B38

Whittington CSEC - Biodiversity Net Gain Assessment

National Grid Cotswolds Visual Impact Provision (VIP) Project

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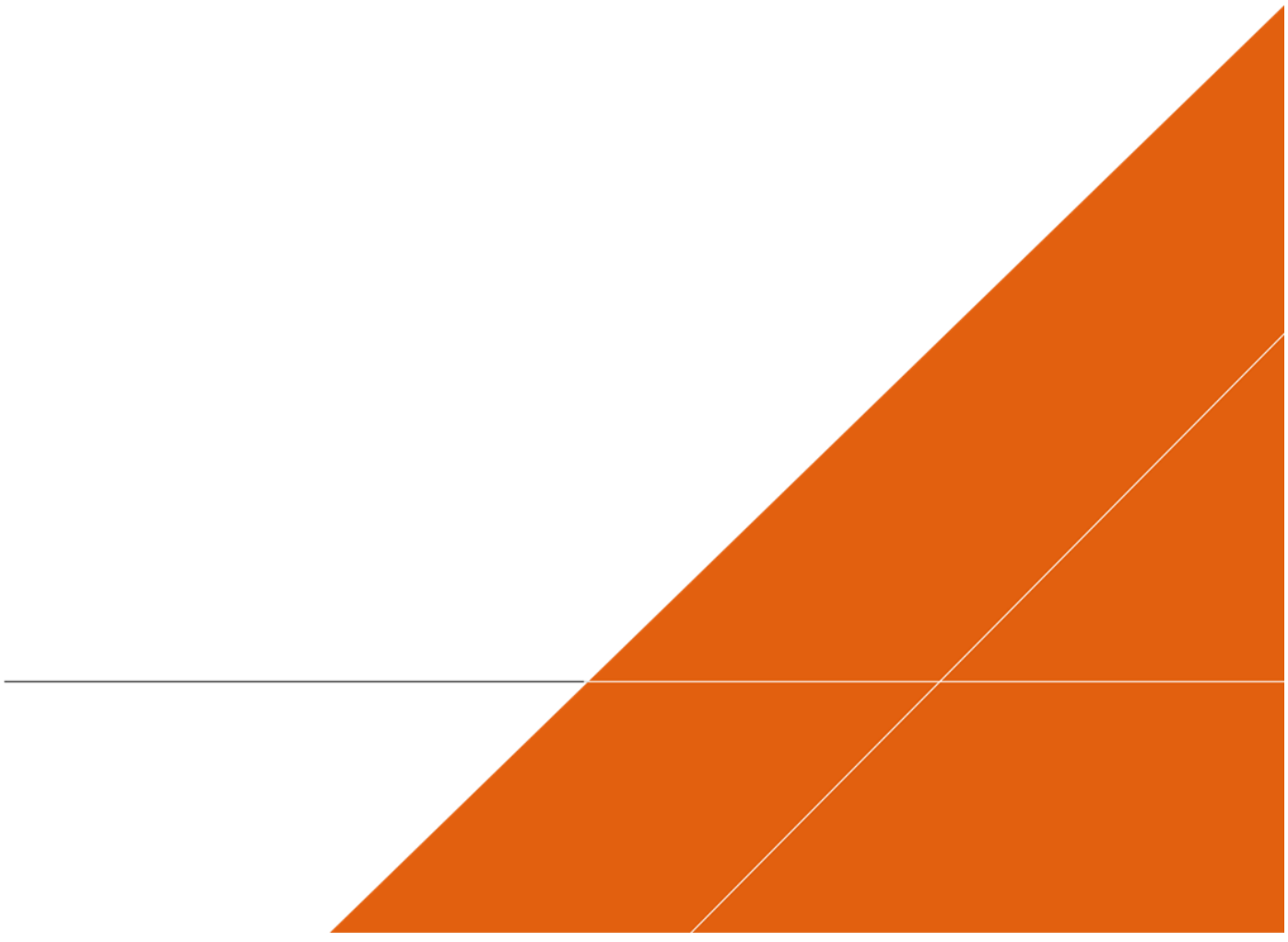

VERSION CONTROL

Version	Date	Author	Checker	Approver	Changes
V1	03/06/2024	M. Czura	J. Cronin	S. Jones, N. Hartley	-
V2	04/06/2024	M. Czura	J. Cronin	S. Jones, N. Hartley	Updated following legal review
V3	07/06/2024	C. Moores	J. Cronin	E. Pickering, N. Hartley	Updated following lands team review
V4	24/09/2024	M. Czura	N. Lear	S. Jones	Updated to include two additional bellmouth areas

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1 Executive Summary

1.1.1 The Proposed Project forms part of the wider Cotswolds Visual Impact Provision (VIP) Project (hereafter referred to as the 'wider project'), the purpose of which is to underground a section of 400kV overhead electricity transmission lines, to mitigate the visual impact of existing electricity infrastructure through part of the Cotswolds National Landscape (CNL) (previously known as Area of Outstanding Natural Beauty (AONB)).

1.1.2 The Proposed Project is for the construction of a Cable Sealing End Compound (CSEC) at Whittington to facilitate the connection between new underground cables and the existing overhead line (OHL) and the associated permanent access road (and bell-mouth turning area) to the CSEC, in addition to temporary bell-mouths created to support the cable construction along classified roads.

1.1.3 As part of the wider project, Arcadis Consulting (UK) Limited was commissioned by National Grid to provide a Biodiversity Net Gain (BNG) assessment. This BNG report should be read in conjunction with the Ecological Impact Assessment (EcIA) report and Landscape and Ecological Management Plan (LEMP).

1.1.4 An assessment of the submitted application for Whittington CSEC and associated access was conducted to determine if it can deliver the required biodiversity net gain. Although national and local policy states that 10% BNG is required, the Cotswold Nature Recovery Plan states that 20% BNG should be achieved within the Cotswold National Landscape. National Grid have therefore committed to achieving 20% BNG for the Whittington CSEC planning application.

