

# BIODIVERSITY NET GAIN ASSESSMENT

# **Drax Bioenergy with Carbon Capture and Storage**

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(q)

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# 1. INTRODUCTION

### 1.1. **PROJECT BACKGROUND**

- 1.1.1. WSP UK Ltd (WSP) was commissioned by Drax Power Limited (the Applicant) to undertake a Biodiversity Net Gain (BNG) assessment to support the 'Proposed Scheme' (as it will be hereafter referred). -<u>The Proposed Scheme is a Nationally Significant Infrastructure Project (NSIP). A Development Consent Order (DCO) application was submitted to the Secretary of State (SoS) in May 2022 and accepted for examination in June 2022.</u>
- 1.1.2. The Proposed Scheme involves the installation of post-combustion carbon capture technology to capture carbon dioxide from up to two existing 660-megawatt electrical ('MWe') biomass power generating units at the Drax Power Station (Unit 1 and Unit 2).
- 1.1.3. The installation of this technology constitutes an extension to the biomass Units 1 and 2 and is referred to as post-combustion carbon capture as the carbon dioxide is captured from the flue gas produced during the combustion of biomass in Units 1 and 2. The Proposed Scheme is designed to remove approximately 95% of the carbon dioxide from the flue gas from these two units.
- <u>1.1.4.</u> Details of the Proposed Scheme can be found<u>An illustrative 3D drawing showing the</u> indicative plant equipment layout for the main Carbon Capture Plant components alongside the existing Drax Power Station infrastructure is provided in Plate 2.2
   (Illustrative 3D Plant Equipment Layout Drawing) in Chapter 2 of the ES (Site and Project Description) (document reference 6.1.2). <u>APP-038</u>). A more detailed 2D layout can be seen in Figure 2.2 (Indicative Plant Equipment Layout) (APP-060). Construction sequencing for the Proposed Scheme and information regarding construction activities is provided in Section 2.3 of Chapter 2 (Site and Project Description). Construction is planned to commence in 2024, with completion in 2029.

### **OTHER WORKS**

- 1.1.5. Above and beyond the main works, the Proposed Scheme also includes Work No. 7 of the DCO, which involves the provision of the Flood Compensation Area (FCA) within Drax Power Station identified as being required in the Flood Risk
   Assessment (FRA) for the Proposed Scheme (APP-160). The Proposed Scheme also includes Work No. 8 which comprises the modification and undergrounding of overhead lines (OHL) along Rawcliffe Road and the A645, to facilitate the delivery of Abnormal Indivisible Loads (AIL) to Drax Power Station during construction of the Proposed Scheme. A full description of Work No. 7 and Work No. 8 is provided in the Proposed Changes Application Report (PCAR) (AS-045). The areas required for the modification of OHL are hereafter referred to as the 'OHL Areas'.
- 1.1.4.1.1.6. This BNG assessment is based on the Order Limits, shown on Figure 1.1
   (Order Limits) (document reference 6.2.1.1), the updated Site Location Plan (AS-071) and hereafter referred to as the 'Site'.

# 1.2. BIODIVERSITY NET GAIN

- 1.2.1. BNG is the end result of a process applied to development so that overall, there is a positive outcome for biodiversity, whereby the biodiversity value attributable to a development exceeds the baseline value. The process itself follows the mitigation hierarchy, which sets out that everything possible must be done to firstly avoid, secondly minimise and thirdly restore / rehabilitate losses of biodiversity on Site. Only as a last resort, residual losses are compensated for using biodiversity offsets, which are distinguished from other forms of mitigation in that they are outside of the development Site.
- 1.2.2. A BNG assessment report is intended to provide a detailed insight into the adherence of a project to the <u>Chartered Institute of Ecology and Environmental Management</u> (CIEEM,-), <u>Construction Institute Research and Information Association (CIRIA and )</u> and Institute of Environmental Management and <u>Assessment (IEMA)</u> BNG good practice principles<u>Good Practice Principles</u> (which are presented in **Table 3-43**).

## 1.3. RELEVANT LEGISLATION AND POLICY

- 1.3.1. This appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England, including:
  - a. UK Government's 25 Year Environmental Plan -((DEFRA, 2018)
  - **b.** Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011);
  - **c.** National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021)
  - d. The Natural Environment and Rural Communities (NERC) Act (HMSO, 2006);
  - e. The Environment Act 2021 (HMSO);

  - **g.** UK Biodiversity Action Plan (UKBAPUK BAP)<sup>1</sup>;
  - **h.** The Hedgerows Regulations (1997);
  - i. Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change, 2011);
  - j. Draft Overarching NPS for Energy (EN-1) (Department for <u>BuisnessBusiness</u>, Energy and Industrial <u>SrategyStrategy</u>, 2021)
  - k. Selby District Local Plan. ENV9, ENV12 and ENV13. Updated in 2019. (Selby District Council, 2005); and
  - Selby District Core Strategy Local Plan. SP18 (Selby <u>District District</u> Council, 2013).
- 1.3.2. The National Planning Policy Framework<u>NPPF</u> makes clear the current expectations for development to achieve BNG in England. The Framework<u>NPPF</u> states underneath

<sup>&</sup>lt;sup>1</sup> The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

section 15, paragraph 174 (d) that development should contribute to enhancing the natural environment by '*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*'. The Environment Act strengthens this requirement for BNG, however, there is currently a <u>transitiondevelopment</u> period for the <u>Actdetail that underpins/will further develop the Act's provisions</u> which is anticipated to conclude in 2025 for NSIPs.

- 1.3.3. Once the relevant provisions are in force, the Act mandates projects under the Town and Country Planning Act 1990 and NSIPs to achieve a minimum of 10% BNG. The Government is currently consulting ondeveloping the process as to how this will be required to be demonstrated for NSIPs (including the prospective introduction of a biodiversity net gain statement), although a 10% target is also likely to apply to such projects.) Whilst NSIPs are not currently required to achieve a 10% BNG the Applicant is targeting a minimum of 10% BNG for the Proposed Scheme.
- 1.3.4. The Act also includes measures (not yet in force) to strengthen the Natural Environment and Rural Communities<u>NERC</u> Act 2006 duty on public bodies to have regard to the purpose of conserving and enhancing biodiversity.

