BIODIVERSITY NET GAIN ASSESSMENT (TRACKED)

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). 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.

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.

1.1.4. An illustrative 3D drawing showing the 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 (Site and Project Description)** (APP-038). 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'.

1.1.6. This BNG assessment is based on the Order Limits, shown on the updated **Site Location Plan** (AS-104~~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 Chartered Institute of Ecology and Environmental Management (CIEEM), Construction Institute Research and Information Association (CIRIA) and Institute of Environmental Management and Assessment (IEMA) BNG Good Practice Principles (which are presented in **Table 3-3**).

HOW BIODIVERSITY NET GAIN IS SECURED FOR THE PROPOSED SCHEME

1.2.3. For the Proposed Scheme, BNG is being secured primarily through a combination of Requirement 7 of the **draft DCO (dDCO)** (AS-109) and a Section 106 (S106) agreement.

1.2.4. Requirement 7(1) states that:

> *" No phase of the authorised development or part of numbered works 5, 6 and 8 is to commence until, a written strategy for that phase or part, which is substantially in accordance with the outline landscape and biodiversity strategy, has been submitted to and approved by the relevant planning authority"*

1.2.5. Sub-paragraph (2) of Requirement 7 sets out what details the landscape and biodiversity strategies must include, whilst sub-paragraph (4) secures the implementation of the approved strategies throughout the operation of the relevant work numbers. Requirement 7 therefore the approval and implementation (including both delivery and maintenance) of the landscape and biodiversity strategies for all phases of the Proposed Scheme.

1.2.6. For any aspects of landscape and biodiversity mitigation or enhancement being delivered outside of the Order Limits, a~~n~~ S106 agreement is proposed to be entered into with NYC, to ensure that the measures in the detailed Landscape and Biodiversity Strategy are delivered on that land. A draft of the S106 agreement has been submitted into the Examination of the Application (REP3-016).

1.2.7. The S106 agreement secures, amongst other aspects, that the Applicant must update the BNG Assessment and that updated assessment must set out a plan for delivering 10% net gain (referred to as the BNG Plan). This is secured via the following draft obligations:

a. 1. The Developer must update the Biodiversity Net Gain Assessment for the Project to account for the detailed design of the Project and submit this for approval to NYC.~~;~~

2. Prior to Commencement of the Project, and following ~~The~~ NYC

b. ’s approval of the phasing plan for the Project pursuant to Requirement 2(1) of the Development Consent Order, the Developer and ~~The~~ NYC must agree when the update to the Biodiversity Net Gain Assessment required pursuant to paragraph 1 must be submitted for approval to NYC, having regard to the timing of when the detailed landscaping and biodiversity strategies for phases and numbered works is proposed to be submitted under Requirement 7 of the Development Consent Order.~~;~~

c. 3. The updated Biodiversity Net Gain Assessment must set out a plan for delivering a 10% net gain in Biodiversity Value in respect of the Project (“the BNG Plan”).

d. 4. The Developer covenants that the BNG Plan shall be implemented as approved pursuant to paragraph 1.

1.2.8. As recorded above, the S106 agreement requires the Applicant to implement the approved BNG Plan, as approved. Other obligations in the S106 agreement specifically secure the delivery and ongoing maintenance of the off-site habitat:

a. (i) **the off-site habitat to be provided on the Off-Site Provision Area** - with the obligations requiring this to be delivered before development on the Proposed Scheme can commence and to thereafter be maintained and managed for at least 30 years. The works to the Off-Site Provision Area cannot commence until a detailed landscape and biodiversity strategy dealing with the proposals for the delivery of the Off-Site provision has been approved under Requirement 7 of the DCO; and

b. (ii) **the Off-Site River Restoration BNG** (being the Black Brook river and floodplain restoration scheme). With respect to the Off-Site River Restoration BNG, the Applicant cannot commence development of the Proposed Scheme until it has provided to NYC:

- i. Information identifying the land the Off-Site River Restoration BNG will be delivered on, and detail of the works to be undertaken (including how consent for the works will be obtained and management, maintenance, monitoring and reporting will be secured);
- ii. Evidence that legal agreements are in place to secure the delivery of the Off-Site River Restoration BNG, or that it has already been delivered; and
- iii. Evidence that legal agreements are in place to secure the management, maintenance, monitoring and reporting of the Off-Site River Restoration BNG for at least 30 years.

1.2.9. The combination of Requirement 7 of the dDCO and the draft S106 agreement would therefore secure both the delivery of detailed landscape and biodiversity measures in accordance with the Outline Landscape and Biodiversity Strategy (OLBS), and the delivery of 10% BNG as part of the Proposed Scheme, both within and outside the Order limits.

~~1.2.2.~~1.2.10. Further details on the above are provided in the **OLBS** (AS-119, Rev05 being submitted at Deadline 6).

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);
f. The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)
g. UK Biodiversity Action Plan (UK BAP)[1];
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 Business, Energy and Industrial Strategy, 2021)
k. Selby District Local Plan. – ENV9, ENV12 and ENV13. Updated in 2019. (Selby District Council, 2005); and
l. Selby District Core Strategy Local Plan. SP18 (Selby District Council, 2013).

1.3.2. The NPPF makes clear the current expectations for development to achieve BNG in England. The NPPF states underneath 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 development period for the detail that underpins/will further develop the Act's provisions, 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 developing the process as to how this will be required to be demonstrated for NSIPs (including the prospective introduction of a biodiversity net gain statement). 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 NERC Act 2006 duty on public bodies to have regard to the purpose of conserving and enhancing biodiversity.

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[1] 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.

1.4. SCOPE OF REPORT

1.4.1. The report documents the assessment of the outcome of BNG taking account of the Proposed Scheme as documented in **Chapter 2 (Site and Project Description)** 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.

1.4.2. The report is supported by a series of figures which include: **Figure 1: Biodiversity Net Gain Land Use and Habitat Change Plan)** (document reference 6.10.1), **Landscape and Biodiversity Management Plans** (APP-181 and APP-182) which form part of the updated **OLBS** (AS-119~~094~~, Rev05 being submitted at Deadline 6), **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 **OLBS** 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;

c. A summary of the quantitative outcome predicted for the Proposed Scheme (based on a worst-case scenario of the Proposed Scheme parameters and including other works as identified within the **PCAR**); and

d. Commentary regarding adherence to the Good Practice Principles (CIEEM, CIRIA, IEMA 2016).

REPORT UPDATES SINCE THE PREVIOUS VERSION

1.4.3. The following is a summary of changes that have been made to this document since the previous version (REP3-010) was issued:

a. A summary of how BNG is being secured for the Proposed Scheme has been added to Section 1.2;

b. A statement has been added to this section (paragraph 1.4.4) providing clarification on what version of the Biodiversity Metric has been used for the assessment;

c. Additional information on the rivers and streams assessment (including additional information on off-Site enhancement) has been added to Section 2.4;

d. Information on changes to Work No. 8 and the effect this has had on the BNG assessment has been added to Section 2.4;

e. Additional information on the results of the rivers and streams assessment is provided in Section 3.2;

f. The length and baseline biodiversity units for river and stream habitats has been amended in Section 3.3; and

~~d.~~g. Amendments have been made to the lengths and post-development biodiversity units for river and stream habitats in Section 3.4, with additional information on banking of biodiversity units for future use also provided.

1.4.4. During ISH3, the Applicant committed to updating all BNG documents for Deadline 5 in light of the new BNG Metric 4.0, which was launched during the Examination stage. However, Natural England have since advised that the Applicant proceeds with the Biodiversity Metric 3.1 for consistency with the work undertaken to date. Natural England has issued this advice in writing.

1.4.5. It should be noted that the Metric submitted alongside this report does not include changes arising from the Second Change Application Report (SCAR) (AS-126) changes to the Order Limits for Work No. 8. This is due to the very minor nature of the change and is discussed further in Section 2.4.

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)
- **b.** Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide (CIEEM, CIRIA and IEMA, 2019)
- **c.** The Biodiversity Metric 3.1 (JP039) auditing and accounting for biodiversity - user guide (Natural England, 2022);
- **d.** The Biodiversity Metric 3.1 (JP039) Technical Supplement (Natural England, 2022); and
- **e.** BS8683:2021 Process for designing and implementing Biodiversity Net Gain – specification (British Standards Institute, 2021).

2.1.2. 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 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 ten 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 3.1 (BM3.1) 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 is located on **Figure 1 – Biodiversity Net Gain: Land Use and Habitat Change Plan**. This plan has been devised based on the updated **Works Plans** (AS-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 OLBS (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. BM3.1 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. Rivers and stream 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 (REP3-010) was undertaken and submitted at Deadline 3.

2.2. SOURCES OF HABITAT DATA

2.2.1. The BNG assessment is informed by:

a. A Phase 1 habitat survey of the Proposed Scheme'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 BM3.1, along with professional judgement from a suitably experienced ecologist using condition assessment data and habitat notes. In BM3.1, 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 BM3.0 Guidelines and the Biodiversity Condition Assessment Sheets (Natural England, 2021). Habitat conditions were then re-assessed using the Condition Assessment Sheets released as part of BM3.1.

c. UKHab habitat and condition assessment surveys undertaken in 2022 to collect baseline habitat data for Arthur's Wood and Fallow Field within the Off-Site Habitat Provision Area, and areas needed for flood compensation and OHL modification.

d. A River Condition Assessment, which was undertaken for all watercourse habitats within the Order Limits and within riparian encroachment zones[2] outside of the Order Limits. This included a field survey as per the Modular River Survey and a desk-based assessment looking at Modular River Physical (MoRPh) indices. This survey provided appropriate condition assessment data to support use within the rivers and streams tab of BM3.1. The survey was undertaken by Natural England 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-119~~094~~) which have been designed by the project ecologist and landscape architect.

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[2] 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 3.1~~0~~ User Guide.

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. BM3.1 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 identified during field surveys and translated to UKHab and respective condition assessment data. This analysis has been undertaken by a suitably experienced ecologist consulting field data and the habitat translation information provided as part of the BM3.1 update, to allow for use within BM3.1.

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 Habitat Types	UKHab Habitat Types
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 Mixed scrub
A2.2 Scattered scrub	w1g6 Line of trees
A3.1 Broadleaved scattered trees	w1g Other broadleaved woodland
B4 Improved grassland	g4 Modified grassland
B6 Species poor semi-improved grassland	g4 Modified grassland
C3.1 Ruderal tall herb and fern	s 17 Sparsely vegetated land (Ruderal/Ephemeral)
G2 Running water	r1e Ditch
F1 Swamp	f2e Reedbeds
J1.1 Arable land	c1c Cropland cereal crops
J1.2 Amenity grassland	g4 Modified grassland
B2.2 Semi improved neutral grassland	g3c Other neutral grassland

JNCC Phase 1 Habitat Types	**UKHab Habitat Types**
B2.2 Semi improved neutral grassland (poor quality)	g4 Modified grassland
J2.1.1 Species rich intact hedge	h2a Native species rich hedge
J2.1.2 Species poor intact hedge (alongside J2.6 dry ditch)	h2a Native hedgerow (with ditch)

2.2.8. As per the updated **Site Location Plan** (AS-071) and the **Works Plans**, the BNG assessment is based on the Proposed Scheme works and habitat creation/enhancement proposals in six main areas. These are:

- **a.** Drax Power Station Site (including FCA);
- **b.** East Construction Laydown Area;
- **c.** Habitat Provision Area;
- **d.** Off-Site Habitat Provision Area;
- **e.** OHL Areas (Work ~~Number~~ No. 8); and
- **f.** Proposed river and stream habitat enhancement to the Bowers Mill Black Brook, to be delivered off-site by the CCRT.

2.2.9. 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 sites were identified by overlaying publicly available open source Natural England datasets with the Order Limits and Off-Site Habitat Provision Area. No irreplaceable habitats were identified within or adjacent to the Proposed Scheme.

2.3.3. Habitats of Principal Importance (HPI) were identified by overlaying publicly available open-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 notes, 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.