1.1.5 Whittington CSEC and the associated bell mouths (the site) are located around Grid Reference SO 99255 20984. The bell-mouths are situated on the A40, Ham Road and Cotswolds Way. The redline boundary comprises of 3.23ha area.

1.1.6 The baseline of the site primarily consists of other neutral grassland with hardstanding roads and cropland at the access routes. The A40 bell-mouth is primarily hardstanding road with a section of woodland. The bell mouths on Ham Road and Cotswolds Way are primarily hardstanding with some cropland. The route is located within the CNL. There are multiple species rich hedgerows on site.

1.1.7 The proposed works within the Whittington CSEC redline comprise:

- CSEC infrastructure;
- Underground cabling from the Whittington CSEC towards the Winchcombe CSEC (note: this is Permitted Development);
- A permanent access road to the CSEC, including a bell-mouth with Ham Road and a turning area;
- A hardstanding area where the overhead line meets with the new underground cables;
- New screening comprising native trees, woodland and scrub planting; and
- Five temporary bell-mouths on classified roads to facilitate construction.

1.1.8 This assessment demonstrates that the design does allow for a net gain in hedgerow biodiversity units of 1.54 (39.36% net gain), however the design only delivers -7.48 (-33.38% net gain) for area units.

1.1.9 Space restrictions within the design and difficulty of woodland creation do not allow for the provision of enough high distinctiveness lowland mixed deciduous woodland habitat to satisfy the trading rules regarding the loss of lowland mixed deciduous woodland. Furthermore, the loss of good condition

other neutral grassland does not satisfy the trading rules as the same habitat must be created to compensate for the loss. In order to achieve 20% net gain and satisfy all trading rules, an additional 11.96 area units will be purchased, including 0.54 units lowland mixed deciduous woodland and 8.76 units of other neutral grassland. It is proposed that these units are purchased and secured from the Cotswolds National Landscape (CNL), or other similar third party, who retain local habitat banks and connections with local landowners.

2 Introduction

2.1 Background

2.1.1 In 2014, National Grid commissioned a Landscape and Visual Impact Assessment to identify areas across the UK that would benefit from the Visual Impact Provision (VIP) project. The purpose of the Landscape and Visual Impact Assessment was to identify those sections of electricity transmission lines within England and Wales that have the most important impacts on the landscape and visual amenity of these designated landscapes.

2.1.2 Arcadis Consulting (UK) Limited was commissioned by National Grid to provide Biodiversity Net Gain Assessment in support of the undergrounding of the central section of National Grid's ZF.2 overhead line (OHL) route through the Cotswolds Area of Outstanding National Beauty (AONB) as part of their VIP project.

2.1.3 The Proposed Project forms part of the wider Cotswolds Visual Impact Provision (VIP) Project (hereafter referred to as the 'wider project'), the purpose of which is to underground a section of 400kV overhead electricity transmission lines, to mitigate the visual impact of existing electricity infrastructure through part of the Cotswolds National Landscape (previously known as Area of Outstanding Natural Beauty). The wider project is located immediately south of the B4632 and from Breakheart Plantation, runs in a south-westerly direction to the east of Cleeve Common Site of Special Scientific Interest (SSSI), past Wontley, Drypool and Wood Farms, towards Dowdeswell Wood.

2.1.4 The wider project will comprise:

- The removal of a section of overhead lines (OHL), including the permanent removal of 16 pylons (18 pylons will be removed in total, however, two will be replaced under Permitted Development).
- Underground cabling of approximately 7km in length.
- Two new cable sealing end compounds (CSECs) at each end (north and south) and associated replacement terminal pylons (as mentioned above), to connect the new underground cables to the remaining existing overhead line.
- Associated temporary works to facilitate construction, including temporary/permanent access junctions and roads, a temporary haul road, construction compounds, material storage and welfare facilities.
- Ancillary off-site infrastructure (including installation of arcing horns and shunt reactor installation/connection).

2.1.5 The majority of the works will be undertaken using Permitted Development rights under Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended), however, the CSECs require planning permission and are therefore subject to the Biodiversity planning condition requiring a 10% biodiversity net gain. Furthermore, the project is within the CNL subject to local policy of achieving 20% biodiversity net gain. The scope of this report is for the Whittington CSEC only (hereafter referred to as the 'Proposed Project').

2.2 Location and Setting

2.2.1 The Proposed Project is for the construction of a CSEC at Whittington to facilitate the connection between new underground cables and the existing OHL and the associated permanent access road (and bell-mouth) to the CSEC, in addition to temporary bell-mouths created to support the cable construction along classified roads. The Proposed Project is located within Cotswold District.

2.2.2 The proposed works within the Whittington CSEC redline comprise:

- CSEC infrastructure;
- Underground cabling from the Whittington CSEC towards the Winchcombe CSEC (note: this is Permitted Development);
- A permanent access road to the CSEC, including a bell-mouth in Ham Road and a turning area;
- A hardstanding area where the overhead line meets with the new underground cables;
- New screening comprising native trees, woodland and scrub planting; and
- Five temporary bell-mouths on classified roads to facilitate construction.

2.2.3 The terminal pylon for the Whittington CSEC is located outside the CSEC redline (and is Permitted Development).ZF.2 (the 400kV Feckenham-Walham/Feckenham-Minety OHL) enters the CNL from the north-east of Dixton heading in a southerly direction, rising to Prescott where it turns southeast across high ground before descending into subsection 3 southeast of Cheltenham.

2.2.4 The Whittington CSEC compound is approximately 1.80ha and is situated along Ham road around Grid Reference SO 99255 20984. The bell-mouths are situated on the A40, Ham Road and Cotswolds Way.