### 1.4. SCOPE OF REPORT

- 1.4.1. The report documents the assessment of the outcome of BNG taking into considerationaccount of the Proposed Scheme as documented in Chapter 2 (Site and Project Description) (document reference 6.1.2 of the Environmental Statement (ES) (APP-038) and the PCAR (AS-045) and associated on-Site mitigation and compensation which includes compensatory habitat provision outside of the Order Limits in an 'Off-site Habitat Provision Area'. Provision of off-Site habitat enhancement for rivers and streams has also been developed, in light of the requirements of the BNG metric discussed below.
- 1.4.1.1.4.2. The report is supported by a series of figures which include: Figure 1-(:
   Biodiversity Net Gain Land Use and Habitat Change AreasPlan) (document reference 6.10.1) and). Landscape and Biodiversity Management Plans (document reference 6.6.1, 6.6.2APP-181 and 6.6.3APP-182) which form part of the updated Outline Landscape and Biodiversity Strategy (document reference 6.6.4S-094), Landscape and Biodiversity Plans (AS-048 and REP2-059) that form part of the PCAR and which also can be considered to form part of the Outline Landscape and Biodiversity Strategy and Figure CCRT 2101 02 of the Bowers Mill Black Brook Habitat Restoration Project Report (in Appendix C). The following information is set out in this report:
  - a. A description of baseline habitat types within and outside of the Order Limits;
  - **b.** The methodology of the assessment and associated limitations and assumptions;
  - **b.c.** A summary of the quantitative outcome predicted for the Proposed Scheme (based on a worst-case scenario of the Proposed Scheme parameters for the <u>DCO submissionand including other works as identified within the **PCAR**);</u>

- Information regarding a potential future option of the Proposed Scheme which assesses

   a more realistic outcome for habitat change, including a summary of the quantitative
   outcome predicted for this scenario; and
- **d.** Commentary regarding adherence to the Good Practice Principles (CIEEM, CIRIA, IEMA 2016).

# 2. METHODOLOGY

## 2.1. BNG ASSESSMENT

- 2.1.1. This BNG assessment was undertaken with reference to the following industry recognised best practice methodologies:
  - a. Biodiversity Net Gain Good Practice Principles for Development (CIEEM, CIRIA and IEMA, 2016)(CIEEM, CIRIA and IEMA, 2016)
  - b. Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide (CIEEM, CIRIA and IEMA, 2016);(CIEEM, CIRIA and IEMA, 2019)
  - c. The Biodiversity Metric 3.<u>01</u> (JP039) auditing and accounting for biodiversity user guide (Natural England, <u>20212022</u>);
  - **d.** The Biodiversity Metric 3.<u>01</u> (JP039) Technical Supplement (Natural England, <u>20212022</u>); and
  - e. BS8683:2021 Process for designing and implementing Biodiversity Net Gain specification (British Standards Institute, 2021).
- 2.1.2. The Construction Industry Research and Information Association (CIRIA), the Chartered Institute for Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment (IEMA)CIRIA, CIEEM and IEMA have set out ten principles that define good practice for achieving BNG to be applied together as a single approach. This BNG assessment has assessed the Proposed Scheme for compliance with these good practice principlesGood Practice Principles.
- 2.1.3. As part of this assessment of compliance a quantitative assessment of the biodiversity value of the baseline habitats was carried out. The initial BNG assessment is designed to provide guidance on compliance with the 10ten BNG Good Practice Principles, and a summary of the baseline calculations. Further detail can be found on the Natural England website.
- 2.1.4. The Biodiversity Metric 3.01 (BM3.01) has been used to quantify the biodiversity value of existing habitats present on Site. Baseline calculations were then carried out to determine the quantitative effect the Proposed Scheme will likely have on biodiversity value (based on retained and lost baseline biodiversity units) and to inform requirements for further habitat compensation. To aid in estimating compensation requirements, it has been assumed that certain areas within the Order Limits will be retained, and some will be cleared. A worst-case scenario of habitat loss for these areas areas located on Figure 1 (- Biodiversity Net Gain: Land Use and Habitat Change Areas). Plan. This plan has been devised based on the updated Works Plans (document reference 2.3AS-073) and includes areas of habitat change which include temporary and permanent loss-and habitat enhancement, and hence also inform the plans associated with the Outline Landscape and Biodiversity Strategy (FCA Landscape and Biodiversity Plan (AS-048) and OHL Landscape and Biodiversity Plan (AS-049). This is based on a worst-case scenario of habitat loss for the Proposed Scheme.

- 2.1.5. <u>BM 3.0BM3.1</u> calculates biodiversity units provided by area-based habitats, hedgerows, and rivers / watercourses separately, which are calculated using the following units:
  - a. Area-based habitats;
  - b. Hedgerow habitats; and
  - c. <u>River/watercourseRivers and stream</u> habitats.
- 2.1.6. The quantitative outcome awarded to the Proposed Scheme is dependent on the area-based, hedgerow or river/watercourse habitat value with the lowest net percentage change value. This could be the lowest positive or highest negative percentage change.
- 2.1.7. It should be noted that a previous iteration of this BNG assessment report (APP-196) using the previous version of the BM (BM3.0) was undertaken and submitted as part of the DCO application in May 2022.

### 2.2. SOURCES OF HABITAT DATA

- 2.2.1. The BNG assessment is informed by:
  - a. A Phase 1 habitat survey of the Proposed SchemeScheme's footprint, undertaken over several visits in 2021. The habitat survey was undertaken by experienced WSP ecologists, following best practice guidelines (Joint Nature Conservation Committee (JNCC, 2016)). This survey provided a baseline habitat database which details the habitat types present on Site and their area (in hectares (ha)). Habitats were translated from Phase 1 into UK Habitat Classification (UKHab) habitats using the 'G-9 Translation Phase 1' tab within the Biodiversity Metric 3.0BM3.1, along with professional judgement from a suitably experienced ecologist-using condition assessment data and habitat notes. In the BM3.01, distinctiveness is pre-assigned for each habitat based upon the UKHab system.
  - b. A habitat condition assessment of the habitat areas was carried out retrospectively by an experienced ecologist in 2021. The condition assessment was undertaken using the <u>Biodiversity Metric 3BM3</u>.0 Guidelines and the Biodiversity Condition Assessment Sheets (Natural England, 2021). <u>Habitat</u> <u>conditions were then re-assessed using the Condition Assessment Sheets</u> <u>released as part of BM3.1.</u>
  - **c.** A-UKHab habitat <u>survey wasand condition assessment surveys</u> undertaken in 2022 to collect baseline habitat data for Arthur's Wood and Fallow Field within the Off-Site Habitat Provision Area, <u>and areas needed for flood compensation</u> <u>and OHL modification</u>.
  - **d.** A River Condition Assessment, <u>which</u> was undertaken <u>offor</u> all watercourse habitats within the Order Limits and within riparian encroachment zones<sup>2</sup> outside of the Order Limits. This included a field survey as per the Modular River Survey

<sup>&</sup>lt;sup>2</sup> Riparian encroachment zones are defined as a 10m zone from the top of a riverbank. Development within the riparian zone is termed riparian encroachment as per the Biodiversity Metric 3.0 User Guide.

and a desk-based assessment looking at Modular River Physical (MoRPh) indices. This survey provided appropriate condition assessment data to support use within the <u>river metricrivers and streams</u> tab of <u>BM 3.0BM3.1</u>. The survey was undertaken by <u>Natural England</u> accredited surveyors.