2.4.3. Some of the baseline habitat conditions within the Site have been determined retrospectively, based on existing data gathered during the Phase 1 habitat survey carried out during 2021 and targeted condition assessments in 2022 for the Off-Site Habitat Provision Area, FCA and OHL areas. 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 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 (APP-044) and the **Habitats Regulations Assessment** report (REP2-101).

2.4.5. The Proposed Scheme has set aside areas within and outside of the Order Limits 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 the delivery of BNG.

2.4.6. 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~~two 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. Off-Site enhancements for rivers and streams are expected to be created prior to commencement of construction as the Off-Site enhancements are due to be completed in 2023. A conservative approach has been taken and no advance creation has been applied to these enhancements.

POST-DEVELOPMENT BIODIVERSITY

~~2.4.6.~~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 BM3.1 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.

~~2.4.7.~~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, wholesale loss of all habitats within all Drax Power Station Construction Laydown Areas is unlikely to occur. A final BNG report utilising finalised biodiversity and landscape plans would need to be undertaken in this instance, in order to accurately quantify where this retention, enhancement, and additional creation, would take place.

~~2.4.8.~~2.4.9. This will also allow off-Site ecological compensation requirements to be finalised where necessary. Predicted habitat change areas for this assessment include those that are to be retained. Habitat loss / retention / enhancement categories of land can be viewed on **Figure 1 – Biodiversity Net Gain: Land Use and Habitat Change Plan.**

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 BM3.1 ~~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. Since the previous version of this report was issued, there has been a revision to Work No. 8, which has resulted in a minor decrease in the area of land temporarily impacted during construction and, in turn, a decrease in the area of land required to be reinstated following the works. With regards to the BNG assessment, this change in the extent of land impacted is minimal, with the habitat which remains to be impacted being reinstated to its previous condition. The effect of the revisions to Work No. 8 on the net % change in habitat units across the Proposed Scheme would be a betterment of less than 1%. These changes are considered to be immaterial to the overall outcome of the assessment. As such, the Biodiversity Metric has not been revised to reflect the changes to Work No. 8 as part of this latest submission.

~~2.4.9.~~

~~2.4.10.~~2.4.12. Habitat creation and enhancement measures included within BM3.1 are set out in further detail in the updated **Outline Landscape and Biodiversity Strategy** (OLBS) (AS-119, Rev05 being submitted at Deadline 6~~094~~).

RIVERS AND STREAMS COMPONENT

~~2.4.11.~~2.4.13. A culverted section of Carr Dyke (a watercourse habitat) is located underneath the Power Station running for approximately 0.72 km from south-west to north-east. There is also a 0.27 km length of ditch within the Order Limits. Although not directly impacted by the Proposed Scheme, ~~the culverted section of Carr Dyke has~~ these features have been included within the Rivers and Streams component of the BM3.1 calculations, as ~~it~~they fall~~s~~ within the Order Limits and are~~is~~ within areas that will be subject to construction activities.

BIODIVERSITY METRIC APPROACH

~~2.4.12.~~2.4.14. 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.

~~2.4.13.~~2.4.15. 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.

~~2.4.14.~~2.4.16. In the May 2022 BNG Report (APP-196) submitted with the DCO application, the 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*).

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

~~2.4.15.~~2.4.17. 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.

~~2.4.16.~~2.4.18. 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:

~~2.4.17.~~2.4.19. *‘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.’;*

and

‘“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’”.

~~2.4.18.~~2.4.20. 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. 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. Delivery of BNG in rivers and streams is detailed in the supporting technical note in **Appendix D**. In summary, BNG cannot be delivered within the Order Limits and, therefore, an off-Site provision of biodiversity units through the Bowers Mill Black Brook Habitat Restoration Project has been identified.

~~3.2.1.~~3.2.2. The Bowers Mill Black Brook Habitat Restoration Project has been developed by the Calder and Colne Rivers Trust (CCRT) 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.~~3.2.3. 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.~~3.2.4. At the time of writing the Applicant is in the process of ~~drafting~~ finalising appropriate wording for the S106 agreement to secure the delivery of the~~CCRT’s~~ proposed habitat enhancement and restoration measures and their allocation to the Proposed Scheme’s BNG requirements.

3.3. BASELINE BIODIVERSITY

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 and~~,~~ no areas of Ancient Woodland or other irreplaceable habitat were identified within or in proximity to the Order Limits.

3.3.2. The Site was checked against Natural England’s HPI dataset, and then checked with data collected for the **Preliminary Ecological Appraisal** report (document reference 6.3.8.1) (APP-136). There is one HPI (hedgerows) identified within the Order Limits. 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 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 31.62~~80~~ biodiversity units

c. **Rivers and streams habitats:** ~~1.58~~0.995 km and ~~5.50~~1.74 biodiversity units

3.3.4. The number of biodiversity units generated by each habitat type is shown in the appended BM3.1 toolkit, in Appendix B[3]. 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-119~~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[4]:** 72.85 ha and 81.12 habitat units retained. 11.7 ha enhanced, 75.27 habitat units~~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~~0.995 km and ~~2.75~~1.74 river units retained. 0.465~~4~~ km enhanced, 0.02~~3~~ km created, totalling 0.1~~2~~ river units created and ~~4.13~~3.23 units delivered through enhancement. It should be noted that the river units created and delivered through enhancement are located outside the water body of the Proposed Scheme and, therefore, have a 0.75 multiplier applied.

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[3] It should be noted that the information in the completed BM3.1 toolkit is not entirely correct for river units. This is due to an error with the BM3.1 document itself (this is rectified in BM4.0). Therefore, the technical note in Appendix D should be for clarity, as this has the correct figures presented within it.

[4] Includes construction of new, urban habitats and Proposed Scheme infrastructure.

3.5. QUANTITATIVE ASSESSMENT OUTCOME

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 BM3.1), considering both on-Site and off-Site habitat loss, retention, reinstatement, creation and enhancement proposals. The quantitative outcome 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 3.1 Calculation for the Proposed Scheme – On-Site

Biodiversity Units	Baseline Value	Post-Development Units	Change in Units	Quantitative Outcome %
Habitat units	157.11	154.30	-2.81	-1.79
Hedgerow units	29.69	43.84	14.15	47.65
River units	~~2.83~~1.74	~~2.85~~1.74	+0.00~~2~~	~~0.58~~0

Table 3-2 Headline Results of Biodiversity Metric 3.1 Calculation for the Proposed Scheme – Off-Site

Biodiversity Units	Baseline Value	Post-Development Units	Change in U~~u~~nits	Unit Value with Spatial Multiplier	Units Attributed to the Proposed Scheme
Habitat units	61.06	101.35	40.29	N/A	40.29
Hedgerow units	1.93	5.15	3.22	N/A	3.22
River units	2.67	~~4.13~~6.00	~~1.46~~3.33	2.50	0.17

3.5.2. The total on-site net % change plus off-Site surplus equates to a **23.86%** net gain in habitats and a **58.52%** net gain in hedgerows. Once the spatial multiplier and biodiversity unit banking (see below) is taken into account, ~~T~~the net % change for rivers and streams is **~~52.50~~10.00%.** Both the headline and detailed results can be seen in the BM3.1 toolkit in **Appendix~~-~~ B**. It should be noted that there is an underlying glitch in the BM3.1 toolkit, which means the rivers and streams outturn is incorrectly represented in some of the detailed 'rivers and streams' tabs of the spreadsheet. Appendix B and D should therefore be read together in relation to rivers and streams.

~~3.5.2.~~3.5.3. Whilst the Applicant will purchase all biodiversity units created through the Bowers Mill Black Brook Habitat Restoration Project, only the number of units required to deliver 10% BNG will be attributed to the Proposed Scheme (and therefore only the delivery of 10% BNG can be given any weight in the decision making in connection with the Proposed Scheme). The surplus units will be banked by the Applicant for future use. As mentioned previously, delivery of BNG in rivers and streams is detailed in the supporting technical note in Appendix D.

3.6. QUALITATIVE RESULTS

3.6.1. **Table 3.3** below documents the adherence of the Proposed Scheme to each of the BNG good practice principles.

Table 3-3 Adherence to the Qualitative Assessment of BNG

Principle	Description	Evidence of Compliance	Current Outcome
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 Scheme. Details on avoidance and minimising of effects are considered in Chapter 8 (Ecology) of the ES (APP-044). A quantitative net gain has been achieved through all habitat categories.	Achieved.
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.	Achieved.
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, the Environment Agency and ~~North Yorkshire County Council (~~NYC~~C)~~ have been consulted throughout the BNG process. See Table 8-1 Consultation Summary Table in Chapter 8 (Ecology) (APP-044) of the ES and Statements of Common Ground between the Applicant and Natural England and NYC~~C~~ (REP-020 and REP-018 respectively). The biodiversity and landscape design has been shared with NYC~~C~~ (acting on behalf of Selby District Council (SDC)) and Natural England, as have the Rivers BNG proposals set out in the **Bowers Mill Black Brook Habitat Restoration Project Report**~~.~~. Through consultation, NYC~~C~~ have stated that they are in agreement with the proposed landscape and biodiversity plans prepared for the Proposed Scheme. This is in the Statement of Common Ground between NYC~~C~~, SDC and the Applicant (AS-030) Consultation with Natural England and the Environment Agency has been undertaken with regards to enhancements for rivers and streams habitats off-Site. This will be able to move forward on the basis of the proposals set out the **Bowers Mill Black Brook Habitat Restoration Project Report.** Consultation will continue with NYC~~C~~, Natural England and the Environment Agency during Examination of the DCO application and post-consent.	Achieved.
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 multipliers included in BM3.1.	Achieved.
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 23.86% in habitats, 58.52% in hedgerows and 52.50% in rivers and streams (with 10% being attributed to the Proposed Scheme and the remainder banked for future use, and therefore not being relevant to the decision whether to grant consent for the Proposed Scheme) 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. The Applicant will revisit the assessment prior to and	Achieved.

Principle	Description	Evidence of Compliance	Current Outcome
		during detailed design of the Proposed Scheme to determine whether assumptions regarding habitat loss can be tightened and thus the net gain position updated.	
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 BNG 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.	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 are proposed within the Order Limits and within an area off-Site but in proximity to the Order Limits. 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. A S106 Agreement is being entered into with NYC ~~n agreement is to be made with the Colne and Calder Rivers Trust~~CCRT ~~and though a section~~ S~~106 Agreement~~ to secure this and to ensure other necessary legal agreements are in place before the Applicant can commence the Proposed Scheme.	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 creation 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	Ensure BNG generates long-term benefits by: ~ Engaging stakeholders and jointly agreeing practical solutions that secure BNG in perpetuity; ~ Planning for adaptive management and securing dedicated funding for long-term management; ~ Designing BNG 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 BNG activities.	The Applicant owns the majority of land within the Habitat Provision Area and all land within the Off-Site Habitat Provision Area and is therefore able to commit to its long-term management. An updated Outline Landscape and Biodiversity Strategy (AS-119~~094~~) has been prepared which demonstrates the design and management of habitat creation and enhancement. A S~~s~~106 agreement will secure the delivery of river and stream enhancements as part of the Bowers Mill Black Brook restoration project. These works go above and beyond the 10% target for the Proposed Scheme although it is intended that these be banked for future use. The extent of hedgerow planting proposed in the Habitat Provision Area also considerably exceeds that required to achieve 10% BNG for linear habitat units.	Achieved
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 as woodland, scrub and grassland which would contribute to wider environmental gains. The Applicant's support of the Bowers Mill Black Brook restoration project will enable the delivery of wider environmental benefits.	Achieved
10. Be transparent	Communicate all BNG activities in a transparent and timely manner, sharing the learning with all stakeholders.	The methodology and approach to this BNG assessment has been communicated to all relevant stakeholders including approach to rivers and streams enhancement measures.	Achieved.