2.2.5 The site consists primarily of other neutral grassland with hedgerows, the existing OHL is adjacent to the proposed underground route. The A40 bell-mouth is primarily hardstanding road with a section of woodland. The bell mouths on Ham Road and Cotswolds Way are primarily hardstanding with some cropland. The route is located within the CNL.

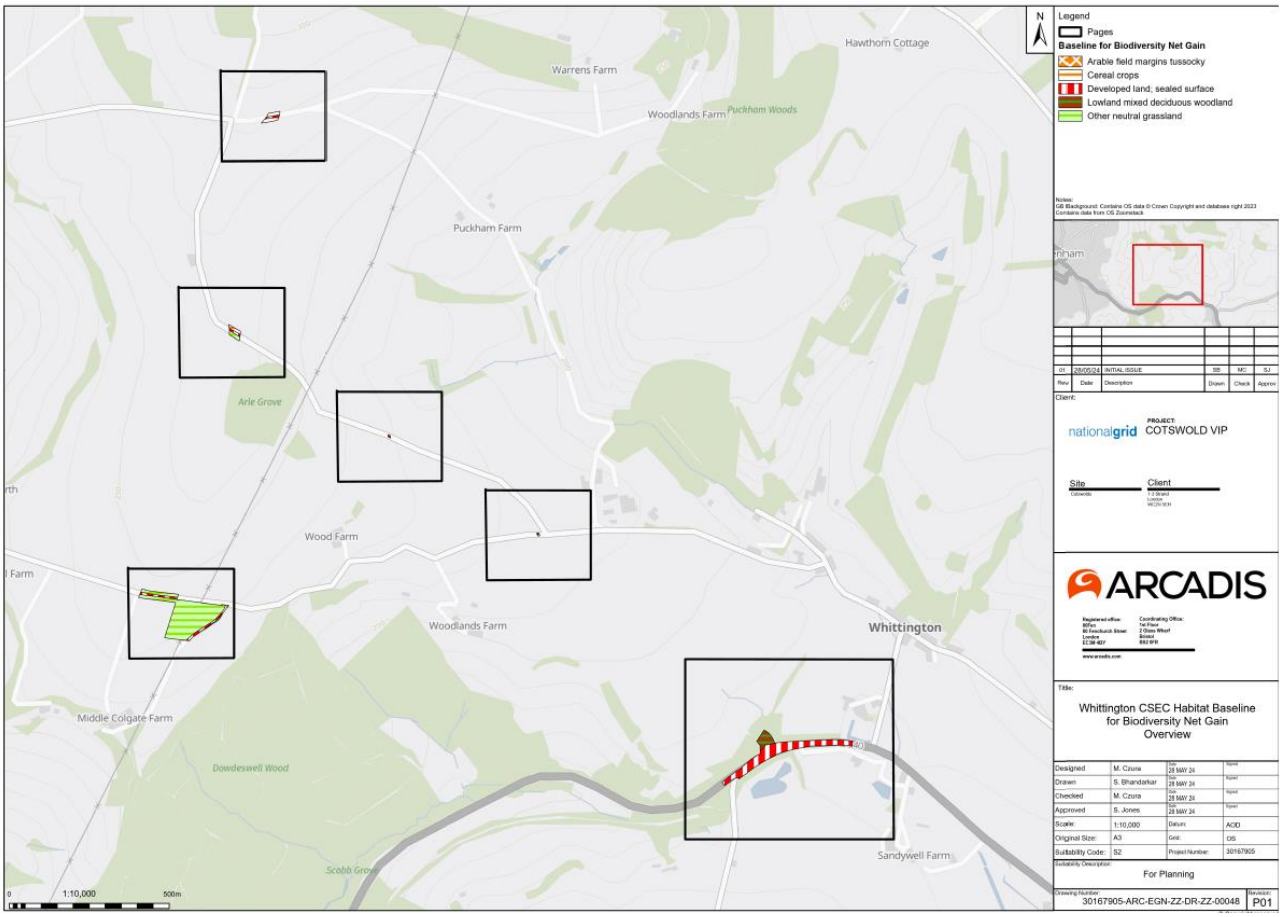

Image 1: Site aerial overview.

2.3 BNG in Policy and Legislation

2.3.1 In line with the 25 Year Plan for the Environment (HM Government, 2018) and the National Planning Policy Framework (MHCLG, 2021), new development should identify and pursue opportunities for securing measurable net gains for biodiversity and for the wider environment. The Environment Act 2021 (gov.uk, 2021) introduces a mandatory requirement for 10% biodiversity net gain for new developments to ensure that they enhance biodiversity. Mandatory biodiversity net gain from the Act was passed into law in February 2024.

2.3.2 If a planning application for a development was made before day one of mandatory BNG on 12 February 2024, the development is exempt from BNG.

2.3.3 Developments that are granted planning permission by a development order (including permitted development rights) are exempt by the Environment Act 2021.

2.3.4 Concerning local policy relevant to BNG, Whittington CSEC falls within Gloucestershire County Council, Cotswold District Council and the Board of the Cotswolds National Landscape.

2.3.5 Gloucestershire County Council (GCC) has published Guidance on delivering Biodiversity Net Gain for planning applicants and developers in Gloucestershire in February 2024. This aims to help develops achieve a 10% net gain for developments.

2.3.6 In Gloucestershire, off-site biodiversity units can also be purchased from the Gloucestershire Nature and Climate Fund.

2.3.7 Under the Cotswold local authority, proposals that are likely to impact on the biodiversity of the National Landscape should have regard to – and be consistent with – the Cotswolds Nature Recovery Plan.

2.3.8 Measures to conserve and restore biodiversity including the outcomes, priorities, targets and measures within the Cotswolds Nature Recovery Plan should be delivered in a way that is compatible with conserving and enhancing the natural beauty of the Cotswolds National Landscape.