- e. Post-development habitats identified on the Landscape and Biodiversity Management Plans (APP-181 – 182) which form part of the updated Outline Landscape and Biodiversity Strategy (AS-094) which have been designed by the project ecologist and landscape architect.
- **e-f.** The Order Limits boundaries were converted to a shapefile using ArcGIS. The quantitative outcomes of the BNG assessment calculations were rounded to the nearest % between 100 and 101 and can then be categorised as achieving one of the outcomes listed in **Table 2.1** below.
- g. The habitat improvement proposals set out in the **Bowers Mill Black Brook** Habitat Restoration Project Report (in Appendix C) (in Appendix C).

### **Table 2-1 Quantitative Outcomes of BNG Calculations**

Post-development biodiversity value	Predicted Scheme-wide outcome
Less than 100% of the baseline value	Net Loss (NL) of biodiversity
100% of baseline value	No Net Loss (NNL) of biodiversity
101% or more of baseline value	Biodiversity Net Gain (BNG)

- 2.2.4. BM3.01 uses UKHab to classify habitat types. UKHab has therefore been used in this report. All data collected prior to the release of BM3.1 (i.e data collected and used as part of the previous iteration of this BNG assessment) has been analysed to ensure it corresponds to BM3.1 and its related material. This includes JNCC Phase 1 habitat types determined in the identified during field survey weresurveys and translated to UKHab (Table 2.2)and respective condition assessment data. This analysis has been undertaken by a suitably experienced ecologist consulting field data and the habitat translation information provided inas part of the BM3.0 toolkit1 update, to allow for use within BM3.0.1.
- 2.2.5. **Table 2.2** below shows the Phase 1 habitats that have been converted to UKHab. The habitats collected during the UKHab surveys referred to in 2.2.1 c above do not feature in **Table 2.2** as habitat translation was not required.

### Table 2-2 Translation of baseline habitats from JNCC Phase 1 habitats to UKHab

JNCC Phase 1 <del>habitat type<u>Habitat</u> <u>Types</u></del>	UKHab <u>Habitat Types</u>
A1.1.2 Broadleaved woodland plantation	w1g Other broadleaved woodland
A1.3.2 Mixed woodland	w1h Other mixed woodland
A1.2.2 Coniferous woodland	w2c Other coniferous woodland
A2.1 Dense/continuous scrub	h3h <mark>mixedMixed</mark> scrub
A2.2 Scattered scrub	w1g6 Line of trees
A3.1 Broadleaved scattered trees	w1g Other broadleaved woodland

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JNCC Phase 1 <del>habitat type<u>Habitat</u> <u>Types</u></del>	UKHab <u>Habitat Types</u>
B4 Improved grassland	g4 Modified grassland
B6 Species poor semi-improved grassland	g3cg4 Modified grassland
C3.1 Ruderal tall herb and fern	g3c-s 17 Sparsely vegetated land (Ruderal/Ephemeral)
C2 Pupping water	
F1 Swamp	f2e Reedbeds
J1.1 Arable land	c1c Cropland cereal crops
J1.2 Amenity Grasslandgrassland	g4 Modified grassland
B2.2 Semi improved neutral	g3c Other neutral grassland
grassland	
B2.2 Semi improved neutral	g4 Modified grassland
grassland (poor quality)	
J2.1.1 Species rich intact hedge	h2a Native spspecies rich hedge
J2.1.2 Species poor intact hedge (alongside J2.6 dry ditch)	h2a Native hedgerow (with ditch)

### 2.2.5.2.2.6. As per Figure 1.2 (Indicative the updated Site LayoutLocation Plan) (document reference 6.2.1.2 (AS-071) and the Works Plans, the BNG assessment is based on fourthe Proposed Scheme works and habitat creation/enhancement proposals in six main areas. These are:

- a. Drax Power Station Site (including area for street furniture modification FCA);
- b. East Construction Laydown Area;
- c. Habitat Provision Area; and
- d. Off-Site Habitat Provision Area-;
- e. OHL Areas (Work Number 8); and
- f. Proposed river and stream habitat enhancement to the Bowers Brook, to be delivered off-site by the CCRT.
- 2.2.7. Land use and habitat change areas are illustrated on Figure 1. The land use and habitat change areas show anticipated construction activity within areas inside the Order Limits. These areas are defined below:
  - a. Permanent Loss: Areas within the Order Limits to be removed and not replaced
  - **b.** Temporary Loss: Areas to be removed for the duration of construction and reinstated on completion
  - c. Retained: Natural habitats that are to be retained as part of the Proposed Scheme
  - d. Modifications to Urban Features Only: Areas where hard standing, hard landscaping, built structures and power station infrastructure are to be removed only

# 2.3. IRREPLACEABLE HABITATS AND HABITATS OF PRINCIPAL IMPORTANCE

- 2.3.1. Following national good practice guidance, irreplaceable habitats and statutory designated Sites are excluded from BNG calculations. BNG or NNL of biodiversity cannot be achieved for the Proposed Scheme as a whole if there is a negative impact on an irreplaceable habitat or a statutory designated Site.
- 2.3.2. The Site was overlaid with Natural England's Ancient Woodland Inventory dataset to identify presence of irreplaceable habitat on Site. Statutory designated <u>Sitessites</u> were identified by overlaying publicly available <u>Open-Sourceopen source</u> Natural England datasets with the Order Limits and Off-Site Habitat Provision Area. <u>No irreplaceable habitats were identified within or adjacent to the Proposed Scheme.</u>
- 2.3.3. Habitats of Principal Importance (HPI) were identified by overlaying publicly available Opensourceopen source Natural England datasets with the Site boundary, followed by a quality assurance assessment to ensure that the national dataset was consistent with the habitat types found on the ground. Where there were inconsistencies in habitat type, the field survey data were assumed to be correct. HPI were identified to enable indicative compensation requirements to target achievement of like-for-like habitat replacement for HPI.

## 2.4. NOTES, LIMITATIONS AND ASSUMPTIONS

2.4.1. The following <u>notes</u>, limitations and assumptions have been applied when using the above methodologies. None of the present limitations were considered to be significant.