4. CONCLUSION

4.1.1. The Proposed Scheme could achieve a minimum of 10% net gain in all habitat categories based on the assessment undertaken at the current stage, with headroom. Overall, the Proposed Scheme could achieve a net gain in biodiversity. The outcome for the Proposed Scheme is based on the lowest outcome of the biodiversity metric calculation, which is 10~~23.86~~% for ~~area-based~~river and stream habitats~~ habitats~~ (with additional rivers and stream units generated by the Bowers Mill Black Brook Habitat Restoration project to be banked for future use by the Applicant). The BNG assessment is based on a reasonable worst-case scenario for habitat loss and disturbance arising from the Proposed Scheme, with habitat losses expected to be reduced as the design of 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 compliance with all ten Good Practice Principles.

4.1.3. It is proposed that the BNG assessment is updated with information obtained during the detailed design stage, post-consent, at a point to be agreed with the LPAs once the 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. Additionally, the qualitative element of the BNG assessment should continue to be adhered to as the Proposed Scheme design progresses and the BNG assessment is refined.

5. REFERENCES

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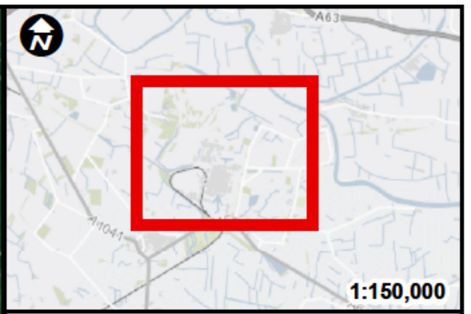
Figure 1 – Biodiversity Net Gain: Land Use and Habitat Change Areas of the Proposed Scheme



Key:

- 🟥 Order Limits
- 🟦 Off-Site Habitat Provision Area
- ▨ Permanent Habitat Removal
- ▨ Temporary Habitat Removal
- ▨ Temporary Loss but replanted with other habitat
- ▨ Retained Habitats
- ▨ Modifications to Urban Features Only
- ▨ Habitat Provision Area

drax

wsp

PROJECT TITLE

DRAX BECCS DCO

DRAWING TITLE

DRAX BECCS:
BIODIVERSITY NET GAIN PLAN -
LAND USE AND ASSUMPTIONS
AERIAL IMAGERY
SHEET 1 OF 3

DRAWING STATUS

FOR ISSUE

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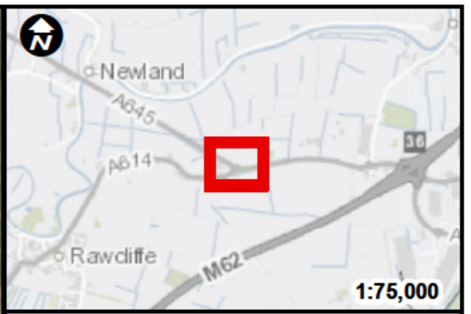

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- ▨ Retained Habitats
- ▨ Temporary Habitat Removal

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DRAWING TITLE

DRAX BECCS:
BIODIVERSITY NET GAIN PLAN -
LAND USE AND ASSUMPTIONS
AERIAL IMAGERY
SHEET 2 OF 3

DRAWING STATUS

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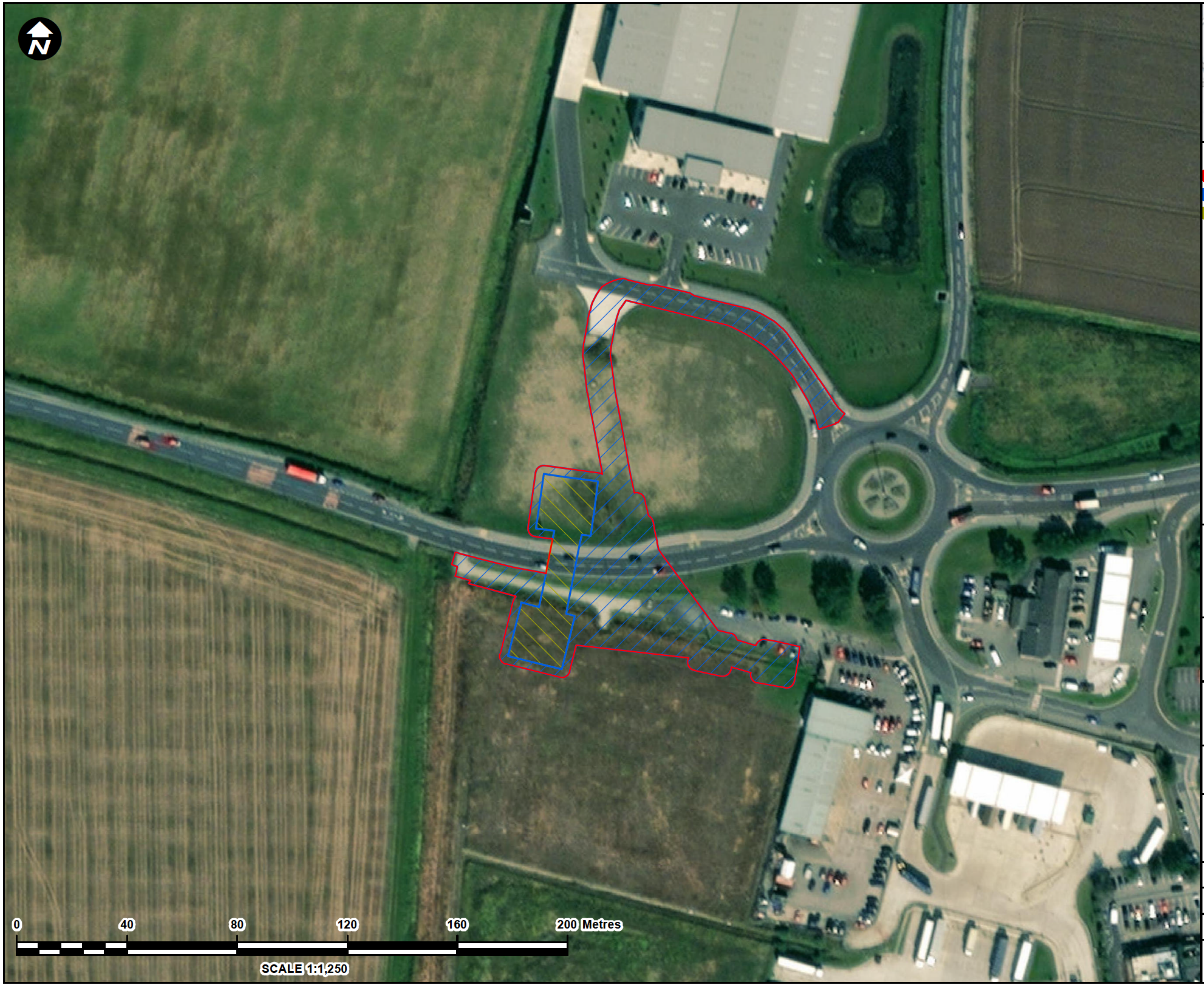

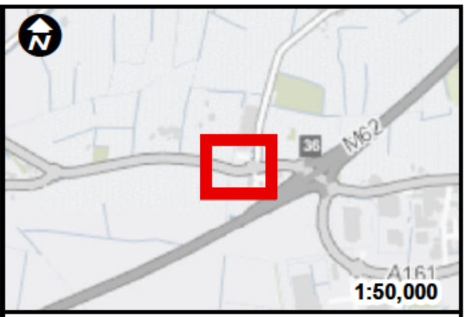

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AERIAL IMAGERY
SHEET 3 OF 3

DRAWING STATUS

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BS	PP	LR	PP

SCALE @ A3 SIZE	DATE	REVISION
1:1,250	21/02/2023	P02

DRAWING NUMBER

EN010120-PA-FCA-EC-22

6. APPENDICES

6.1. APPENDIX A – BIODIVERSITY NET GAIN PRINCIPLES

Biodiversity Net Gain

Good practice principles for development

ciria

CIEEM Chartered Institute of Ecology and Environmental Management

IEMA Transforming the world to sustainability

Contents

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[1] for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.

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[1] 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[2]
- 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.

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[2] 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.

Acknowledgements

Principal Co-ordinating Author	
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Project Team and Contributors	
Martina Girvan	Arcadis
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Sally Hayns	CIEEM
Owen Jenkins	CIRIA
Michael Small (Project Manager)	CIRIA
Nick Blyth	IEMA
Alex Saponja	Interserve
Bob Edmonds	SLR Consulting

The project team consisted of staff representatives from the three partner organisations, together with industry members of each organisation.
We would like to thank the numerous stakeholders who provided comment on earlier drafts of the principles in the form of online surveys, a consultation workshop and a webinar.

The Biodiversity Net Gain good practice principles were first drafted based on several sources: responses to the UK government's 2013 Green Paper Consultation on Biodiversity Offsetting; experience gained from the national pilot on biodiversity offsetting led by the UK's Department for Environment, Food and Rural Affairs; experience from Network Rail Infrastructure Projects' and from other leading corporations' work on net positive approaches; and also on principles developed for the international community by the Business and Biodiversity Offset Programme.

The draft principles were refined following initial consultation with various stakeholders including government, NGOs, regulators and private and public-sector organisations. The refined version was presented to over 450 professionals during a webinar where the majority supported this approach to Biodiversity Net Gain and the principles. The principles were revised based on feedback received during the webinar, assessed by the project team and the final set are presented in this document. It is envisaged that the principles will be further refined following a period of application, feedback and review.

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 practice 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.

How you can get involved

If you would like to be kept informed of progress with our Biodiversity Net Gain practical guidance, please visit w[redacted] for further information.

If you are able to sponsor or otherwise contribute towards the cost of developing the Biodiversity Net Gain practical guidance, please contact [redacted]

Biodiversity Net Gain

Good practice principles for development

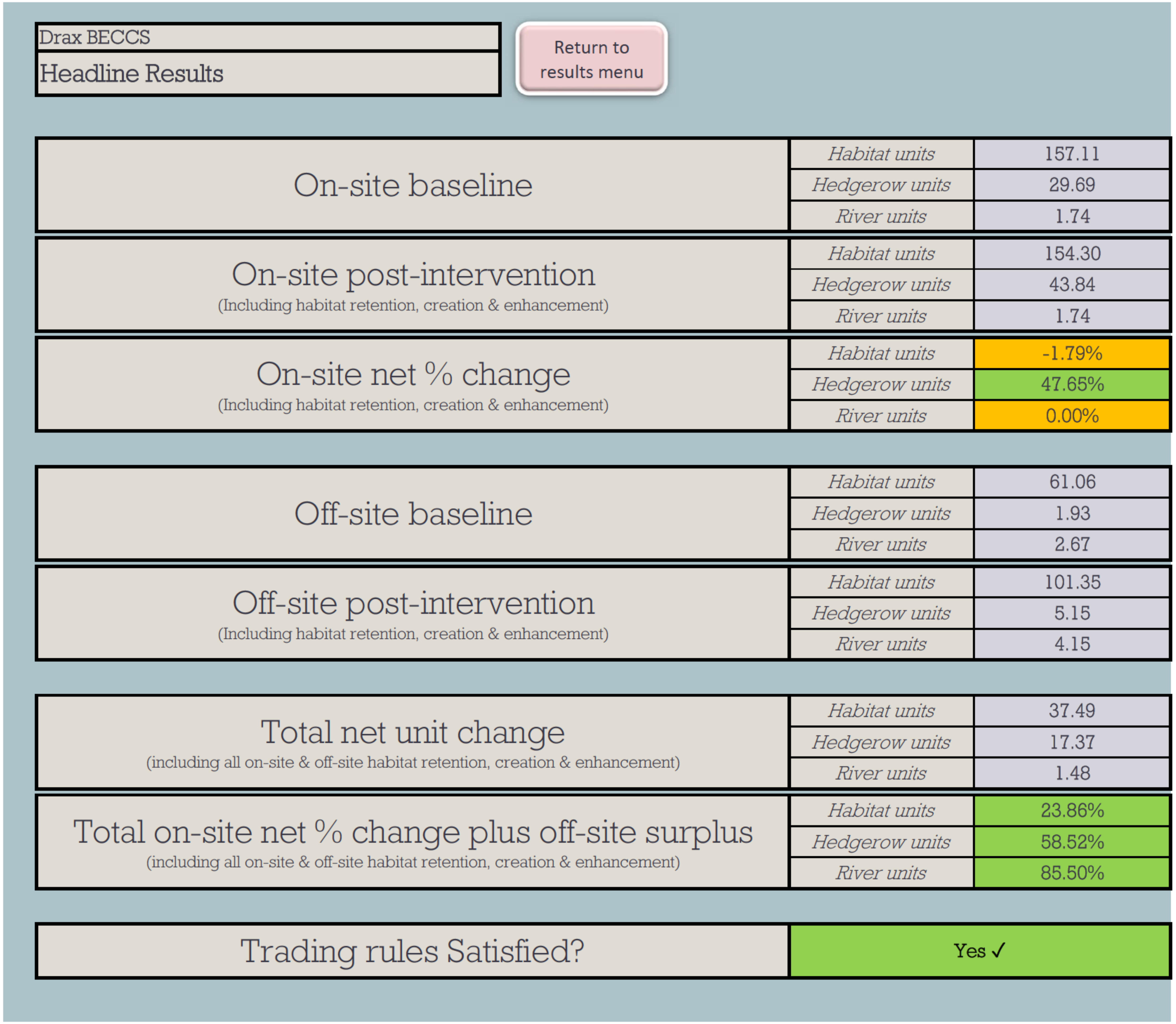
CIRIA is the construction industry research and information association. It is an independent, not-for profit, member-based research organisation that exists to champion performance improvement in construction. Since 1960, CIRIA has delivered support and guidance to the construction, built environment and infrastructure sectors. CIRIA works with members from all parts of the supply chain to co-ordinate collaborative projects, industry networks and events. Its high quality guidance is delivered to industry through publications, training and other performance improvement activities. [redacted]

