-flower-lawn-seed-mix/>

Newly Created Habitat	Area (ha)	Distinctiveness	Desired condition	Strategic Significance	Required Enhancements/ Management
retained and enhanced)					• Add additional mixed native scrub species • Ensure at least three woody species present in each section of scrub- plant native species to replace undesirable species. • Sow wildflower grassland mix in retained areas to south east of site, e.g. EW1⁸ • Add log piles.
Native Species Rich Hedgerow (Native hedges)	0.108 (km)	Low	Moderate	High Strategic Significance	• Plant mixed native species hedgerow • Maintain an average height of at least 1.5m along its length. • Maintain an average width of at least 1.5m along its length. • Ensure there are no gaps present • Limit trimming to winter months, where possible, and trim sections on rotation to maintain a diversity of structure.

Table 2. Summary of enhancement of retained habitats and newly created habitats.

⁸ <https://wildlife.co.uk/mature/crw/11>

5.4 BNG Results

5.4.1 BNG Metric Results

The headline results of the DEFERA Matrix 3.1 calculations are shown below. As can be seen the on-site net change in Habitat units is 11.88%. This is largely met by retaining and enhancing scrub habitat on the east of the site as well as retaining several medium and large trees. The score is further helped by the inclusion of wildflower areas in the post development landscaping as well as several new trees.

The onsite hedgerow units show a net gain of over 13%. This is achieved by creating a species rich hedgerow to the east of the site.

On-site baseline	Habitat units	3.91
	Hedgerow units	0.82
	River units	0.00
On-site post-intervention (including habitat retention, creation & enhancement)	Habitat units	4.37
	Hedgerow units	0.92
	River units	0.00
On-site net % change (including habitat retention, creation & enhancement)	Habitat units	11.88%
	Hedgerow units	13.17%
	River units	0.00%
Off-site baseline	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (including habitat retention, creation & enhancement)	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.46
	Hedgerow units	0.11
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	11.88%
	Hedgerow units	13.17%
	River units	0.00%

Figure 2: Headline BNG results for Option A.

5.4.2 BNG Trading Rules summary

Rule 3 of the BNG (section 2.3.2) requires that trading down be avoided to ensure losses of habitat are to be compensated for on a “like for like” or “like for better” basis. The option above is able to meet the trading rules. This is largely due to retaining and enhancing areas of scrub as well as creating new areas of grassland and scrub on and off site.

6. Discussion & Recommendations

6.1 BNG Discussion

The general layout of the proposed development allows for the inclusion of new green space as well as retention and enhancement of existing habitats.

The proposed development achieves a net gain in habitat units on site. This is largely achieved by retention and enhancement of the scrub bordering the eastern edge of the site. The net gain score is also assisted by the retention of several of the mature trees on site. The retention of these habitats will help ensure the recommendations set out in the PEA are met.

The proposed development will also incorporate new tree planting across the garden areas and community green space (though these will be included within a vegetated garden habitat classification). The central green space will provide an area of wildflower grassland as well as public amenity space. The use of a short-mown wildflower seed mix in the proposed modified grassland areas will help to provide a habitat that benefits wildlife as well as providing a 'play area' for the local community.

Though an existing hedgerow will be impacted as part of the proposed development the plans include creating a new hedgerow along the eastern boundary of the site. This will help to screen the new development as well as providing wildlife corridors and habitats.

6.2 Recommendations

6.2.1 Biodiversity Enhancement & Management Plans

To ensure the enhanced and newly created habitats more detailed enhancement plans will be required. These should include full details of proposed planting including species and preferred planting methodology & time of year as well as details of bird and bat boxes. Detail of ecological protection measures during construction should also be included.

A suitable long term management plan for the habitats on site will need to be compiled to ensure habitats reach their desired condition. This management plan will need to have an appropriate person or persons, or company assigned for the responsibility of managing the site in long term. These plans will likely require agreement with the LPA as a condition of the proposed development.