### **BASELINE BIODIVERSITY**

- 2.4.2. The biodiversity unit calculations do not account for temporary and / or indirect impacts to habitats outside of the Order Limits and Off-Site Habitat Provision Area boundary arising during construction of the Proposed Scheme. At present no such areas are expected to be required. In the event that they were, these would need to be addressed at a later stage.
- 2.4.3. The<u>Some of the</u> baseline habitat conditions within the Site have been determined retrospectively, based on existing data gathered during the <u>PEAPhase 1 habitat</u> <u>survey</u> carried out during 2021 and targeted condition assessments in 2022 for the Off-Site Habitat Provision Area<del>,</del> <u>FCA and OHL areas</u>. Some of the survey visits were not conducted within optimal survey times for habitats contained within the Site, including woodland and grassland.
- 2.4.4. It is important to recognise that the quantification of biodiversity is one of a number of factors to be considered when assessing the impact of the Proposed Scheme on biodiversity. It should be noted that this initial BNG assessment report does not cover potential impacts of the Proposed Scheme on protected species and designated sites which are set out in Chapter 8 (Ecology) of the ES (document reference 6.1.8<u>APP-044</u>) and the HabitatHabitats Regulations Assessment Report (document reference 6.8.1). report (REP2-101).

- 2.4.5. The Proposed Scheme has set aside areas within <u>and outside of</u> the Order Limits and outside for the purposes of ecological and landscape mitigation and compensation. The area set aside within the Order Limits is referred to as the Habitat Provision Area whilst the area outside the Order Limits is called the Off-Site Habitat Provision Area. The Proposed Scheme does not depend on this area to facilitate construction, with no temporary or permanent habitat loss required for demolition, construction, or decommissioning activities. This area is required/proposed only for the purpose of achieving ecological and landscape mitigation and enhancement, and for supporting BNG. Inclusion of this area as being 'on-site' would make achieving a Biodiversity Net Gain more challengingthe delivery of BNG.
- 2.4.6. The Applicant has therefore taken an approach which is informed by the Consultation on Biodiversity Net Gain Regulations and Implementation document issued by the Department for Environment, Food and Rural Affairs (Department for Environment, Food and Rural Affairs, 2022), specifically page 45 and 46, 'Process and demonstrating biodiversity net gain gains' of Part 2: Applying the biodiversity net gain objective to different types of development, which states: Within the BM3.1 a temporal multiplier is factored into the calculations to account for the delay in habitat creation for a particular project. At this stage it is assumed that habitat reinstatement within the Drax Power Station would be delayed for a period of five years until construction has been completed. Habitat creation measures within the FCA would commence on completion of the flood compensation measures and has been set at 2 years. Habitat reinstatement within the OHL Areas is expected to be delayed for up to a year. It is assumed that habitat creation and enhancement within the Off-Site Habitat Provision Area would begin upon commencement of construction of the Proposed Scheme.

### <del>2.4.6.<u>1.1.1.</u>\_\_\_\_</del>

<sup>5</sup>We have heard from stakeholders that NSIPs often need to incorporate significant areas for environmental mitigation or compensation within their development site boundaries. This may have the effect of making biodiversity net gain relatively more challenging than for development consented under the Town and Country Planning Act 1990. This is because the percentage gain would also apply to these mitigation areas and other development types may be able to exclude such areas from their development boundary and treat them as off-site enhancements (so that the percentage gain target does not apply).

We are therefore considering whether a distinction should be made for NSIPs between onsite habitats in the development area and any dedicated mitigation areas'

2.4.7. As a result, this area has been included within the 'off-site' tabs for area and hedgerow units within BM3.0 (as per the approach for the Off-Site Habitat Provision Area), this is considered to be an acceptable approach given the nature of the area and the reasons for which it has been included within the Order Limits. This approach has been communicated to Natural England.

### POST-DEVELOPMENT BIODIVERSITY

2.4.8.2.4.7. An assumption has been made in relation to retained habitats within the Site. Habitat polygons that would remain entirely unaffected by the built footprint of the Proposed Scheme were marked as 'retained' within the <u>BM-3.0BM3.1</u> calculation tool. Where a habitat falls within a particular Works Plan number, a number of assumptions have been made regarding the habitat change. Habitats are considered to be permanently or temporarily lost or not lost at all based on the type of activity within that Works number. This is considered to be a reasonable worst-case scenario.

- 2.4.9.2.4.8. It is acknowledged that there will be scope to optimise habitat retention on Site, with the potential for more habitat units to be retained and/or enhanced during detailed design of the Proposed Scheme. (post-consent). For example, wholescalewholesale loss of all habitats within all Drax Power Station Construction Laydown Areas is unlikely to actually occur. A final BNG report utilising a finalised biodiversity and landscape planplans would need to be undertaken in this instance, in order to accurately quantify where this retention, enhancement, and additional creation, would take place.
- 2.4.10.2.4.9. This will also allow off-Site ecological compensation requirements to be finalised where necessary. Predicted habitat change areas <u>for this assessment</u> include those that are to be retained. Habitat loss / retention / enhancement categories of land can be viewed on Figure 1 (<u>– Biodiversity Net Gain:</u> Land Use and Habitat Change <u>Areas</u>).<u>Plan.</u>
- 2.4.10. Given the above, this BNG assessment report is to be updated upon receipt of detailed design information post-consent and in advance of construction commencing, at a point to be agreed with the LPAs once the phasing of the Proposed Scheme is known. Post-development data obtained through analysis of detailed design information of the Proposed Scheme would be used to update the BM (the most recent BM version at that time) to present a more accurate understanding of the habitat change. As a result, the BM3.1 outcome documented in this report should not be taken as final. With that said, the Applicant is committed to delivering a minimum of 10% BNG as part of the Proposed Scheme.
- 2.4.11. Habitat creation and enhancement measures included within <u>BM-3.0BM3.1</u> are set out in further detail in the <u>updated</u> **Outline Landscape and Biodiversity Strategy** (OLBS) (document reference 6.10).<u>AS-094).</u>
- 2.4.12. An alternative 'future scenario' of the Proposed Scheme has been presented as a sensitivity test. This reports the BNG outcome for a more realistic habitat loss scenario than the main 'worst-case scenario' assessed. The Applicant intends to explore whether assumptions around habitat loss required to facilitate the Proposed Scheme can be updated and reviewed prior to and during Examination of the Proposed Scheme. This may enable a firmer commitment to reducing habitat loss yet further to be made.

### **RIVER METRIC**

### **RIVERS AND STREAMS COMPONENT**

2.4.13.2.4.12. A culverted section of Carr Dyke (a watercourse habitat) is located underneath the Power Station and runsrunning for approximately 0.72 km from south-west to north-east. Although not directly impacted by the Proposed Scheme, the culverted section of Carr Dyke has been included within the <u>River MetricRivers and Streams</u> <u>component of the BM3.1</u> calculations, as it falls within the Order Limits and is within areas included in the Order Limits that will be subject to construction activities.