The **Chartered Institute of Ecology and Environmental Management** (CIEEM) is the leading professional membership body representing and supporting ecologists and natural environment managers in the UK, Ireland and abroad. Our Vision is of a society which values the natural environment and recognises the contribution of professional ecologists and environmental managers to its conservation. We have members drawn from across the employment sectors including local authorities, government agencies, NGOs, environmental consultancy, academia and industry. The diversity of our membership is our greatest strength, enabling us to take an integrated and holistic approach to furthering the management and enhancement of biodiversity and the ecological processes essential to a fully functional biosphere [redacted]

IEMA is the worldwide alliance of environment and sustainability professionals. We believe there's a practical way to a bright future for everyone, and that our profession has a critical role to play. Ours is an independent network of more than 15,000 people in over 100 countries, working together to make our businesses and organisations future-proof. Belonging gives us each the knowledge, connections, recognition, support and opportunities we need to lead collective change, with IEMA's global sustainability standards as our benchmark. By mobilising our expertise we will continue to challenge norms, influence governments, drive new kinds of enterprise, inspire communities and show how to achieve measurable change on a global scale. This is how we will realise our bold vision: transforming the world to sustainability [redacted]

This initiative has also been supported by Balfour Beatty

6.2. APPENDIX B – BIODIVERSITY METRIC 3.1 TOOLKIT



Drax BECCS

Headline Results

On-site baseline	*Habitat units*	157.11
	Hedgerow units	29.69
	River units	1.74
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	154.30
	Hedgerow units	43.84
	River units	1.74
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	-1.79%
	Hedgerow units	47.65%
	River units	0.00%
Off-site baseline	*Habitat units*	61.06
	Hedgerow units	1.93
	River units	2.67
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	101.35
	Hedgerow units	5.15
	River units	4.15
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	37.49
	Hedgerow units	17.37
	River units	1.48
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	23.86%
	Hedgerow units	58.52%
	River units	85.50%
Trading rules Satisfied?	Yes ✓	

Drax BECCS

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)	*Habitat units*	37.49
	Hedgerow units	17.37
	River units	1.48

Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)	*Habitat units*	23.86%
	Hedgerow units	58.52%
	River units	85.50%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total on-site and off-site baseline area / length	141.30	3.99	1.46
Total on-site and off-site baseline units	218.17	31.62	4.40
Total on-site and off-site baseline area / length retained	72.85	2.14	1.00
Total on-site and off-site baseline units retained	81.13	18.94	1.74
Area / length proposed for enhancement	11.70	0.89	0.47
Baseline units proposed for enhancement	59.43	5.17	2.67
Total on-site and off-site baseline area / length lost	56.75	0.96	0.00
Total on-site and off-site baseline units lost	77.60	7.51	0.00

Area habitats

On site change by broad habitat type

Area Habitats

	Baseline		Post development on site		Onsite Change	
Habitat group	Existing area	Existing value	Proposed area	Proposed value	Area change	Onsite Unit change
Cropland	8.61	17.21	7.54	12.54	-1.07	-4.68
Grassland	24.33	48.72	22.76	61.78	-1.57	13.06
Heathland and shrub	3.00	12.00	2.90	12.19	-0.11	0.18
Lakes	0.44	5.27	0.92	7.93	0.48	2.65
Sparsely vegetated land	0.10	0.19	0.09	0.18	-0.01	-0.02
Urban	84.56	8.41	87.36	8.06	2.80	-0.35
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	7.83	65.29	7.30	51.63	-0.53	-13.66
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Off site change by broad habitat type

Area Habitats

	Baseline		Post development Off-site		Off-site Change	
Habitat group	Existing area	Off-site Existing value	Off-site proposed area	Off site Proposed value	Off-site area change	Off-site unit change
Cropland	2.42	4.85	0.00	0.00	-2.42	-4.85
Grassland	1.87	3.74	4.30	27.84	2.42	24.10
Heathland and shrub	1.65	6.62	1.65	11.61	0.00	5.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.75	0.00	0.75	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	5.73	45.85	5.73	61.90	0.00	16.05
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Combined on site and off site change by broad habitat type

Area Habitats

	Baseline		On-site and Off-site post development		Combined change	
Habitat group	Existing area	Existing value	Combined proposed area	Combined proposed value	Proposed area	Proposed value
Cropland	11.03	22.06	7.54	12.54	-3.49	-9.52
Grassland	26.20	52.47	27.06	89.62	0.86	37.16
Heathland and shrub	4.65	18.62	4.55	23.80	-0.11	5.18
Lakes	0.44	5.27	0.92	7.93	0.48	2.65
Sparsely vegetated land	0.10	0.19	0.09	0.18	-0.01	-0.02
Urban	85.31	8.41	88.11	8.06	2.80	-0.35
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	13.57	111.14	13.03	113.53	-0.53	2.39
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Hedgerows and Lines of Trees

Hedgerows and lines of trees

On site change by hedgerow type

	Baseline		Post development on site		Onsite Change	
Hedgerow type	Existing length on-site	Existing value	Proposed length on-site	Proposed value on-site	On-site length change	On-site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.27	3.12	0.27	3.12
Native Species Rich Hedgerow with trees	0.32	4.29	0.64	8.85	0.32	4.56
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.63	5.32	0.63	5.32
Native Hedgerow with trees - Associated with bank or ditch	0.36	4.38	0.36	4.38	0.00	0.00
Native Species Rich Hedgerow	0.76	8.38	2.03	18.17	1.26	9.79
Native Hedgerow - Associated with bank or ditch	0.74	5.94	0.11	0.88	-0.63	-5.06
Native Hedgerow with trees	0.41	3.24	0.00	0.00	-0.41	-3.24
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.60	2.42	0.60	2.26	0.00	-0.16
Line of Trees	0.31	1.05	0.22	0.87	-0.09	-0.18
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00

Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

Hedgerows and Lines of Trees

Off site change by hedgerow type

Hedgerow type	Off site baseline		Post development off site		Off site Change	
	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.48	5.15	0.48	5.15
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.48	1.93	0.00	0.00	-0.48	-1.93
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

Hedgerows and Lines of Trees

Combined on and off site change by hedgerow type

Hedgerow type	Baseline		Post development on site		Onsite Change	
	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.27	3.12	0.27	3.12
Native Species Rich Hedgerow with trees	0.32	4.29	0.64	8.85	0.32	4.56
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.63	5.32	0.63	5.32
Native Hedgerow with trees - Associated with bank or ditch	0.36	4.38	0.36	4.38	0.00	0.00
Native Species Rich Hedgerow	0.76	8.38	2.51	23.32	1.74	14.94
Native Hedgerow - Associated with bank or ditch	0.74	5.94	0.11	0.88	-0.63	-5.06
Native Hedgerow with trees	0.41	3.24	0.00	0.00	-0.41	-3.24
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	1.09	4.34	0.60	2.26	-0.48	-2.09
Line of Trees	0.31	1.05	0.22	0.87	-0.09	-0.18
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

Rivers and Streams

On site change by river type

	Baseline		Post development on site		Onsite Change	
River type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.3	0.6	0.3	0.6	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.7	1.1	0.7	1.1	0.0	0.0

Off site change by river type

	Baseline		Post development off-site		Off-site Change	
River type	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off-site unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.4	2.2	0.4	0.0	0.0	-2.2
Ditches	0.1	0.5	0.1	0.0	0.0	-0.5
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Rivers and Streams

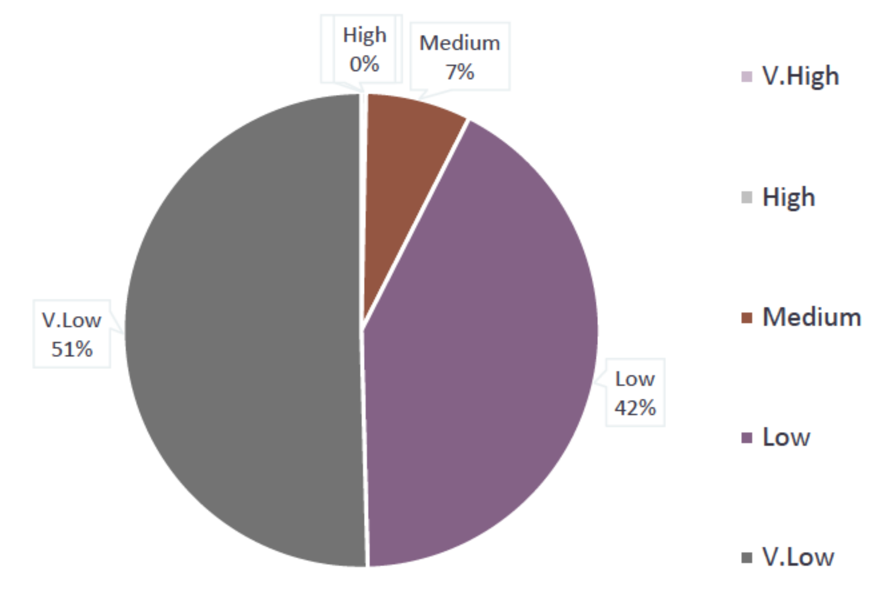
Combined on and off site change by river type						
	Baseline		Post development on site		Onsite Change	
River type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.4	2.2	0.4	0.0	0.0	-2.2
Ditches	0.4	1.1	0.4	0.6	0.0	-0.5
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.7	1.1	0.7	1.1	0.0	0.0