2.3.9 Although the national statutory requirement for net gain in biodiversity arising from development proposals will be 10%, this plan states that it should be 20% within the Cotswolds National Landscape. The justification includes:

- The Landscapes Review stating that National Landscapes should form the backbone of Nature Recovery Networks.
- The Government's response to the Landscapes Review: "Linking improvements to the way these areas are protected and managed for nature recovery to the commitment to protect 30% of UK land for nature by 2030".
- Stating that they; "will put our protected landscapes at the heart of delivering our nature recovery".

2.3.10 To summarise, national and local policy states that 10% BNG is required, whereas the Cotswold Nature Recovery Plan states that 20% BNG should be achieved within the Cotswold National Landscape. National Grid have therefore committed to achieving 20% BNG for the Whittington CSEC planning application.

3 Methodology

3.1.1 The purpose of this document is to estimate the potential net change in biodiversity value of the proposed development based on indicative proposals provided for full planning permission. This approach uses information on the habitats and features of the Site before and after the development to calculate the change in biodiversity value. If planning proposals change, the biodiversity value will need to be recalculated.

3.1.2 These calculations were undertaken using the Statutory Biodiversity Metric (BM) issued by Defra and Natural England (Defra, 2024). The statutory BM is a spreadsheet-based tool into which data can be entered to carry out BNG calculations.

3.1.3 Data is entered into the metric using the UKHab habitat classification typologies. When considering baseline conditions, the metric takes account of several factors, detailed below in Table 1. The numbers in brackets show the multipliers used by the metric for each category.

Table 1: Biodiversity Metric Criteria

Evaluation	Values assigned	Criteria
Habitat type	UK habitat classification typologies	Based upon "species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats"
Size of habitat parcel	Area measured in hectares and linear features measured in kilometres	N/A
The distinctiveness of the habitat type	Value predetermined for each habitat type on a scale of Very Low (0), Low (2), Medium (4), High (6) and Very High (8)	Distinctiveness considers the rarity of the habitat, the amount of the percentage of habitat protected in SSSIs, the UK Priority Habitat Status and the European Red List Categories for the habitat
The condition of each habitat parcel	Value assigned based on a scale of Poor (1), Fairly Poor (1.5), Moderate (2), Fairly Good (2.5) and Good (3). For some habitat types this is pre-determined	Condition sheets were used where possible to assess the condition. Or a River Condition Assessment was undertaken for watercourse features.
Whether the parcels are in locations identified as local nature priorities	Value assigned based on a scale of Low (1), Medium (1.1) and High (1.15) strategic importance	N/A

3.2 Data Preparation

Baseline Data Area and Hedgerow Habitats

3.2.1 The Statutory BM is designed to work with the UKHab Habitat Classification system, a dedicated UKHab survey was undertaken by Ben Goodger in July 2023 which classified area and hedgerow habitats on site.

3.2.2 A habitat condition assessment sheet is provided for each habitat type within the BM methodology[1], which should be used to assign each habitat parcel to each of the categories. Each condition sheet is composed of a list of pass/fail criteria. The ratio of 'passes' to 'fails' is used to determine the habitat condition.

3.3 Habitat Calculations

Unit Calculation

3.3.1 To calculate the habitat biodiversity unit total for the Site the units for each of the different habitat types are calculated and then summed. The unit number is based upon the habitat's size, distinctiveness, condition and strategic significance.

Habitat Size

3.3.2 The sizes of the different proposed habitats were calculated using a Geographical Information System using the baseline habitat data collected during the site survey. This was undertaken by Ben Goodger in July 2023.

3.3.3 The area taken up by individual trees throughout the Site was calculated by inputting the trees into the 'Tree Helper Tool', included in the Biodiversity Metric calculation tool.

3.3.4 Hedgerows are recorded in kilometres using the centre line measurement along the length of the feature.

3.3.5 Watercourses are recorded in kilometres using the centre line measurement along the length of the feature.

Habitat Distinctiveness

3.3.6 The BM assigns a pre-defined distinctiveness band to each of the habitats and linear features.

3.3.7 This assessment is based upon "species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats". Table 2 provides detail of the bandings to which each area-based habitat is assigned.

Table 2: Area based habitat distinctiveness valuation bandings

Distinctiveness band	Multiplier	Typical habitats
Very High	8	Priority habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act (HMSO, 2006) that are highly threatened, internationally scarce and require conservation action e.g. blanket bog Small amount of remaining habitat with a high proportion unprotected by designation. Endangered or Critical European red list habitats.
High	6	Priority habitats as defined in Section 41 of the NERC Act (HMSO, 2006) requiring conservation action e.g., lowland fens Remaining Priority Habitats not in very high distinctiveness band & other red list habitats.

[1] Statutory biodiversity metric tools and guides - GOV.UK (www.gov.uk)

Distinctiveness band	Multiplier	Typical habitats
		Rivers and streams that are not classified as Priority River Habitat, other rivers and streams.
Medium	4	Semi-natural habitats not classed as a Priority Habitat but with significant wildlife benefit, e.g., mixed scrub. One Priority Habitat (arable field margins). An artificial body of water originally created for the purposes of navigation, whether it is currently navigable or not e.g. Canalised rivers. Artificially created linear water-conveyancing features which are less than 5 metres wide; and are likely to retain water for more than 4 months of the year e.g. ditches.
Low	2	Habitat of low biodiversity value e.g., temporary grass and clover ley. Agricultural and Urban land of lower biodiversity value. A covered channel or pipe designed to prevent the obstruction of a watercourse e.g. culvert.
Very low (hedgerow module)	1	
Very low (area module)	0	Little or no biodiversity value e.g., hard standing or sealed surface Urban – artificial structures which are un-vegetated, sealed surfaces or built linear features of very low biodiversity value.

Individual Trees

3.3.8 No medium, large or very large trees within a hedgerow or 'rural' line of trees are being removed as part of the development thus are not required to be recorded in the area baseline as individual trees.