### **BIODIVERSITY METRIC APPROACH**

- 2.4.13. As part of this BNG Assessment, two approaches were previously used to calculate biodiversity units (area-based habitats and linear (hedgerow) habitats) in areas set aside for habitat enhancements for the Proposed Scheme. The difference between approaches related to the inclusion of habitat data within the 'off-site' or 'on-site' tabs of the Biodiversity Metric.
- 2.4.14. The Proposed Scheme has set aside areas within the Order Limits and outside for the purposes of ecological and landscape mitigation and compensation. The area set aside within the Order Limits is referred to as the Habitat Provision Area whilst the area outside the Order Limits is called the Off-Site Habitat Provision Area. The Proposed Scheme does not depend on these areas to facilitate construction, with no temporary or permanent habitat loss required for demolition, construction, or decommissioning activities. These are as required/proposed only for the purpose of achieving ecological and landscape mitigation and enhancement, and for supporting BNG.
- 2.4.15. In May 2022 BNG Report (APP-196) submitted with the DCO application, he Applicant had taken an approach which was informed by the Consultation on BNG Regulations and Implementation document (the 'BNG consultation') issued by the Department for Environment, Food and Rural Affairs (Department for Environment, Food and Rural Affairs, 2022), specifically page 45 and 46, 'Process and demonstrating biodiversity net gain gains' of Part 2: Applying the biodiversity net gain objective to different types of development. This states:

We have heard from stakeholders that NSIPs often need to incorporate significant areas for environmental mitigation or compensation within their development site boundaries. This may have the effect of making biodiversity net gain relatively more challenging than for development consented under the Town and Country Planning Act 1990. This is because the percentage gain would also apply to these mitigation areas and other development types may be able to exclude such areas from their development boundary and treat them as off-site enhancements (so that the percentage gain target does not apply).

<u>We are therefore considering whether a distinction should be made for NSIPs</u> <u>between onsite habitats in the development area and any dedicated mitigation areas</u>

- 2.4.16. As a result, the initial BNG assessment included the Habitat Provision Area (on-site within the Order Limits) in the 'off-site' tabs for area and hedgerow units within BM3.1. Natural England have previously provided advice that the Habitat Provision Area should be included in the 'on-site' tab of the BM3.1 metric.
- 2.4.17. Defra published the government response to the BNG consultation on the 21 February 2023 (Department for Environment, Food and Rural Affairs, 2023). This states at section 4.3 that:

2.4.18. 'We intend to apply BNG for NSIPs without any broad exemptions other than the provision made for development on irreplaceable habitats. Using the same broad approach for NSIPs will help to create consistency between different types of projects, reducing the scope for confusion and the need to define requirements in reporting.';

<u>and</u>

"Some NSIPs need to include significant areas for environmental mitigation within their project boundaries. We do not intend to make a distinction for NSIPs between on-site habitats (which are subject to BNG) and any dedicated environmental mitigation areas included in the project boundary. This maintains consistency with the approach for TCPA development. We will consult further on this proposal through the draft biodiversity gain statement".

2.4.19. In light of the Defra consultation response and Natural England advice, the BM3.1 metric has been updated for this iteration of the BNG report. The Habitat Provision Area has now been included in the 'on-site' part of the BNG metric. The off-site Habitat Provision Area remains within the off-site part of the BNG metric. The Riverine habitats associated with the proposed off-site rivers and stream enhancements to be delivered by the CCRT, have also been included in the off-site part of the BNG metric.

# 3. RESULTS

### 3.1. THE SITE OVERVIEW

3.1.1. The BM3.1 toolkit is included within Appendix B. The results below summarise the output of the approach which includes the Habitat Provision Area and associated habitats proposed for creation and/or enhancement as 'on-site', in accordance with Natural England's advice as set out in their Relevant Representation (document reference AS-011) and the BNG consultation response (Department for Environment, Food and Rural Affairs, 2023).

### 3.2. RIVERS AND STREAMS

- 3.2.1. The Bowers Mill Black Brook Habitat Restoration Project has been developed by the Calder and Colne Rivers Trust in collaboration with the Applicant and is planned to be delivered in summer 2023. This scheme will:
  - a. Remove the right bank retaining wall and re-profile the bank to restore floodplain connectivity
  - b. Expand the footprint and improve the quality of existing floodplain wetland habitat
  - c. Divert and improve the field boundary ditch to feed floodplain wetlands
  - d. Remove a weir to restore sediment flow and habitat connectivity within the river
- 3.2.2. These interventions will result in an uplift of biodiversity units and deliver natural flood management as a co-benefit. The scheme is the first phase of a larger, whole-site, restoration plan for habitats, biodiversity, access and recreation, and local business. The **Bowers Mill Black Brook Habitat Restoration Project Report**, which explains the works proposed, is located in Appendix C.
- 3.2.3. At the time of writing the Applicant is in the process of drafting appropriate wording for the S106 agreement to secure the delivery of CCRT's proposed habitat enhancement and restoration measures and their allocation to the Proposed Scheme's BNG requirements.

# 3.3. BASELINE BIODIVERSITY

- 3.1.1.3.3.1. The Site (being all areas within the Order limits including the Habitat Provision Area and the Off-site Habitat Provision Area) was checked against Natural England's Ancient Woodland Inventory dataset, no areas of Ancient Woodland or other irreplaceable habitat were identified within or in proximity to the Order Limits.
- 3.1.2.3.3.2. The Site was checked against Natural England's HPI dataset, and then checked with on-Site data collected for the PEAPreliminary Ecological Appraisal report. (document reference 6.3.8.1) (APP-136). There are several is one HPI (hedgerows) identified within the Order Limits, including hedgerows and reedbeds. No reedbed HPI is present within the Order Limits, with the limited extent of 'reedbed' habitats present (see Table 2.2) not meeting the JNCC description for this HPI. No statutory or non-statutory designated sites were present within the Order Limits.

3.3.3. The outcome area/length and baseline biodiversity unit totals for each habitat category were as follows:

a. Area-based habitats: 141.30 ha and 218.17 biodiversity units

b. Hedgerow habitats: 3.99 km and 31.80 biodiversity units

c. Rivers and streams habitats: 1.58 km and 5.50 biodiversity units

3.3.4. The number of biodiversity units generated by each habitat type is shown in the initial BNGappended BM3.1 toolkit, in Appendix B. The baseline biodiversity within the Order Limits displaying the existing habitats is located on Figure 4 of the PEA (document reference APP-136) and Landscape and Biodiversity Plans (document reference 8.5.2.3 and 8.5.2.4) of the PCAR.

# 3.4. POST-DEVELOPMENT BIODIVERSITY

- 3.4.1. The post-development habitats expected within the Order Limits after construction (at the current stage) is based on the Landscape and Biodiversity Management Plans (APP-181 and APP-182) which form part of the updated Outline Landscape and Biodiversity Strategy (AS-094) and Landscape and Biodiversity Plans (AS-048 and AS-049) which form part of the PCAR (AS-045) and form part of the Outline Landscape and Biodiversity Strategy. Figure CCRT 2101\_02 of the Bowers Mill Black Brook Habitat Restoration Project Report (see Appendix C) displays the habitat enhancement for rivers and streams habitats.
- 3.4.2. The following area/length and post-development biodiversity unit totals of retained and proposed (created and enhanced) habitats were as follows:

a. Area-based habitats<sup>3</sup>: 72.85 ha and 81.12 habitat units retained. 11.7 ha enhanced, 75.27 ha created, totalling 75.12 habitat units created and 99.4 habitat units delivered through enhancement.