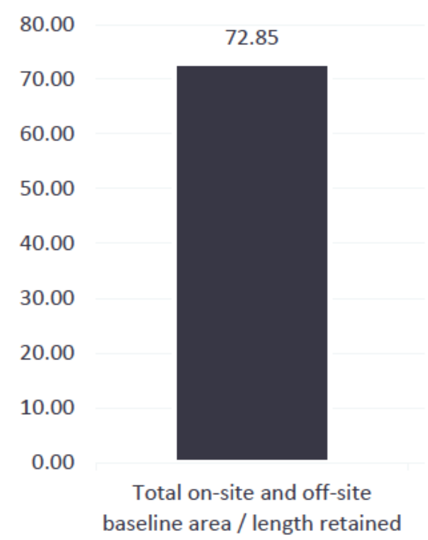
% Area lost by distinctiveness category

On-site and off-sit

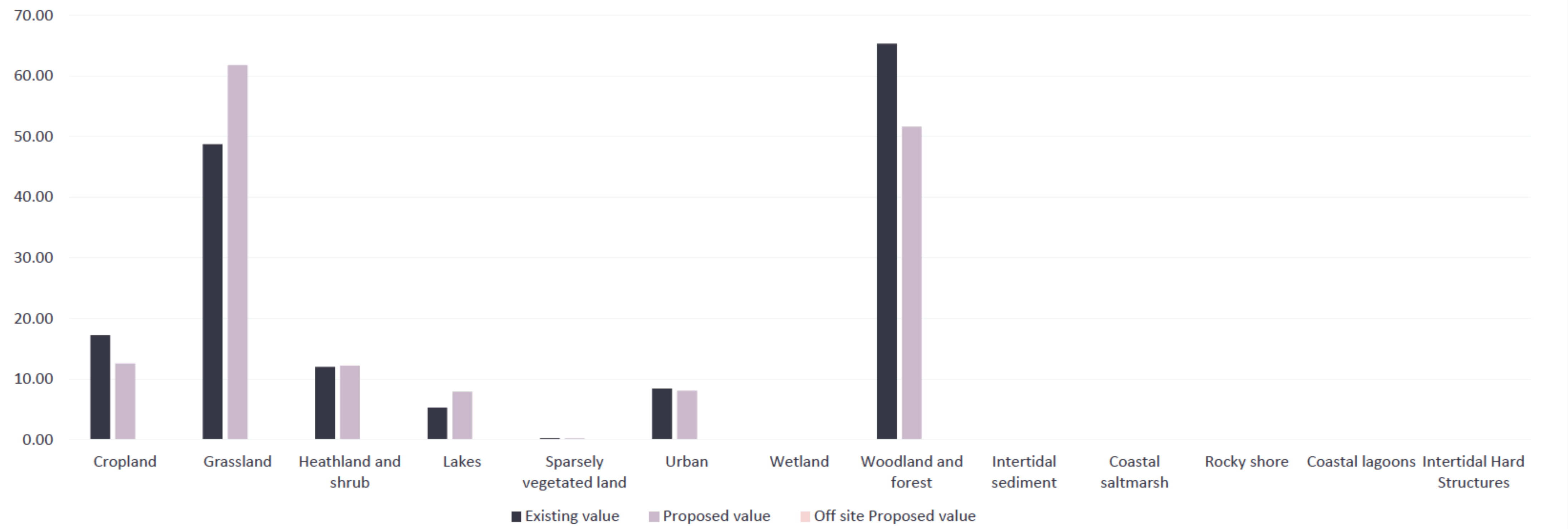
Combined area lost by distinctiveness band

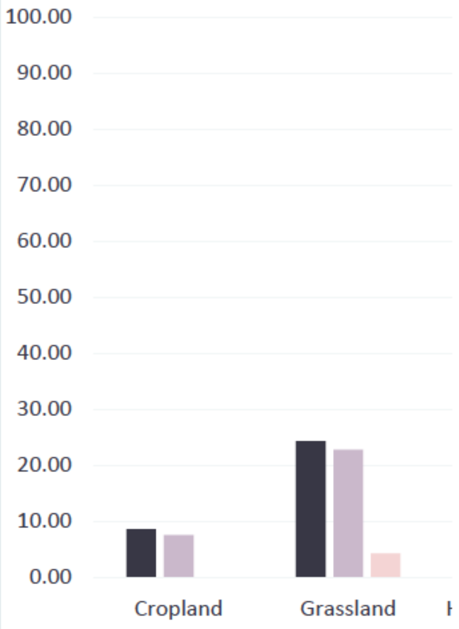
Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0.172959	0
Medium	4.079025	7
Low	23.88494488	42
V.Low	28.616805	50