Strategic Significance Assessment

3.3.9 Strategic significance is the local significance of the habitat based on its location and habitat type. This is usually informed by the Local Nature Recovery Strategy (LNRS)[2] , or where the LNRS has not been published alternative documents can be used.

3.3.10 Gloucestershire County Council and Gloucestershire Local Nature Partnership have been tasked with writing the LNRS which is predicted to be ready in 2025. Prior to this Gloucestershire Country Council recommended the use of the habitat inventory and Nature Recovery Network (NRN)[3] an ecological network map for Gloucestershire, this shows the prioritised distribution of opportunities for creating a more resilient network of habitats and has been used to assign a strategic significance of each habitat in accordance with Guidance on delivering Biodiversity Net Gain for planning applicants and developers in Gloucestershire[4].

[2] Local nature recovery strategies: responsible authorities - GOV.UK (www.gov.uk)
[3] GLNP | Natural Capital (gcerdata.com)
[4] BNG Guidance for LPA February 2024 (gloucestershire.gov.uk)

Advanced and Delayed Habitat Creation

3.3.11 At this stage it was assumed that habitat interventions would not be delayed or advanced.

Calculation of Gains or Losses

3.3.12 The net change in biodiversity or hedgerow units on and off-site is calculated within the tool by subtracting the baseline units from the post-intervention units. The overall net change is the sum of the change in units on-site and off-site. The percentage net gain is then calculated by dividing this overall net change by the number of baseline units on the Site, as shown in the equation below:

$$overall\ percentage\ net\ gain = \frac{change\ in\ units\ on\ site + change\ in\ units\ off\ site}{baseline\ units\ on\ site} \times 100$$

3.3.13 A positive value indicates a net gain has been made and a negative value indicates a net loss has been made.

4 Results

4.1 Baseline Biodiversity Units

4.1.1 A description of the habitats present within the red line boundary, shown in Appendix A, can be found in section 4.2 based on the site visit undertaken by Ben Goodger in July 2023. Within this section a justification is provided for the alignment of these habitats with UKHab Habitat Classification typologies and their condition, connectivity, strategic significance scores.

4.1.2 The results of each habitat assessment and the total baseline units are presented in Table 3.

4.1.3 The baseline at Whittington CSEC currently delivers 22.40 area Biodiversity Units (BU) and 3.92 hedgerow BU on-site.

4.1.4 The habitats present on the Site that were assessed for the baseline are presented in the Habitat Plan, Appendix A.

4.2 Habitat Typology and Condition

Other Neutral Grassland

4.2.1 The majority of the site is other neutral grassland (1.68ha). This is comprised of:

- 1.52ha of other neutral grassland in good condition. Species rich with some calcareous influence. Dominated by red fescue, *Festuca rubra*, bulbous buttercup (*Ranunculus bulbosus)*, and dandelion (*Taraxacum spp*.), with abundant common mouse ear (*Cerastium fontanum)*, red clover (*Trifolium pratense)*, lesser trefoil (*Trifolium dubium)*, ribwort plantain (*Plantago lanceolata)*, common bird foot trefoil (*Lotus corniculatus)*, soft brome (*Bromus hordeaceus)*, and daisy.
- 0.14ha of other neutral grassland in moderate condition. Species rich grassland, currently ungrazed, grasses mixtures including Crested dog's-tail (*Cynosurus cristatus)*, Cocksfoot: (*Dactylis glomerata)*, Soft brome (*Bromus hordeaceus)*, Perennial ryegrass (*Lolium perenne)*, Smooth meadow grass (*Poa pratensis)*, Yorkshire fog (*Holcus lanatus)*. A diversity of Forbes including abundant yellow rattle (*Rhinanthus minor)*, bulbous buttercup (*Ranunculus bulbosus)*, red clover (*Trifolium pratense)*, common mouse-ear (*Cerastium fontanum)*, lesser trefoil (*Trifolium dubium)*, horseshoe vetch (*Hippocrepis comosa)*, ribwort plantain (*Plantago lanceolata)*, smooth sow-thistle (*Sonchus oleraceus)*, vetch (*Vicia spp.)* and speedwell (*Veronica spp*.).
- 0.043ha of other neutral grassland in moderate condition within an access route. Species rich grassland, currently ungrazed and potentially a hay meadow, contains a mix of grasses including crested dog's-tail (*Cynosurus cristatus*), cocksfoot (*Dactylis glomerata*), soft brome (*Bromus hordeaceus*), perennial ryegrass (*Lolium perenne*), smooth meadow grass (*Poa pratensis*), and Yorkshire fog (*Holcus lanatus*). There is a diversity of forbs including abundant yellow rattle (*Rhinanthus minor*), bulbous buttercup (*Ranunculus bulbosus*), red clover (*Trifolium pratense*), common mouse-ear (*Cerastium fontanum*), lesser trefoil (*Trifolium dubium*), horseshoe vetch (*Hippocrepis comosa*), ribwort plantain (*Plantago lanceolata*), smooth sow-thistle (*Sonchus oleraceus*), and speedwell (*Veronica spp.*).

Native Hedgerow

4.2.2 Hedgerow 1: Species poor hedgerow - Tall, well managed hedge of hawthorn, blackthorn and field maple. The hedgerow was assessed to be in good condition.

4.2.3 Hedgerow 2: Species-rich native hedgerow with trees - associated with bank or ditch. Wide hedge along irrigation ditch, with abundant hawthorn, blackthorn, hazel and elder, lots of young sycamore and ash. The hedgerow was assessed to be in good condition.

4.2.4 Hedgerow 3 (access): Managed hedgerow along road with one immature oak. Shrubs comprise hawthorn, elder, dog rose, hazel, blackthorn.

4.2.5 Hedgerow 4 (access): Species-rich native hedgerow with trees in good condition. Tall bushy hedgerow with some very mature shrubs and young whitebeam. Drystone wall alongside. Shrubs include hazel, hawthorn, dog rose, goat willow, elder.