**b. Hedgerow habitats:** 2.14 km and 18.94 hedgerow units retained. 0.89 km enhanced, 2.31 km created, totalling 18.82 hedgerow units created and 11.22 units delivered through enhancement.

**c.** Rivers and streams habitats: 1.09 km and 2.75 river units retained. 0.44 km enhanced, 0.03 km created, totalling 0.12 river units created and 4.13 units delivered through enhancement.

# 3.2.3.5. QUANTITATIVE ASSESSMENT IS SUMMARISED IN TABLE 3.1. OUTCOME

3.2.1.3.5.1. **Table 3.1** and **Table 3.2** below summarises the outcome of the BNG calculation for the Proposed Scheme at the current stage (taking habitat data from BM 3.0BM3.1), considering both on-Site and off-Site habitat loss, retention, reinstatement, creation and enhancement proposals. <u>The quantitative outcome</u>

<sup>&</sup>lt;sup>3</sup> Includes construction of new, urban habitats and Proposed Scheme infrastructure

presented below has been taken from the BM3.1 which has used the 'on-Site' approach to the Habitat Provision Area as described in the Methodology section of this report. The full outcome of the BM3.1 toolkit is located within the detailed results in **Appendix B** of this document.

# Table 3-1 Headline Results of Biodiversity Metric 3.01 Calculation for the Proposed Scheme – On-Site Calculation for the Proposed

Biodiversity Units	Baseline Value	Post- Development Units Retained and Created	Change in Units	Quantitative Outcome %
Habitat units	<del>130.91</del> 157.11	<del>84.06<u>154.30</u></del>	4 <del>6.85</del> -2.81	- <del>35.78</del> 1.79
Hedgerow units	<del>14.47<u>29.69</u></del>	<del>14.20<u>43.84</u></del>	<del>0.27<u>14.15</u></del>	- <u>1.8847.65</u>
River <u>Unitsunits</u>	2.41 <u>83</u>	2.41 <u>85</u>	<u>+</u> 0. <del>00<u>02</u></del>	<b>0</b> . <del>00<u>58</u></del>

# Table 3-2 Headline Results of Biodiversity Metric 3.01 Calculation for the Proposed Scheme – Off-Site

Biodiversit y Units	Baselin e Value	, <mark>Units</mark> <del>Retaine</del> el	<u>Units</u> Created and Enhance d	Post-Develong Value Units	opment	<u>Change i</u>	n units D D Ir
Habitat units	<del>71.66</del> 61.0	<u>6</u>		4 <u>.46101.3</u> 5	<del>118.8</del> <del>2</del>	<del>123<u>40</u>.29</del>	D
Hedgerow units	<u>1.93</u>			5. <u>6015</u>		0.36 <u>3.2</u> 2	
River units	2.67			4.13		1.46	

- 3.2.2. The total unit change considering both on-Site and off-Site retention, creation and enhancement proposals is **4.79** for habitats and **7.48** for hedgerows. There is no change in river units.
- 3.2.3. The total on-site net % change plus off-Site surplus equates to a 3.6623.86% net gain in habitats and a 51.758.52% net gain in hedgerows. The net % change for rivers remains at 0.00% as there is no change toand streams is 52.50%. Both the baseline.
- 3.2.4. **Table 3.3** summarises <u>headline and detailed results can be seen in the outcome of</u> the BNG calculation for the Proposed Scheme considering a 'future scenario' sensitivity test. This calculation considers a possible change<u>BM3.1 toolkit</u> in habitat retention and reinstatement proposals, located purely within the Woodyard. These proposals are based on an optioneering exercise that has been undertaken to ascertain if the Proposed Scheme could achieve at least a 10% BNG. These

proposals do not form part of the DCO at this stage and will be subject to further consideration by the Applicant prior to and during Examination.

# Table 3-3 Headline Results of Biodiversity Metric 3.0 Calculation Considering a Future Scenario for the Proposed Scheme – On-Site

<del>Biodiversity</del> <del>Units</del>	<del>Baseline</del> <del>Value</del>	Units Retained and Created	<del>Change in</del> <del>Units</del>	Quantitative Outcome %
Habitat units	<del>130.91</del>	<del>101.52</del>	<del>29.39</del>	<del>-22.45</del>
Hedgerow units	<del>14.70</del>	<del>14.55</del>	<del>0.15</del>	<del>0.55</del>
River units	<del>2.41</del>	<del>2.41</del>	<del>0.00</del>	0.00

- 3.2.5. The off-Site biodiversity value for the future scenario remains as per **Table 3-2**. The total unit change considering both on-Site and off-Site retention, creation and enhancement proposals for this scenario is **22.35** for habitats and **7.83** for hedgerows. There is no change in river units.
- 3.2.6.3.5.2. The total on-site net % change plus off-Site surplus for the future scenario equates to a **17.08%** net gain in habitats and a **54.14%** net gain in hedgerows. The net % change for rivers remains at **0.00%** as there is no change to the baseline<u>Appendix B</u>.

## 3.3.3.6. QUALITATIVE RESULTS

3.3.1.3.6.1. **Table 3.43** below documents the adherence of the Proposed Scheme to each of the BNG good practice principles. Adherence of the Proposed Scheme to these principles is based on the current stage in the BNG process; it does not necessarily preclude future adherence.

### Table 3-3 Adherence to the Qualitative Assessment of BNG

Principle	Description	Evidence of Compliance
1. Apply the mitigation hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.	The mitigation hierarchy has been followed for the Proposed S         Details on avoidance and minimising of effects are considered         Chapter 8 (Ecology) of the Environmental Statement (docume         reference 6.1.8).ES (APP-044).         A quantitative net gain has been achieved through all habitat         categories.
2. Avoid losing biodiversity that cannot be offset by gains elsewhere	Avoid impacts on irreplaceable biodiversity – these impacts cannot be offset to achieve No Net Loss or BNG.	No impacts to irreplaceable habitats are predicted.
3. Be inclusive and equitable	Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to BNG. Achieve BNG in partnership with stakeholders where possible and share the benefits fairly among stakeholders.	Natural England and North Yorkshire County Council (NYCC) been consulted as part ofthroughout the BNG process. See T Consultation Summary Table in Chapter 8 (Ecology) (docume reference 6.1.8APP-044) of the EnvironmentalES and Statem Common Ground between the Applicant and Natural England NYCC (REP-020 and REP-018 respectively). The biodiversity and landscape design has been shared with (acting on behalf of Selby District Council (SDC)) and Natural as have the Rivers BNG proposals set out in the <b>Bowers Mill Brook Habitat Restoration Project Report.</b> . Through consul NYCC have stated that they are in agreement with the propos landscape and biodiversity plans prepared for the Proposed S This is in the Statement of Common Ground between NYCC, the Applicant (AS-030) Consultation with Natural England and the Environment Agen been undertaken with regards to enhancements for rivers and habitats off-Site. This will be able to move forward on the basi proposals set out the <b>Bowers Mill Black Brook Habitat Rest</b> <b>Project Report.</b> Consultation will continue with NYCC, Natural England and th Environment Agency during Examination of the DCO applicatt post-consent.
4. Address risks	Mitigate difficulty, uncertainty and other risks to achieving BNG. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.	The BNG assessment has used industry recognised risk multi included in BM 3.0.BM3.1.