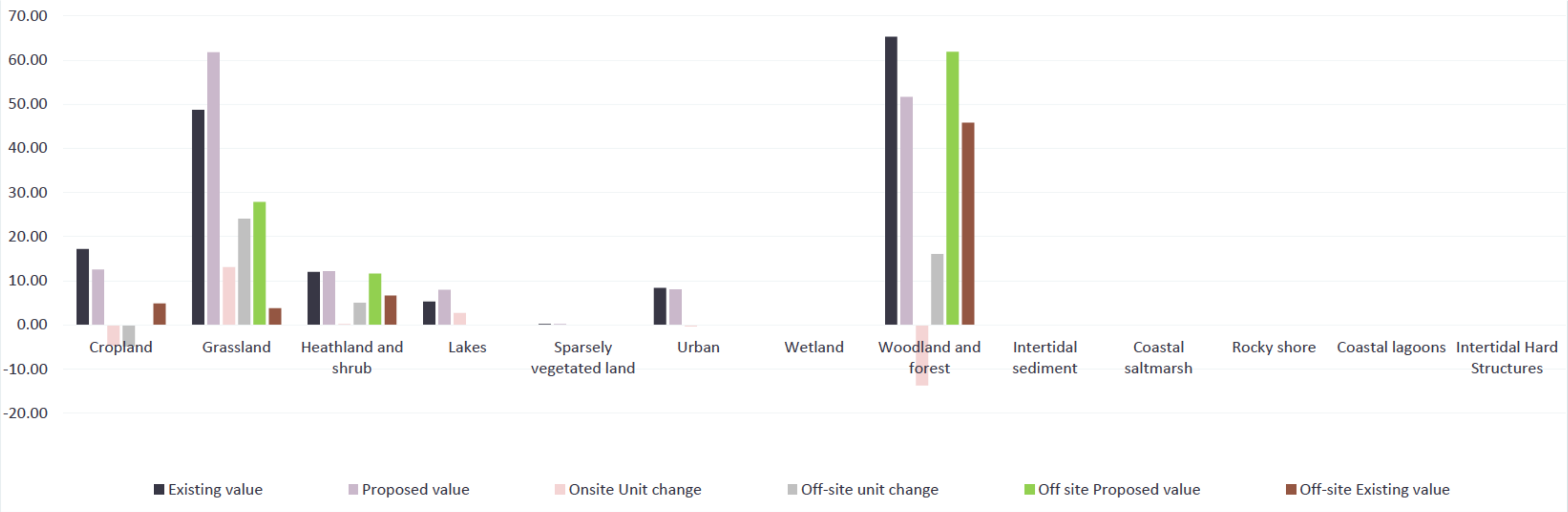


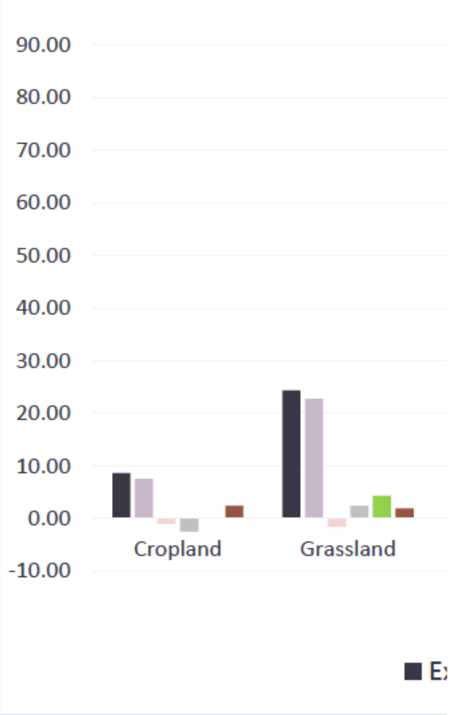
Unit change by habitat group





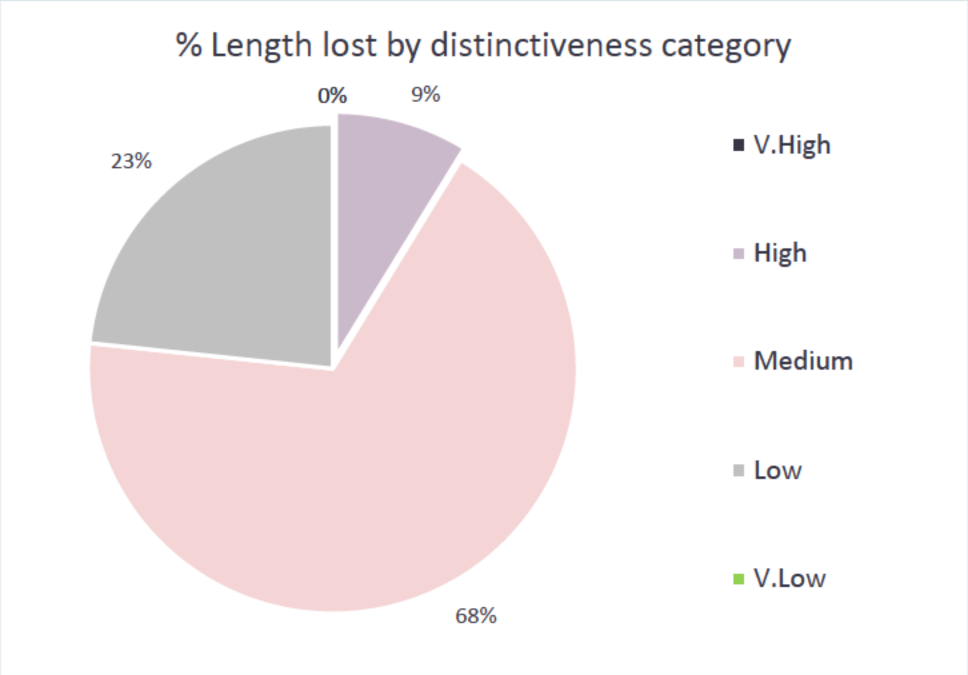
Combined Biodiversity Unit change

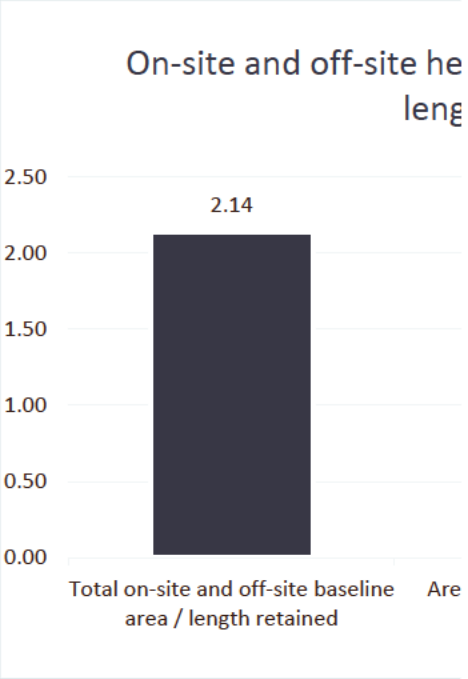


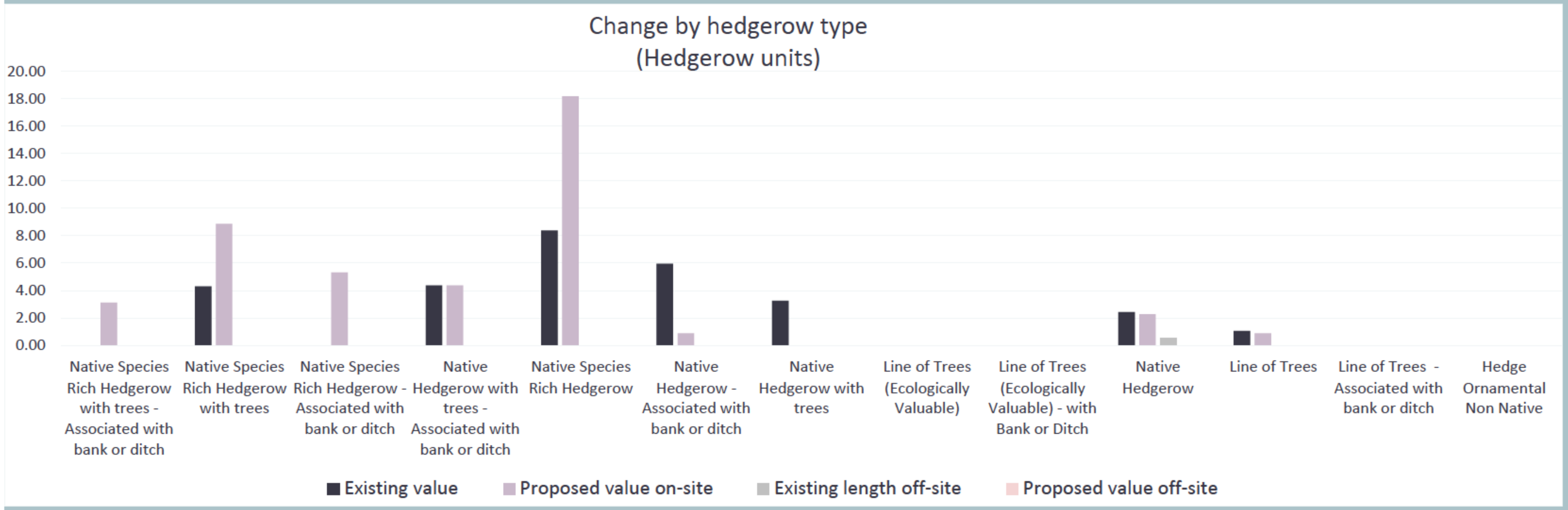


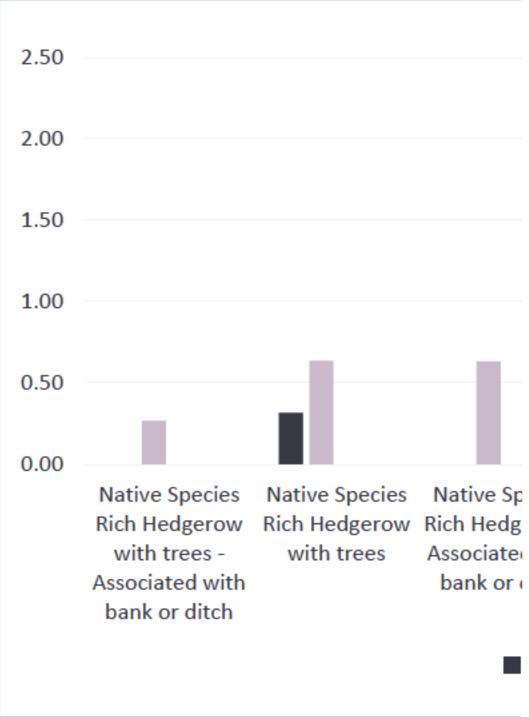
Combined length lost by distinctiveness band

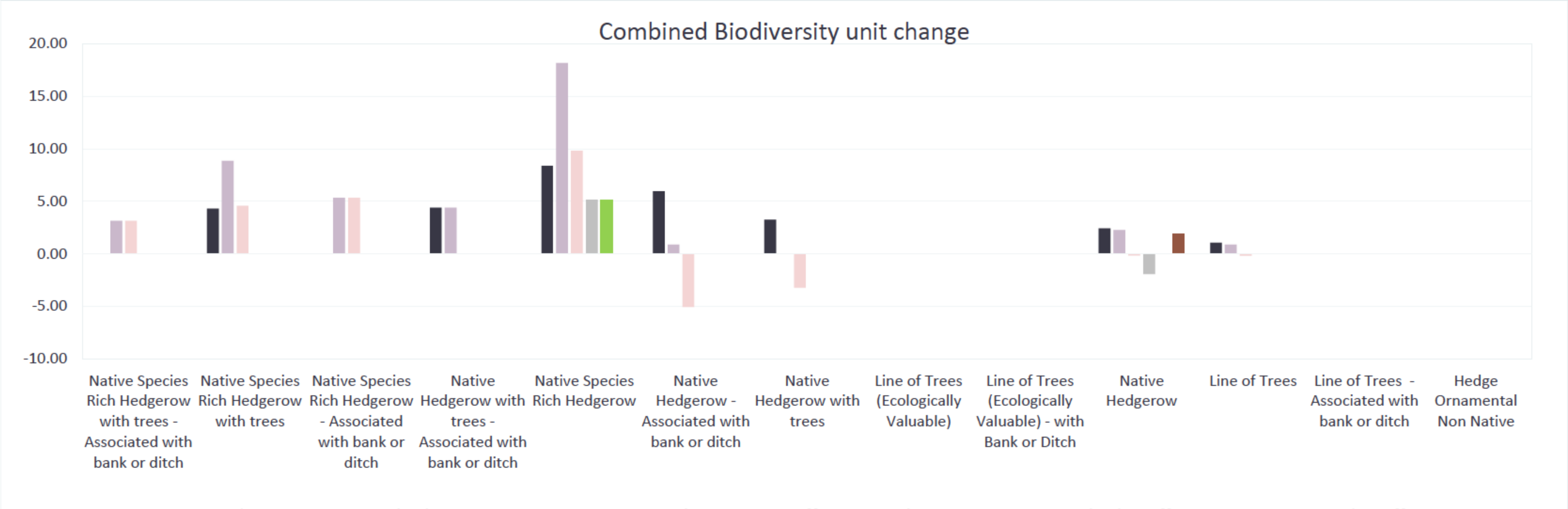
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0.084061	9
Medium	0.651333	68
Low	0.223967	23
V.Low	0	

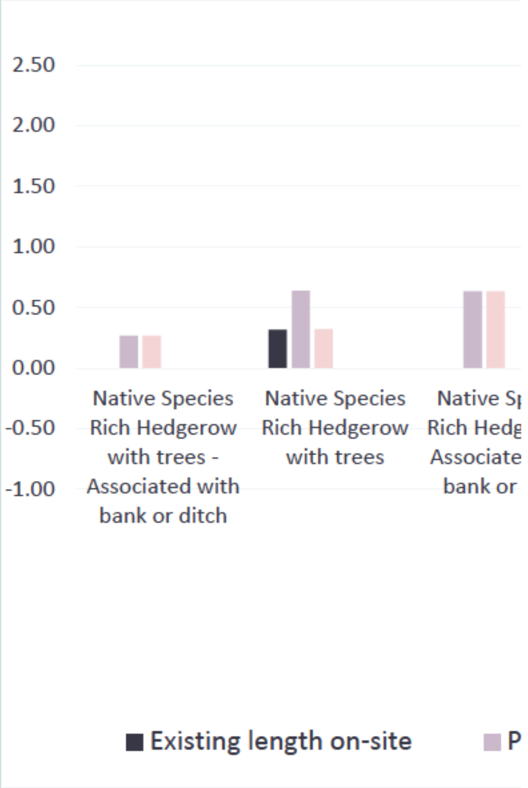





Change by hedgerow type
(Hedgerow units)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Native Species Rich Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow with trees
Native Species Rich Hedgerow - Associated with bank or ditch
Native Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow
Native Hedgerow - Associated with bank or ditch
Native Hedgerow with trees
Line of Trees (Ecologically Valuable)
Line of Trees (Ecologically Valuable) - with Bank or Ditch
Native Hedgerow
Line of Trees
Line of Trees - Associated with bank or ditch
Hedge Ornamental Non Native
■ Existing value
■ Proposed value on-site
■ Existing length off-site
■ Proposed value off-site

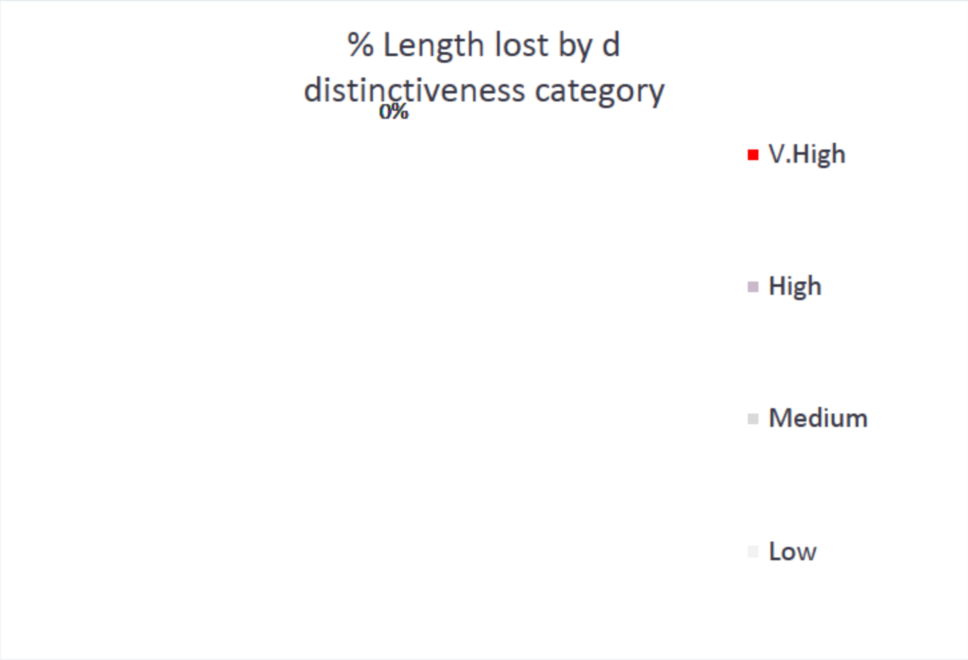

2.50
2.00
1.50
1.00
0.50
0.00
Native Species Rich Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow with trees
Native Sp Rich Hedg Associate bank or

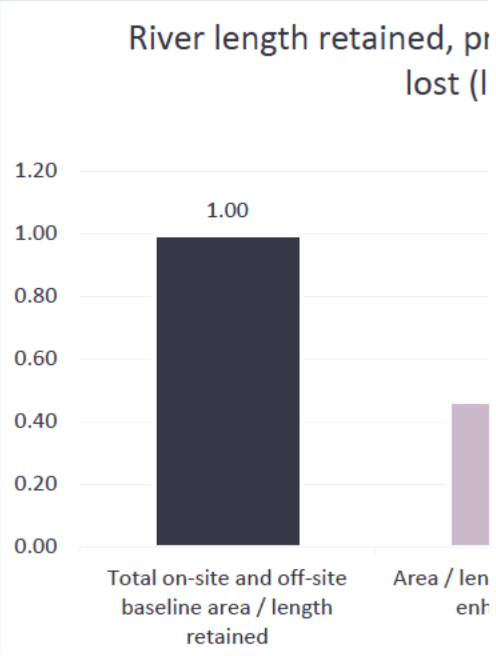

Combined Biodiversity unit change
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
Native Species Rich Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow with trees
Native Species Rich Hedgerow - Associated with bank or ditch
Native Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow
Native Hedgerow - Associated with bank or ditch
Native Hedgerow with trees
Line of Trees (Ecologically Valuable)
Line of Trees (Ecologically Valuable) - with Bank or Ditch
Native Hedgerow
Line of Trees
Line of Trees - Associated with bank or ditch
Hedge Ornamental Non Native
■ Existing value
■ Proposed value on-site
■ On-site Unit change
■ Off site Unit change
■ Proposed value off-site
■ Existing value off-site