7. APPENDIX

7.1 Appendix 1: Habitat Map



7.2 Appendix 2: Proposed Development



7.3 Appendix 3: BNG details

7.3.1 Baseline Data on site habitat units

Habitat and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Total habitat units
Urban	Developed land; sealed surface	0.25	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
Grassland	Modified grassland	0.38	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	1.52
Urban	Introduced shrub	0.015	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.03
Heathland and shrub	Mixed scrub	0.9604	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or a better habitat required	0.24
Urban	Urban Tree	0.2405	Medium	Moderate	Location ecologically desirable but not in local strategy	Same distinctiveness or a better habitat required	2.12
Total habitat area		0.95					3.91

7.3.2 Baseline data on site Hedgerow

UK Habitats - existing habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Hedge number	Hedgerow type	Length (km)	Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Total hedgerow units
1	Native Species Rich Hedgerow	0.085	Medium	Moderate	Formally identified in local strategy	Like for like or better	0.78
2	Hedge Ornamental Non Native	0.034	V.Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness band or better	0.03
		0.12					0.82

Broad Habitat	Proposed habitat	Area (hectares)	Disturbance	Condition	Strategic significance	Temporal multiplier			Habitat multiplier or Evershed
			Habitat concern	Condition		Strategic significance	Standard or adjusted time to target condition	Final time to target condition/excess	
Urban	Developed land; sealed surface	0.4677	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	6	Medium	0.98
Urban	Vegated garden	0.1702	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	1	Low	0.33
Grassland	Mown/grassland	0.0119	Low	Good	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	7	Low	0.96
Urban	Urban Tree	0.4761	Medium	Good	Location ecologically desirable but not in local strategy	Standard time to target condition applied	10	Low	2.01
Grassland	Other neutral grassland	0.0175	Medium	Good	Location ecologically desirable but not in local strategy	Standard time to target condition applied	10	Low	0.16
Sparcely vegetated land	Ephemeral	0.0021	Low	Good	Location ecologically desirable but not in local strategy	Standard time to target condition applied	5	Low	0.01
	Total habitats area	1.17							2.97

[illegible]

	Proposed habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Extinction risk multiplier	Hedge units delivered
New hedge number	Habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
1	Native Species Rich Hedgerow	0.108	Medium	Moderate	Formally identified in local strategy	Standard time to target condition applied	5	Low	0.23
		0.11							0.33

[illegible]

- Developed land; sealed surface
- Vegetated garden
- Ruderal/Ephemeral
- Other neutral grassland
- Modified grassland
- Mixed scrub
- Native Species Rich Hedgerow
- Urban tree retained
- Urban tree planted

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7.4 Appendix 4: Legislation

Protected species have protection under national legislation such as the Wildlife and Countryside Act 1981 and European legislation such as the Habitats Directive.

Please note the following:

- (1) If there is no record of a particular protected species, this does not signify that the species is absent from the site in question. It may mean that it has not been recorded, that the site has not been surveyed for this species, or that data relating to its presence has not been made available to us.
- (2) The presence of a protected species record does not mean that the species is still present. It means that the species was recorded at that time and place. The implications of the record should be further evaluated, and a survey to establish the current status may be required.
- (3) The following summary of legislation is designed purely as a basic guide, if any action is to be taken regarding any of the protected species listed, then it is imperative that the full relevant legislation be consulted.

WILDLIFE PROTECTION LEGISLATION IN ENGLAND

Legislation that protects wildlife in England exists at the European and national level.

European Law

The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) was aimed at ensuring conservation and protection of all wild plants and animals, increasing cooperation between states, and affording special protection to the most vulnerable or threatened species. It was implemented by the EC Birds Directive (Council Directive 79/409/EEC) and the EC Habitats Directive (Council Directive 92/43/EEC).

The Bonn Convention on Migratory Species of Wild Animals (1979 & 1994) requires the protection of migratory animals. It was implemented by the EC Birds Directive (Council Directive 79/409/EEC) and the EC Habitats Directive (Council Directive 92/43/EEC).

The EC Habitats Directive aims to establish a network of protected areas in order to maintain the distribution and the abundance of threatened species and habitats. A number of species are listed in the annexes.

Annex II lists animals and plants whose conservation requires the designation of Special Areas of Conservation (SACs).

Annex IV lists animals and plants in need of strict protection. For the animals, this prohibits deliberate capture, killing, disturbance (especially during breeding period), destruction or taking of eggs from wild, and destruction or deterioration of breeding sites or resting places. For the plants, this prohibits deliberate picking, collecting, uprooting, cutting, destruction, and trade in entire plants or parts, at all stages of life.