	Current Outcome	
<u>Scheme.</u> I in <del>nt</del>	Achieved.	Inserte
	Achieved.	
have able 8-1 nt ents of and <u>VYCC</u> England, <u>Black</u> tation, ed cheme. SDC and SDC and <u>cy has</u> streams s of the oration	Achieved.	
pliers	Achieved.	

Principle	Description	Evidence of Compliance	<u>Current Outcome</u>
5. Make a measurable Net Gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.	A net gain of 3.6623.86% in habitats and 51.7, 58.52% in hedgerows has been and 52.50% in rivers and streams can be achieved for the Proposed Scheme. This assessment has been undertaken based on a reasonable worst-case scenario for habitat loss and disturbance arising from the Proposed Scheme. A future scenario calculation has been undertaken based on more realistic (rather than worst-case) assumptions regarding habitat loss. The Applicant will revisit the assessment prior to and during Examinationdetailed design of the DCOProposed Scheme to determine whether assumptions regarding habitat loss can be tightened and thus the net gain position bettered. This principle is achieved updated.	Achieved.
6. Achieve the best outcomes for biodiversity	<ul> <li>Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when:</li> <li>Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses;</li> <li>Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation;</li> <li>Achieving BNG locally to the development while also contributing towards nature conservation priorities at local, regional and national levels;</li> <li>Enhancing ecological connectivity by creating more bigger, better and joined areas for biodiversity.</li> </ul>	At the time of writing, this assessment used the most recent data and followed a rigorous method and quality assurance process. Habitat creation and enhancement is taking placeare proposed within the Order Limits and within an area off-Site but in proximity to the Order Limits. As indicated in the Trading Summary tab of BM 3.0, there are losses not yet accounted for which include reedbed, grassland and scrub (these losses are accounted for, and all trading summary rules are met in the future scenario calculation that has been subject to sensitivity testing). This principle is achievable. The Applicant has committed to delivering a minimum of 10% net gain for the Proposed Scheme across each habitat category. As a result, enhancement of rivers and streams habitats have been sought. Due to the nature of rivers and streams habitats within the Order Limits and the difficulty associated with enhancing the existing culverted river and ditches within and in proximity to these habitats, off-Site enhancement has been sought. Whilst this is located in West Yorkshire, it is within the same catchment area as the rivers and streams habitats identified within the Order Limits. An agreement is to be made with the Colne and Calder Rivers Trust and though a section 106 Agreement to secure this.	Achieved.
7. Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e., do not deliver something that would occur anyway).	The Habitat Provision Area and Off-Site Habitat Provision Area is proposed to deliver habitat compensationcreation and enhancement above and beyond simple reinstatement. Upon completion of FCA works, the existing grassland is to be enhanced to become a species-rich grassland.	Achieved
8. Create a Net Gain legacy	<ul> <li>Ensure BNG generates long-term benefits by:</li> <li>Engaging stakeholders and jointly agreeing practical solutions that secure BNG in perpetuity;</li> </ul>	The Applicant owns the majority of land within the Habitat Provision Area and all land within the Off-Site Habitat Provision Area and areis therefore able to commit to its long-term management. An updated Outline Landscape and Biodiversity Strategy (document reference 6.6),	Achieved

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Principle	Description	Evidence of Compliance
	<ul> <li>Planning for adaptive management and securing dedicated funding for long-term management;</li> <li>Designing BNG for biodiversity to be resilient to external factors, especially climate change;</li> <li>Mitigating risks from other land uses;</li> <li>Avoiding displacing harmful activities from one location to another.</li> <li>Supporting local-level management of BNG activities.</li> </ul>	is to be submittedAS-094) has been prepared which demonstr design and management of habitat creation and enhancement A s106 agreement will secure the delivery of river and stream enhancements as part of the DCO application and supports ac to this principleBowers Mill Black Brook restoration project. Th works go above and beyond the 10% target for the Proposed S and will therefore provide a long term additional legacy.
9. Optimise sustainability	Prioritise BNG and, where possible, optimise the wider environmental benefits for a sustainable society and economy.	Proposals for habitat creation include a range of habitats such woodland, scrub and grassland which would contribute to wide environmental gains. <u>The Applicant's support of the Bowers Mill Black Brook restora</u> <u>project will enable the delivery of wider environmental benefits</u>
10. Be transparent	Communicate all BNG activities in a transparent and timely manner, sharing the learning with all stakeholders.	The outcome of methodology and approach to this BNG assess will be made public as part of the DCO application. has been communicated to all relevant stakeholders including approach and streams enhancement measures.

	Current Outcome	Insert
r <u>ates the</u> t.		
<del>dherence</del> l <u>ese</u> Scheme		
as er <u>ation</u>	Achieved	
sment	Achieved.	

# 4. CONCLUSION AND NEXT STEPS

- 4.1.1. The Proposed Scheme is achieving acould achieve a minimum of 10% net gain in area habitats, a net gain in hedgerow units and a no-net loss in river units.all habitat categories based on the assessment undertaken at the current stage, with headroom. Overall, the Proposed Scheme could achieve a no-net loss. Thisgain in biodiversity. The outcome for the Proposed Scheme is based on the lowest outcome of the biodiversity metric calculation, which is 0.0023.86% for river unitsarea-based habitats. The BNG assessment is based on a reasonable worst-case scenario for habitat loss and disturbance arising from the Proposed Scheme is refined. This BNG assessment has therefore taken a conservative approach to calculating the BNG outcomes for area-based and hedgerow units.
- 4.1.2. The Proposed Scheme has achieved all ten Good Practice Principles.
- 4.1.2. It is proposed that the BNG assessment is updated with information obtained from exploring additional opportunities withinduring the Order Limits and outside such as the proposals included withindetailed design stage, post-consent, at a point to be agreed with the LPAs once the future scenario calculation.phasing of the Proposed Scheme is known. This would include revisiting areas of currently predicted permanent or temporary loss as a result of the Proposed Scheme, to ascertain if habitats can be retained and where possible, enhanced including meeting all trading rules.
- 4.1.3. Consultation with the Environment Agency is to be undertaken with regards to meeting a 10% net gain in river units. The Applicant is also exploring additional opportunities within. Additionally, the Order Limits to deliver BNG in relation to rivers.
- 4.1.4.<u>4.1.3.</u> The qualitative element of the BNG assessment should <u>continue to</u> be revisited<u>adhered to</u> as the Proposed Scheme design progresses and <u>hencethe</u> BNG assessment is refined. This will support delivering adherence to the ten good practice principles set out in **Table 3.4**, above.