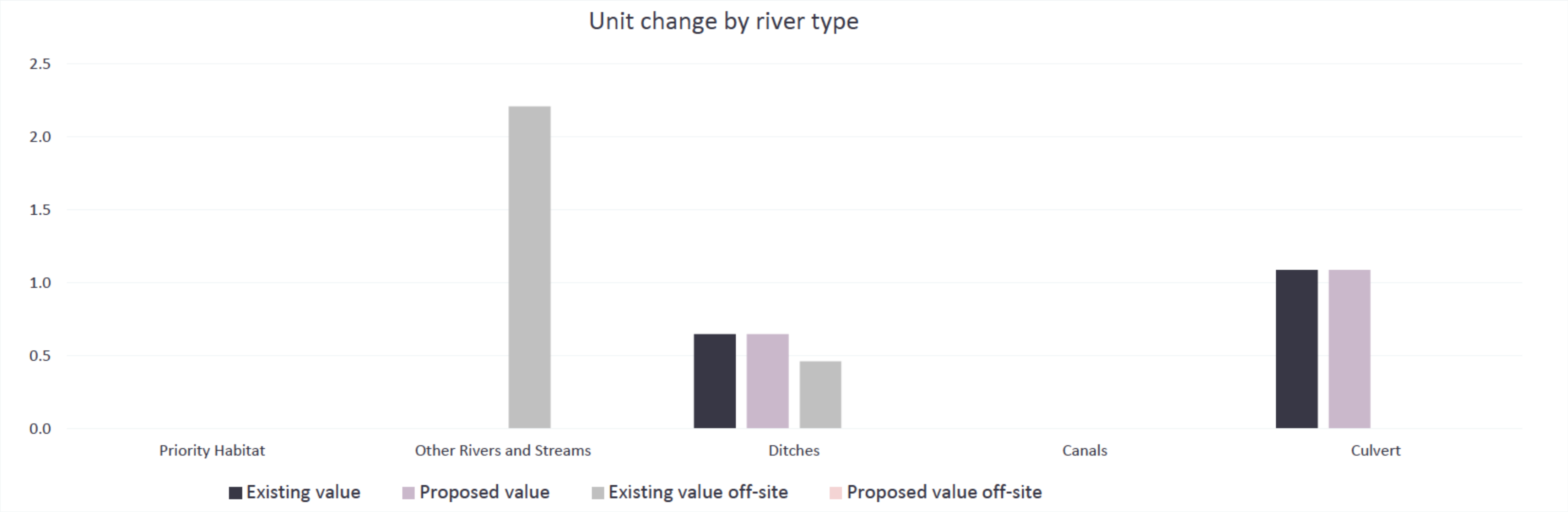

2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
Native Species Rich Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow with trees
Native Sp Rich Hedg Associate bank or
■ Existing length on-site
■ P

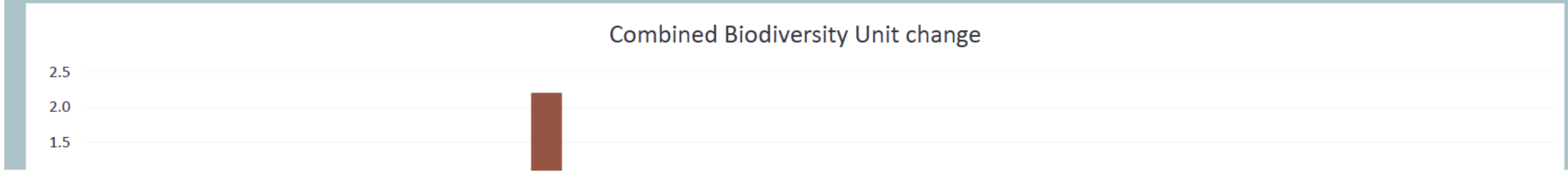
Combined length lost by distinctiveness band

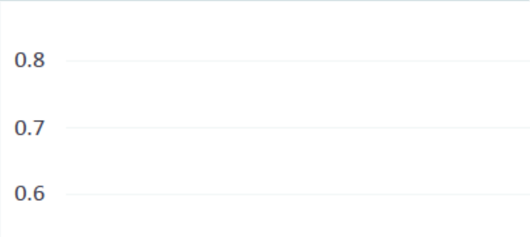
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	



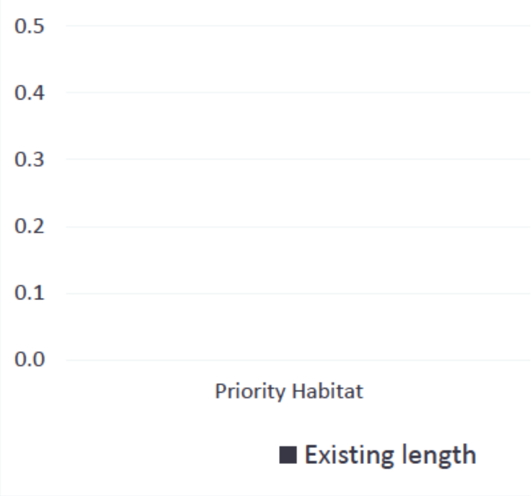






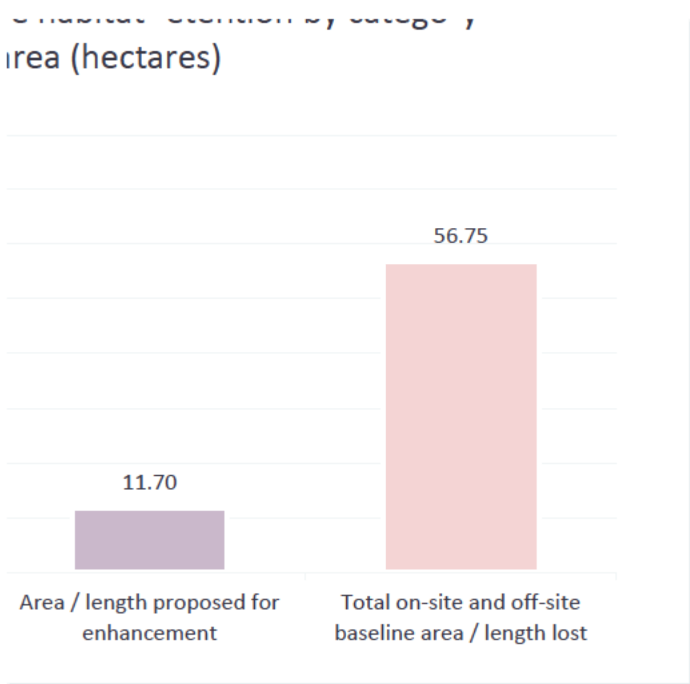


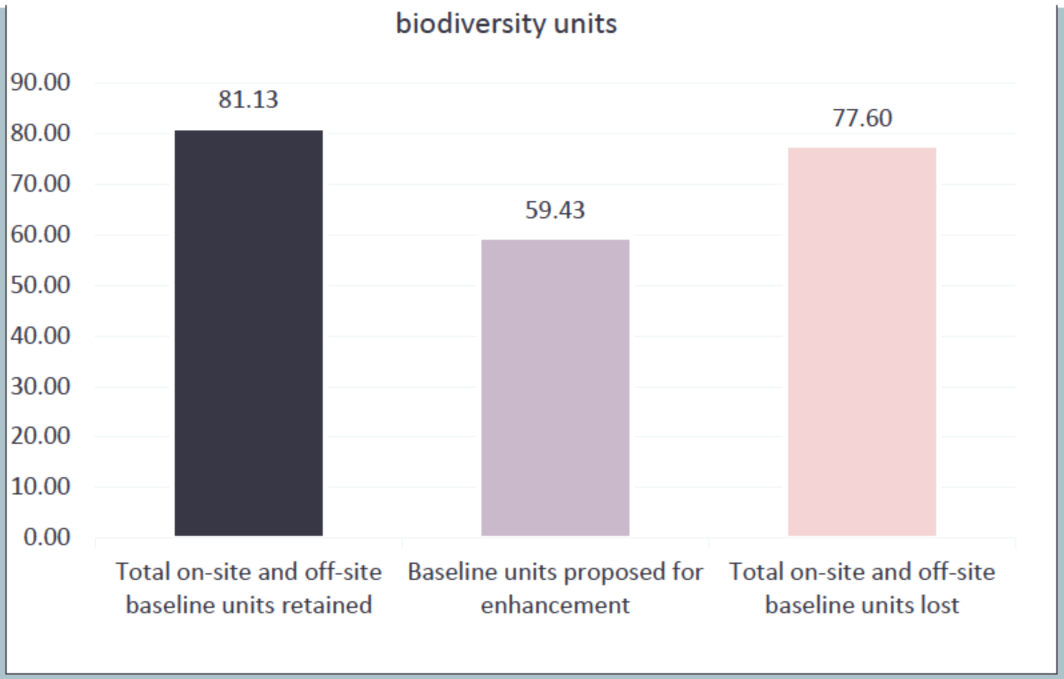

1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
Priority Habitat
Other Rivers and Streams
Ditches
Canals
Culvert
■ Existing value
■ Proposed value
■ Onsite Unit change
■ Existing value off-site
■ Proposed value off-site
■ Off-site unit change

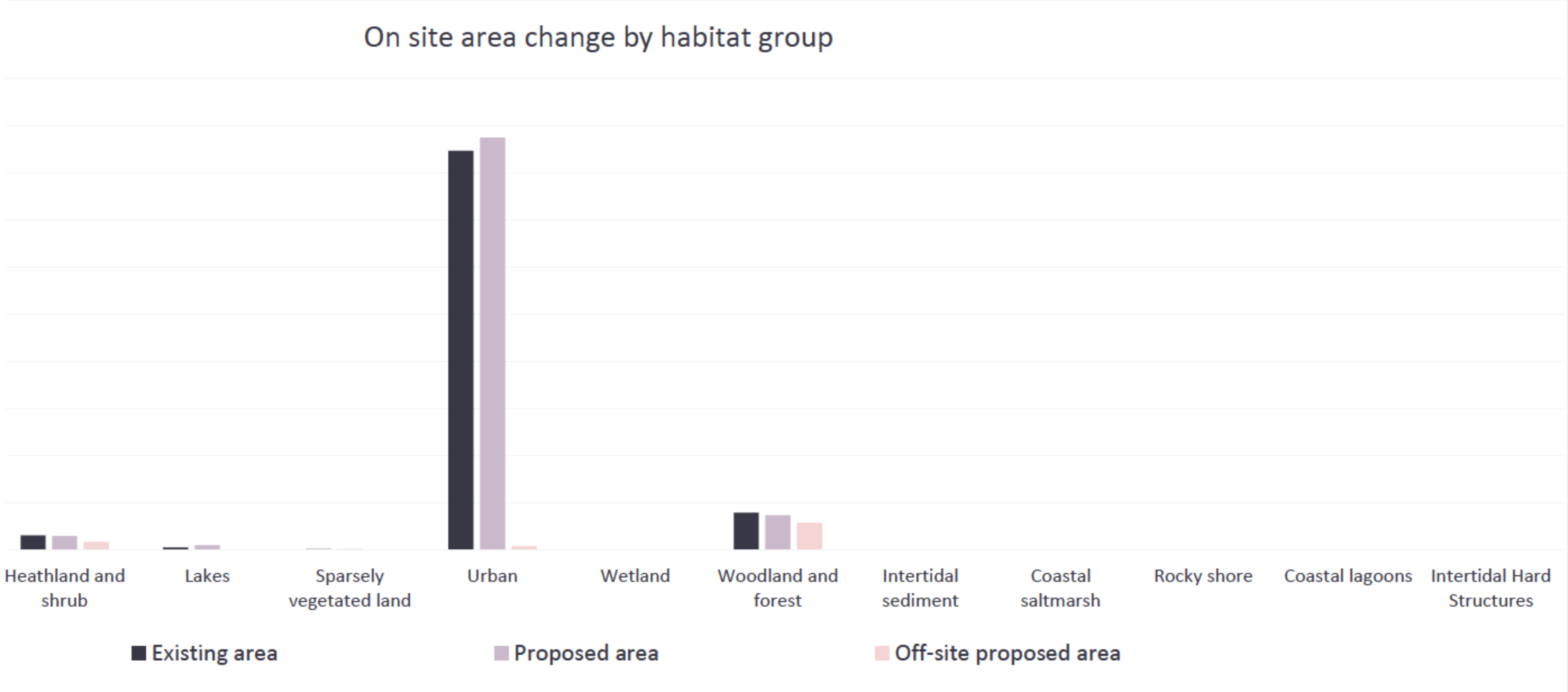

0.5
0.4
0.3
0.2
0.1
0.0
Priority Habitat
■ Existing length

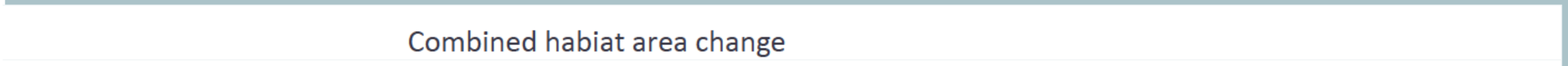
e habitat retention by category

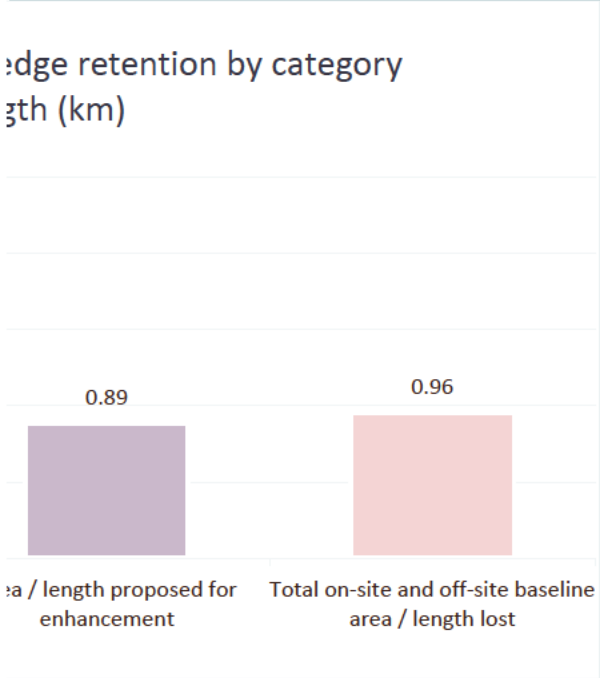
On-site and off-site habitat retention category