4.2.6 Hedgerow 5 (access): Native hedgerow with trees in good condition. Well managed hedge along road with occasional tall hawthorn and one semi mature ash. Other shrubs include elder, dog rose, blackthorn.

Cropland

4.2.7 0.13ha of cropland is present within the access routes.

Urban Developed Land

4.2.8 1.02ha of developed land/sealed surface comprising of urban road is present within the bellmouth access.

Woodland

4.2.9 0.18ha of Lowland Mixed Deciduous woodland is present within the bellmouth access. Long established planted woodland, canopy of very tall spindly ash (*Fraxinus excelsior*), and occasional oak (*Quercus robur*), including several mature specimens, an understory beech (*Fagus*), cherry (*Prunus*), wych elm (*Ulmus glabra*), and lime (*Tilia*), shrub layer is fairly sparse and comprised of field maple (*Acer campestre*), hazel (*Corylus avellana*), young tree including horse chestnut (*Aesculus hippocastanum*), and sycamore (*Acer pseudoplatanus*), and some elder (*Sambucus*), areas of dense blackthorn in places, ground flora dominated by dog's mercury (*Mercurialis perennis*) and cleavers (*Galium aparine*) with frequent nettle (*Urtica*), ground ivy (*Glechoma hederacea*), red campion (*Silene dioica*), cow parsley (*Anthriscus sylvestris*), and occasional bluebell (*Hyacinthoides non-scripta*), and yellow archangel (*Lamium galeobdolon*), woodland is even-aged, with all trees growing tall and spindly and wood avens (*Geum urbanum*), occasional open clearing with dense nettle and pendulous sedge.

Individual Trees

4.2.10 No medium, large or very large trees are expected to be removed in post intervention therefore are not included in the Biodiversity Metric.

Strategic Significance

4.2.11 The Site falls withing Gloucester County Council Local Authority for determining strategic significance. The Lowland Mixed deciduous woodland and other broadleaved woodland present on site is mapped as core woodland habitat in the NRN mapping and thus falls under high strategic significance ‘Formally identified in local strategy’. All other habitats fall under low strategic significance ‘Area/compensation not in local strategy/ no local strategy’.

Baseline Unit Summary

4.2.12 The table below presents a summary of the habitat valuations of the Site baseline.

Table 3: On-site baseline biodiversity units

UK Habs/ broad habitat	UK Habs/habitat type	Area (ha) Length (km)	Distinctiveness	Condition	Strategic significance	Habitat units
Grassland	Other neutral grassland	1.52	Medium	Good	Area/compensation not in local strategy/ no local strategy	18.29
Grassland	Other neutral grassland	0.11	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	0.88
Urban	Developed land; sealed surface	0.09	Very Low	N/A other	Area/compensation not in local strategy/ no local strategy	0
Urban	Bare ground	0.08	Low	Poor	Area/compensation not in local strategy/ no local strategy	0.15
Cropland (Access 1)	Cereal crops	0.04	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	0.07
Grassland (Access 1)	Other neutral grassland	0.04	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	0.34
Urban (Access 1)	Developed land; sealed surface	0.03	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	0.00
Cropland (Access 2)	Cereal crops	0.04	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	0.08
Cropland (Access 2)	Cereal crops	0.05	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	0.10
Urban (Access 2)	Developed land; sealed surface	0.02	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	0.00
Woodland and forest (bellmouth)	Lowland mixed deciduous woodland	0.18	High	Moderate	Formally identified in local strategy	2.47

UK Habs/ broad habitat	UK Habs/habitat type	Area (ha) Length (km)	Distinctiveness	Condition	Strategic significance	Habitat units
Urban (bellmouth)	Developed land; sealed surface	1.03	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	0.00
Cropland (bellmouth)	Cereal Crops	0.004	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	0.01
					Total	**22.40**

UK Habs/ broad habitat	UK Habs/habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Habitat units
Hedgerow	Species-rich native hedgerow	0.14	Medium	Good	Area/compensation not in local strategy/ no local strategy	1.73
Hedgerow	Native hedgerow	0.07	Medium	Good	Area/compensation not in local strategy/ no local strategy	0.42
Hedgerow	Native hedgerow	0.01	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	0.04
Hedgerow (access 1)	Species-rich native hedgerow with trees	0.04	High	Good	Area/compensation not in local strategy/ no local strategy	0.78
Hedgerow (access 1)	Species-rich native hedgerow with trees	0.04	High	Good	Area/compensation not in local strategy/ no local strategy	0.69
Hedgerow (access 2)	Native hedgerow with trees	0.02	Medium	Good	Area/compensation not in local strategy/ no local strategy	0.26
					Total	**3.92**

4.3 Landscape Proposals (Post Development)

Area Based Habitats

4.3.1 Landscape detail is indicative only. However, to determine whether the designs have the potential to deliver the required biodiversity net gain, the information was assessed. The calculation of potential biodiversity unit delivery is based upon habitats within the accessible areas and is considered to be precautionary.

4.3.2 It must be noted that in the baseline state, the site has a high baseline biodiversity value due to majority of the site covered in other neutral grassland being in good condition. With a precautionary assessment, 7.48 area biodiversity units are lost post development totalling a net gain of -33.38%.

4.3.3 Due to the units created of hedgerow on site there is a gain of 1.54 hedgerow units giving a net gain of 39.36% for hedgerow biodiversity units.

Retained Habitats (On-site)

4.3.4 Most of the hedgerow, and some of the grassland habitat will be retained on site.

Created Habitats (On-site)

Urban – Developed Land/Sealed Surface and Artificial Unvegetated, Unsealed Surface

4.3.5 A majority of the created habitats will be buildings and hardstanding (0.30ha). This habitat has a predefined condition of N/A so no condition assessment is required.