# 5. **REFERENCES**

### **PROJECT REFERENCES**

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Figure 1 --- <u>Biodiversity Net Gain:</u> Land Use and Habitat Change Areas <u>of the Proposed</u> <u>Scheme</u>







# 6. APPENDICES

6.1. APPENDIX A – BIODIVERSITY NET GAIN PRINCIPLES

# Biodiversity Net Gain

Good practice principles for development





Transforming the world to sustainability

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# Introduction

### Achieving Biodiversity Net Gain

Designing, building, operating and maintaining - each of these stages of a development scheme generates opportunities to help achieve an overall benefit for biodiversity. Realising these opportunities is vital because biodiversity, and the functions it provides, are essential to sustain our society and economy.

Achieving these net gains in biodiversity, where there are wider benefits for society, is more than simply outweighing losses with gains. It requires doing everything possible to avoid losing biodiversity in the first place, as well as involving stakeholders especially as partners. It also requires the gains in biodiversity to be valuable locally, and to make important contributions towards regional and national priorities for nature conservation. In other words, there is a right way to achieve 'Biodiversity Net Gain' that brings about long-lasting and meaningful benefits for our environment, society and economy.

This 'right way' is articulated in standards and guidelines produced by an international community on achieving No Net Loss and Net Gain targets for biodiversity. In the United Kingdom, the government has international and national commitments on biodiversity that include halting the loss of biodiversity and reaching net gains. Development can contribute significantly towards realising these commitments. However, until now there has been no standard for the UK industry on good practice for achieving Biodiversity Net Gain.

#### Establishing good practice

CIRIA, CIEEM and IEMA have developed the first UK principles on good practice to achieve Biodiversity Net Gain. These principles provide a framework that helps improve the UK's biodiversity by contributing towards strategic priorities to conserve and enhance nature while progressing with sustainable development. They also provide a way for industry to show that projects followed good practice.

It is important that these principles are tested, refined and improved through feedback and review. CIRIA, CIEEM and IEMA will undertake a first review within 12 months.

### Supporting guidance

The principles are broad by necessity so that they apply to a wide-ranging industry. This means that their proper interpretation is critical. CIRIA, CIEEM and IEMA are developing guidance that will contain practical advice on implementing the Net Gain principles and definitions of key terms. This guidance will be available in 2017, and a steering group will be overseeing its production and consultation with a variety of stakeholders.

Part of that stakeholder consultation is discussing a credible, proportionate way to audit implementation of Biodiversity Net Gain. While this is in progress, developments claiming to achieve Biodiversity Net Gain must provide evidence that clearly demonstrates they have implemented and adhered to the good practice principles.

# Biodiversity Net Gain Good practice principles for development

Biodiversity Net Gain is development that leaves biodiversity in a better state than before. It is also an approach where developers work with local governments, wildlife groups, land owners and other stakeholders in order to support their priorities for nature conservation. These ten principles set out good practice for achieving Biodiversity Net Gain and must be applied all together, as one approach.

### Principle 1. Apply the Mitigation Hierarchy

Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.

# **Principle 2**. Avoid losing biodiversity that cannot be offset by gains elsewhere

Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or Net Gain.

#### Principle 3. Be inclusive and equitable

Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain. Achieve Net Gain in partnership with stakeholders where possible, and share the benefits fairly among stakeholders.

### Principle 4. Address risks

Mitigate difficulty, uncertainty and other risks to achieving Net Gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.

### Principle 5. Make a measurable Net Gain contribution

Achieve a measurable, overall gain<sup>1</sup> for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.

<sup>1</sup> Net Gain has been described as a measurable target for development projects where impacts on biodiversity are outweighed by a clear mitigation hierarchy approach to first avoid and then minimise impacts, including through restoration and / or compensation. Adhering to these Net Gain principles (i.e. pursuing all principles together) will help in under-pinning good practice for achieving and sustaining Net Gain.

# **Principle 6.** Achieve the best outcomes for biodiversity

Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when:

- Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses
- Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation
- Achieving Net Gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels
- Enhancing existing or creating new habitat
- Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity

### Principle 7. Be additional

Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).

#### Principle 8. Create a Net Gain legacy

Ensure Net Gain generates long-term benefits by:

- Engaging stakeholders and jointly agreeing practical solutions that secure Net Gain in perpetuity<sup>2</sup>
- Planning for adaptive management and securing dedicated funding for long-term management
- Designing Net Gain for biodiversity to be resilient to external factors, especially climate change
- Mitigating risks from other land uses
- Avoiding displacing harmful activities from one location to another
- Supporting local-level management of Net Gain activities

### Principle 9. Optimise sustainability

Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.

#### Principle 10. Be transparent

Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

<sup>2</sup> Biodiversity compensation should be planned for a sustained Net Gain over the longest possible timeframe. For development in the UK, the expectation is that compensation sites will be secured for at least the lifetime of the development (e.g. often 25-30 years) with the objective of Net Gain management continuing in the future.

base rate for the 30-year habitat management (Mgmt<sub>30</sub>) of a river unit. Mgmt<sub>30</sub> should be linked to the local terrestrial habitat value, and we propose that this is at 50% of the value of a terrestrial habitat unit—therefore £10,000 in West Yorkshire. As with terrestrial habitats, the scale of facilitation and monitoring costs will be determined to the size of the whole project, and so should each be an additional 10% of each river habitat unit (20% in total).

Therefore, the total cost of delivering off-site river habitat units could be calculated by:

$$\pounds$$
 Total =  $n \pounds RHU + \left(\frac{n}{5} \pounds RHU\right)$ 

For this project at Black Brook, the cost of a river habitat unit is

$$\pounds RHU = \frac{\pounds 55000}{3.36} + \pounds 10000 = \pounds 26,369$$

and the total project cost of purchasing off-site river habitat units would be

£ Total = 
$$(3.36 \times £26,369) + \left(\frac{3.36}{5} \times 26,369\right) = £106,320$$

with £88,600 for the River Habitat Unit uplift, £8,860 for facilitation of the river habitat unit uplift, and £8,860 for monitoring and reporting over the 30-year management plan period.