Annex V lists animals and plants for which taking in the wild may be subject to management measures

National Law

Wildlife and Countryside Act The Wildlife and Countryside Act 1981 (as amended) is the main source of legal protection for wildlife in England and was strengthened by the Countryside and Rights of Way Act 2000. A statutory five-yearly review of Schedules 5 and 8 (protected wild animals and plants) is undertaken by the relevant authorities. Species protection is provided under Schedules 1, 5, 6 and 8:

Schedule 1 lists bird species that are rare, endangered, declining or vulnerable. The Schedule is divided into two parts. Part I lists birds which receive special protection; these birds receive additional protection from disturbance at the nest. Part II lists birds that receive the same level of special protection, but only during the breeding season.

Schedule 5 protects animal (other than bird) species from certain actions, according to the sections of the Act under which they are listed:

S9 (1) prohibits the intentional killing, injury or taking. S9 (2) protection is limited to possessing and controlling. S9 (4a) prohibits the damaging, destroying or obstructing access to any place used by the animal for shelter or protection. S9 (4b) prohibits disturbing the animal while it is occupying any structure or place which it uses for shelter or protection. S9(5) prohibits the selling, offering for sale, possessing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from such an animal. Species on this Schedule do not appear on the PSI.

Schedule 6 lists animals that may not be killed by certain methods. Even humane trapping for research requires a licence.

Schedule 8 lists plant species for which it is prohibited to intentionally pick, uproot, destroy, trade in, or possess (for the purposes of trade).

Under the Wildlife and Countryside Act, all wild plants in Britain are protected from intentional uprooting by an unauthorised person. Landowners, land occupiers, persons authorised by either of these, or persons authorised in writing by the Local Authority for the area are exempt from this, except for Schedule 8 species.

Conservation Regulations the Conservation of Habitats and Species Regulations 2010 (as amended) transpose the EC Habitats Directive into national law. In addition to enabling the designation of SACs, the regulations also provide species protection:

Schedule 2 protects the listed animals from deliberate capture, killing, disturbance or trading in.

Schedule 4 protects the listed plants from picking, collecting, uprooting, destroying or trading in.

These actions can be made lawful through the granting of licences by the appropriate authorities. Licences may be granted for a number of purposes, but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild the population of the species concerned.

Protection of Badgers Act the Protection of the Badgers Act prohibits the killing, injuring or taking of badgers and damage or interference with a badger sett, unless licensed to do so by a statutory authority.

International and European Obligations

In the UK, species receiving protection under international legislation and agreements are protected through the Wildlife and Countryside Act, so are not shown separately in the BMERC notable species lists. For reference, the relevant categories are shown below.

Bern Convention on the Conservation of European Wildlife and Natural Habitats the Bern Convention aims to ensure the conservation of wild flora and fauna species and their habitats.

- Appendix 1 (strictly protected flora) - Plants for which contracting parties will prohibit deliberate picking, collecting, cutting or uprooting.
- Appendix 2 (strictly protected fauna) - Animals for which contracting parties will prohibit deliberate capture, possession, killing, damage to or destruction of breeding or resting sites, disturbance or destruction or taking of eggs. Appendix 3 (protected fauna) - Animals for which contracting parties will include closed seasons and regulate their sale, keeping for sale, and transport for sale or offering for sale of live and dead wild animals. (Not included in Notable Species List).

Bonn Convention on Migratory Species the Bonn Convention aims to conserve terrestrial, marine and avian migratory species throughout their range.

- Appendix 1 (migratory species threatened with extinction) - Species for which contracting parties will strictly protect and endeavour to conserve or restore the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them.
- Appendix 2 (migratory species that need or would benefit from international co-operation) - Species for which contracting parties will be encouraged to conclude global or regional agreements for the conservation and management of individual species or, more often, of a group of species. (Not included in Notable Species List).

The EC Council Directive on the Conservation of Wild Birds the Birds Directive provides a framework for the conservation and management of all wild birds in Europe. As well as designating important sites for birds as Special Protection Areas, birds are generally protected from deliberate killing or capture and destruction of or damage to their nests or eggs, and deliberate disturbance. Allowances are made for game birds.