Grassland – Other Neutral Grassland

4.3.6 It is assumed that 0.24ha of other neutral grassland will be created. It is also assumed that this habitat will be in good condition, considering the rural setting and management.

4.3.7 Grassland is assessed using the grassland condition sheet from the BM metric, this habitat is targeted to be of “good” condition in the post construction phase.

Heathland and Shrub – Mixed Scrub

4.3.8 Additional scrub planting totalling 0.12Ha is proposed to be planted within the landscaping of the site for screening.

4.3.9 This habitat is targeted to be of “good” condition in the post construction phase through management of invasives, planting a range of species and age ranges.

Woodland - Other Woodland; Mixed

4.3.10 Some woodland planting will be present on site totalling 0.24ha for screening. Taking a precautionary approach it is expected that the woodland could reach poor condition in the target time. This is due to planting a range of species, lack of browsing pressure, management to prevent invasives species. Due to it being newly planted woodland there will be a lack of age diversity, one story present and lack of deadwood.

Table 4: Condition assessment criteria for woodland

Condition Assessment Criteria for woodland

Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)
A. Age distribution of trees	Three age-classes present.	Two age-classes present.	One age-class present.
B. Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland2.	Evidence of significant browsing pressure is present in 40% or less of whole woodland2.	Evidence of significant browsing pressure is present in 40% or more of whole woodland2.
C. Invasive plant species	No invasive species present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, other invasive species <10% cover.	Rhododendron or cherry laurel present, or other invasive species3 >10% cover.
D. Number of native tree species	Five or more native tree or shrub species found across woodland parcel.	Three to four native tree or shrub species found across woodland parcel.	Two or less native tree or shrub species across woodland parcel.
E. Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native.	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native.	<50% of canopy trees and <50% of understory shrubs are native.
F. Open space within woodland	10 - 20% of woodland has areas of temporary open space. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted.	21 - 40% of woodland has areas of temporary open space.	<10% or >40% of woodland has areas of temporary open space. But if woodland <10ha has <10% temporary open space, please see Good category.
G. Woodland regeneration	All three classes present in woodland8; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland8.	No classes or coppice regrowth present in woodland8.
H. Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback.	11% to 25% mortality and/or crown dieback or low-risk pest or disease present.	Greater than 25% tree mortality and or any high-risk pest or disease present.
I. Vegetation and ground flora	Recognisable NVC plant community at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community at ground layer present.	No recognisable woodland NVC plant community at ground layer present.

Condition Assessment Criteria for woodland

Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)
J. Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland.	Two storeys across all survey plots.	One or less storey across all survey plots.
K. Veteran trees	Two or more veteran trees per hectare.	One veteran tree per hectare.	No veteran trees present in woodland.
L. Amount of deadwood	50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities.	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities.	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities.
M. Woodland disturbance	No nutrient enrichment or damaged ground evident.	Less than 1 hectare in total of nutrient enrichment across woodland area and or less than 20% of woodland area has damaged ground.	More than 1 hectare of nutrient enrichment and or more than 20% of woodland area has damaged ground.
Total score >32 (33 to 39)	**Good**		
Total score 26 to 32	**Moderate**		
Total score <26 (13 to 25)	**Poor**		

4.4 Trading Summary

4.4.1 The trading rules set minimum habitat creation and enhancement requirements to compensate for specific habitat losses, up to the point of no net loss. They are based on the habitat type and distinctiveness of the lost habitat.

Area Habitats

4.4.2 The changes to the medium and high distinctiveness habitats present within the development parcels are presented in Table 5.

4.4.3 According to the habitat trading rules for medium distinctiveness habitats losses must be replaced by area habitat units of either medium band habitats within the same broad habitat type or, any habitat from a higher band from any broad habitat type. For high distinctiveness habitats losses must be replaced with area habitat units of the same habitat type.

4.4.4 Both medium and high distinctiveness area habitats are present in Whittington CSEC. Under the current landscape proposals the post intervention scenario does not satisfy the trading rules for woodland and forest high distinctiveness habitat. This is due to areas of lowland mixed deciduous

woodland being lost (Table 5). The total loss of units not accounted for this habitat is -0.54 units. This will need to be offset through provision of lowland mixed deciduous woodland area units either on or off-site.

4.4.5 The trading rules for medium distinctiveness habitat are also not satisfied due to the loss of other neutral grassland. The total loss of units not accounted for this habitat is -8.76 units. This will need to be offset through provision of other neutral grassland or higher distinctiveness grassland habitat.

Table 5: The changes in the total biodiversity unit values of medium and high distinctiveness area habitats on-site

Habitat group	Group	Distinctiveness	On-site unit change	Losses not yet accounted for
Woodland and forest - Lowland mixed deciduous woodland	Woodland and forest	High	-0.54	-0.54
Grassland - Other neutral grassland	Grassland	Medium	-8.76	-8.76
Heathland and shrub - Mixed scrub	Heathland and shrub	Medium	1.03	none
Woodland and forest - Other woodland; mixed	Woodland and forest	Medium	0.79	none

Hedgerow Habitats

4.4.6 The changes to high distinctiveness hedgerow habitats are presented in Table 6.

4.4.7 High distinctiveness hedgerow is present in Whittington CSEC. Under the current indicative landscape proposals the post intervention scenario satisfies the trading rules for very high distinctiveness hedgerows.

Table 6: Hedgerow habitat trading summary

Habitat group	Habitat	Distinctiveness	On-site unit change	Losses not yet accounted for
Hedgerow	Species-rich native hedgerow with trees	High	0.44	none

4.5 Summary Results

4.5.1 The summary results of the assessment for the proposal, using the statutory Biodiversity Metric calculator are presented below.