UK BAP & notable species

UK Biodiversity Action Plan and Section 41 Species

Biodiversity, or biological diversity, is the whole variety of life on Earth. The Convention on Biological Diversity (CBD) came about as a result of the 1992 Earth Summit. As one of 168 countries to sign up to the CBD, the UK was required to develop a national strategy for the conservation of biodiversity; the UK Biodiversity Action Plan (UKBAP) was born.

The UKBAP is the result of contributions involving a wide range of people and organisations, enabling the identification of species and habitats that are listed as priorities for conservation action. A 2007 review of the UKBAP has resulted in 1149 species and 65 habitats being listed as conservation priorities. For more information see www.ukbap.org.uk.

In addition to the national priorities and targets, action is also being taken at local level. The Essex Biodiversity Project is responsible for implementing the Essex Biodiversity Action Plan, which has 28 priority species and 15 priority habitats currently listed. For more information see www.essexbiodiversity.org.uk.

The UK BAP

(From Explanatory Note by Defra and Natural England on Section 41 of the Natural Environment and Rural Communities

(NERC) Act 2006 - Habitats and Species of Principal Importance in England)

The England Biodiversity List has been developed to meet the requirements of Section 41 of the Natural Environment and Rural Communities Act (2006). This legislation requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity.

The S41 list will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions. In particular:

- Regional Planning Bodies and Local Planning Authorities will use it to identify the species and habitats that should be afforded priority when applying the requirements of National Planning Policy framework (NPPF) and PPS9 Circular to maintain, restore and enhance species and habitats.
- Local Planning Authorities will use it to identify the species and habitats that require specific consideration in dealing with planning and development control, recognising that under NPPF and PPS9 Circular the aim of planning decisions should be to avoid harm to all biodiversity.
- All Public Bodies will use it to identify species or habitats that should be given priority when implementing the NERC Section 40 duty.

Habitats of Principal Importance Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that have been identified as requiring action in the UK Biodiversity Action Plan (UK BAP). They range from habitats such as upland hay meadows to lowland mixed deciduous woodland and from freshwater habitats such as ponds to marine habitats such as subtidal sands and gravels.

Species of Principal Importance There are 943 species of principal importance included on the S41 list. These are the species founding England which have been identified as requiring action under the UK BAP. In addition, the Hen Harrier has also been included on the List because without continued conservation action it is unlikely that the Hen Harrier population will increase from its current very low levels in England.

Relationship with the UK Biodiversity List of Species and Habitats the UK BAP list of priority species and habitats is an important reference source and will be the focus for conservation action across the UK over the next decade. It has been used to draw up the species and habitats of principal importance in England under S41 of the NERC Act.

The revised UK BAP list of priority species and habitats can be downloaded from the UK Biodiversity Website: <http://www.ukbap.org.uk/NewPriorityList.aspx>

Relationship with the biodiversity duty under Section 40 of the NERC Act There is a general biodiversity duty in the NERC Act (Section 40) which requires every public body in the exercising of its functions to 'have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'.

There is no direct relationship between the Section 41 duty on the Secretary of State to publish the list and promote the taking of steps to conserve the habitats and species on it, and the Section 40 duty on public bodies to have regard to the purpose of conserving biodiversity. Importantly:

- (a) Biodiversity, as covered by the Section 40 duty includes all biodiversity and not just the habitats and species of principal importance. However, there is an expectation that public bodies would refer to the S41 list when complying with the section 40 duty.
- (b) The duty on the Secretary of State to promote the taking of steps by others is not restricted to public bodies.

Defra guidance for local authorities and public bodies on implementing the biodiversity duty in the NERC Act draws attention to the S41 list, emphasising that local authorities and public bodies have a role to play in ensuring the protection of these species and habitats. Copies of the guidance can be downloaded from:

<http://archive.defra.gov.uk/environment/biodiversity/documents/pa-guid-english.pdf>

The overall aim of the Essex Biodiversity Project is to protect, conserve and enhance the variety of wildlife species and habitats in Essex through the successful implementation of the Essex Biodiversity Action Plan.