Image 2: Final results of BNG calculation

On-site baseline	*Habitat units*	22.40	
	Hedgerow units	3.92	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	14.92	
	Hedgerow units	5.46	
	Watercourse units	0.00	
On-site net change (units & percentage)	*Habitat units*	-7.48	-33.38%
	Hedgerow units	1.54	39.36%
	Watercourse units	0.00	0.00%

Image 3 Trading summary area based habitats

Trading Summary		
Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Same habitat required – bespoke compensation option ⚠	Yes ✓
High	Same habitat required =	No ▲
Medium	Same broad habitat or a higher distinctiveness habitat required (≥)	No ▲
Low	Same distinctiveness or better habitat required ≥	Yes ✓

Image 4 Trading summary hedgerow based habitats

Trading Summary		
Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Same habitat required =	Yes ✓
High	Like for like or better	Yes ✓
Medium	Same distinctiveness or better habitat required	Yes ✓
Low	Same distinctiveness or better habitat required	Yes ✓
Very Low	Same distinctiveness or better habitat required	Yes ✓

4.5.2 The BM indicates that biodiversity net gain is not achieved in this development onsite. A loss of area units is expected post intervention. This loss is 7.48 units equivalent to -33.38%. In the baseline state, the other neutral grassland on site has a high baseline biodiversity value therefore it is not possible to provide an uplift of biodiversity value despite the addition of scrub, grassland and woodland areas on site. In the development of the landscape plans, landscape planting was reduced as much as possible to retain the good condition other neutral grassland on site. In order to reach 20% net gain an additional 11.97 area units are required.

4.5.3 Although the assessment results that did not satisfy the metric trading rules, this will be rectified by purchasing off site BNG credits. It is proposed that these units are purchased and secured from the Cotswolds National Landscape (CNL) who retain local habitat banks and connections with local landowners.

4.5.4 For hedgerow units, a net gain of 1.54 units (39.36% net gain) is expected to be achieved due to the planting of additional hedgerows on site. The trading rules for hedgerows are also satisfied.

5 Conclusion

5.1.1 An assessment of the submitted application for Whittington CSEC was conducted to determine if the design could deliver the required 10% biodiversity net gain required by national & local policy and the aspirational 20% required by the Cotswolds National Landscape. This assessment was conducted using the statutory Biodiversity Metric (BM). This compares the baseline state of the site with the potential as-built state to determine if a net gain for biodiversity will be delivered.

5.1.2 The proposed development areas were predominantly hardstanding with landscaping of mixed scrub, other neutral grassland and woodland. This assessment demonstrates that the landscape design would deliver 1.54 (39.36% net gain) hedgerow units and a loss of 7.48 (-33.38% net gain) area units. To evidence a net gain in biodiversity and discharge the biodiversity condition at least 20% net gain in biodiversity units would need to be evidenced in all three habitat types.

5.1.3 Space restrictions within the design and difficulty of woodland creation, do not allow for the provision of enough high distinctiveness lowland mixed deciduous woodland habitat to satisfy the trading rules regarding the loss of lowland mixed deciduous woodland, this is a small area of shortfall totalling -0.54 units. Furthermore, the loss of medium distinctiveness other neutral grassland does not satisfy the trading rules as the same habitat or higher must be created to compensate for the loss, this is an area of loss totalling -8.76 units.

5.1.4 To achieve 20% BNG and to satisfy the trading rules off-site BNG credits will be purchased. It is proposed that these units will be purchased and secured from the Cotswolds National Landscape (CNL), or other similar third party, who retain local habitat banks and connections with local landowners.

5.1.5 The site does not meet the 20% net gain target proposed by Cotswolds National Landscape. In order to meet this aspirational target, the area units must reach 20% alongside the hedgerow units.

5.1.6 National Grid have committed to purchasing off-site BNG credits in order to achieve 20% BNG and satisfy all trading rules. It is National Grid's intention to purchase the credits required to meet the deficit shown in Table 7 from Cotswold National Landscape. As a result of this, Whittington CSEC will achieve 20% BNG and all trading rules will be satisfied.

Table 7: Unit shortfall for reaching net gain targets

Unit type	Baseline units	On Site unit difference post-intervention	Needed to achieve 10% net gain and satisfy trading rule	Needed to achieve 20% net gain and satisfy trading rules
Area	22.40	-7.48 (-33.38%)	+9.72*	+11.96*
Hedgerow	3.92	+1.54 (39.36%)	None	None

*at least 8.76 units must be other neutral grassland or high distinctiveness grassland and 0.54 units must be Lowland Mixed Deciduous Woodland

6 References

Cotswolds-Nature-Recovery-Plan-Full-Version.pdf (cotswolds-nl.org.uk).

Defra (2024) Statutory biodiversity Metric tool. website [online] Available online at: Statutory biodiversity metric tools and guides - GOV.UK (www.gov.uk)

Defra/Natural England (2024a). The Statutory Biodiversity Metric User Guide.

Environment Act (2021). website [online] Available online at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted.

Gloucestershire District Council (2024). Available online at: BNG Guidance for LPA February 2024 (gloucestershire.gov.uk)

Gloucestershire Nature (2024). Website [online] Available online at: Nature and Climate Fund | Gloucestershire LNP (gloucestershirenature.org.uk)

Google Earth (2024) website location https://www.google.co.uk/intl/en_uk/earth/

HM Government (2018). 'A Green Future: Our 25 Year Plan to Improve the Environment'. Available at https://www.gov.uk/government/publications/25-year-environment-plan.

MHCLG (2021) National Planning Policy Framework, Accessible online at https://www.gov.uk/government/publications/national-planning-policy-framework--2

HM Government (2018) 'A Green Future: Our 25 Year Plan to Improve the Environment' available online at https://www.gov.uk/government/publications/25-year-environment-plan

Magic (2024) website [online] Available online at: https://magic.defra.gov.uk/

Tewkesbury Borough Council (2024). Website [online] Available online at: Biodiversity Net Gain - Tewkesbury Borough Council

APPENDIX A: Baseline Habitat Map

APPENDIX B: Post Intervention Habitat Map

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