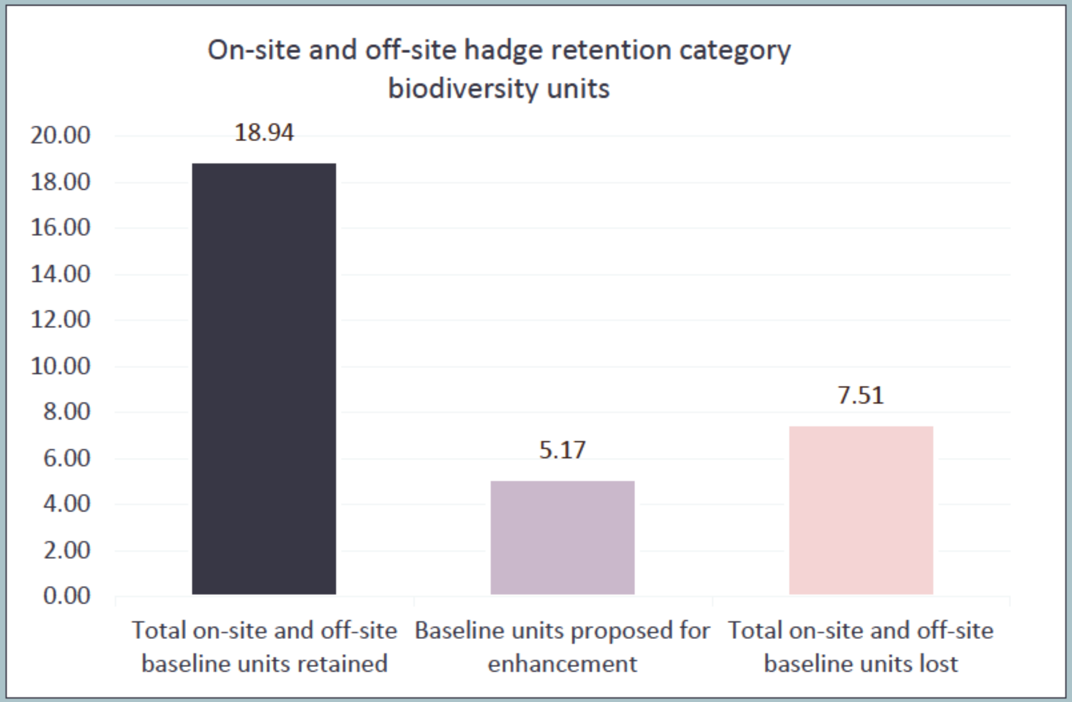

rea (hectares)
11.70
56.75
Area / length proposed for enhancement
Total on-site and off-site baseline area / length lost

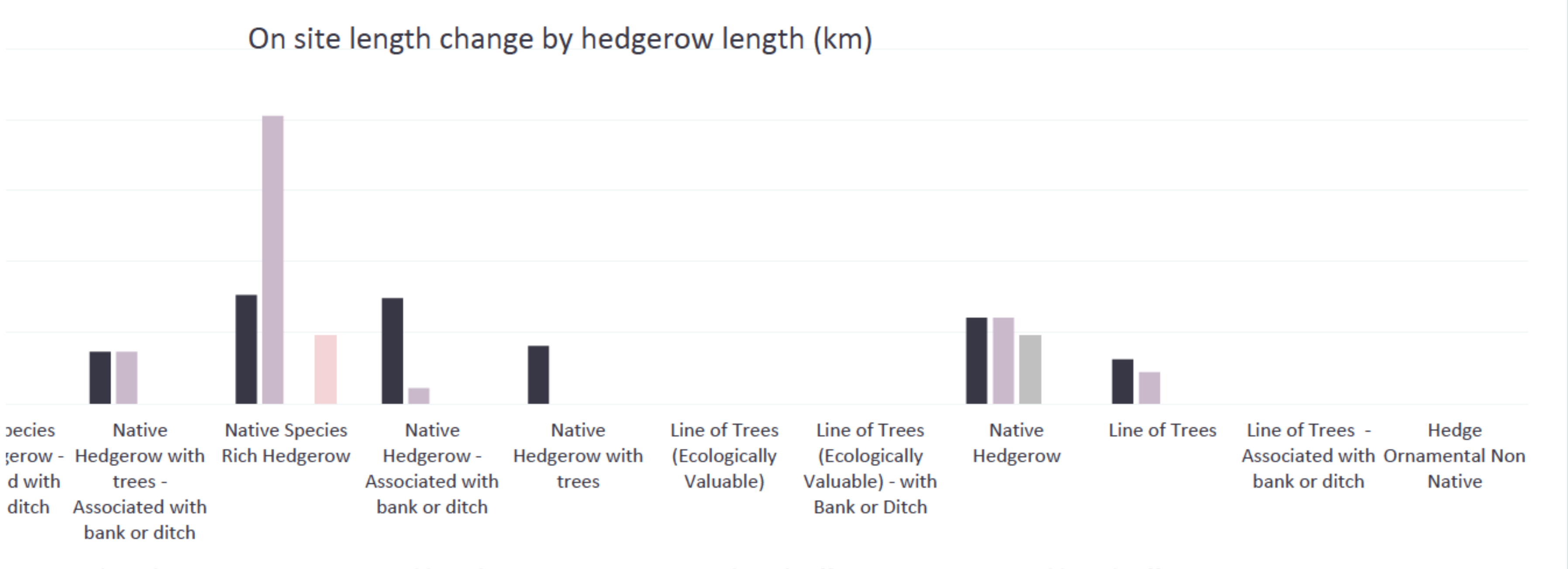

biodiversity units
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
81.13
59.43
77.60
Total on-site and off-site baseline units retained
Baseline units proposed for enhancement
Total on-site and off-site baseline units lost

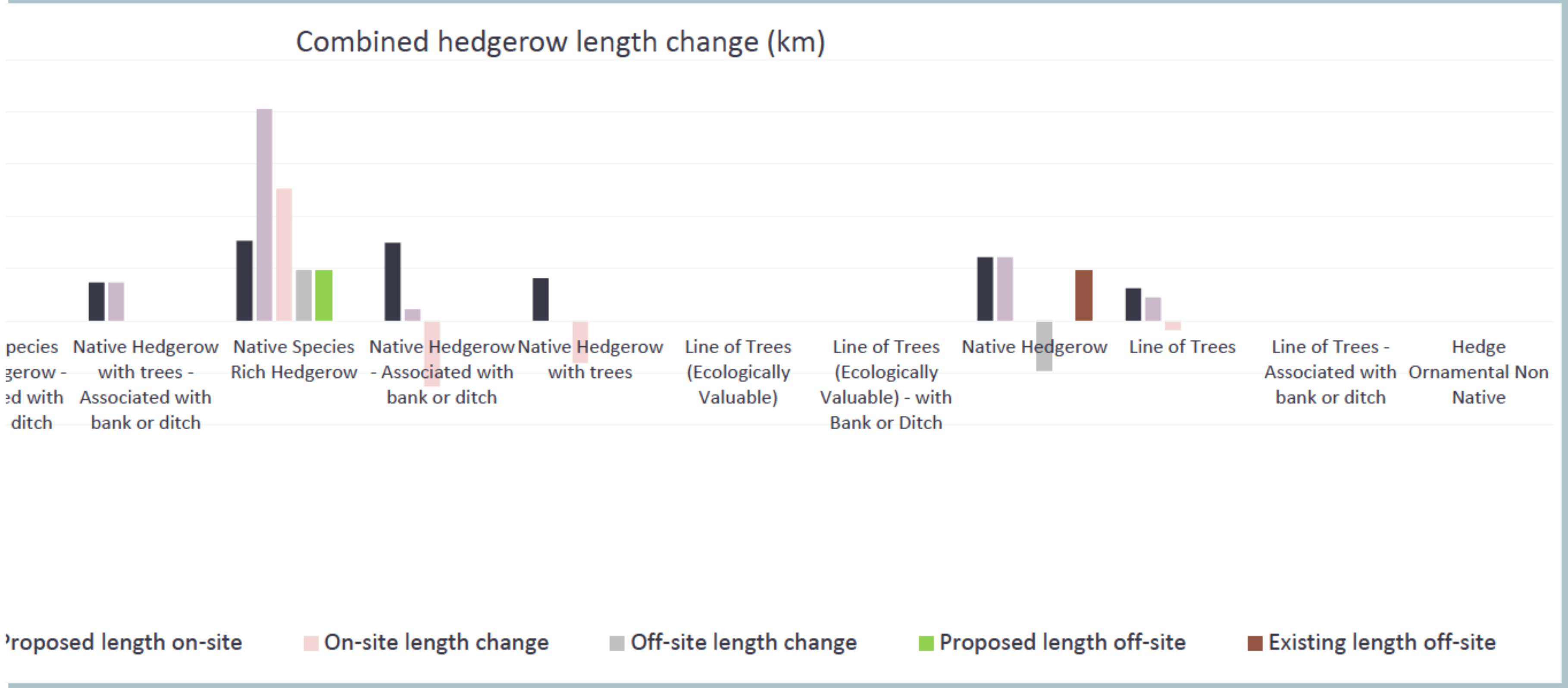

On site area change by habitat group
Heathland and shrub
Lakes
Sparsely vegetated land
Urban
Wetland
Woodland and forest
Intertidal sediment
Coastal saltmarsh
Rocky shore
Coastal lagoons
Intertidal Hard Structures
Existing area
Proposed area
Off-site proposed area

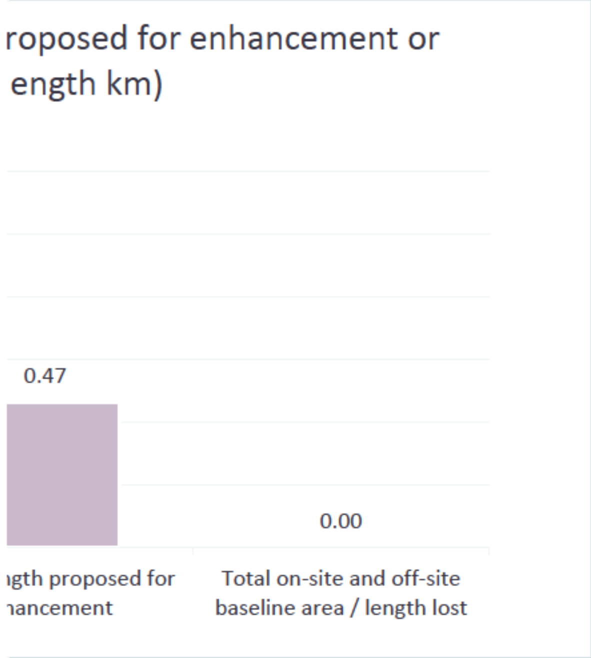

Combined habiat area change

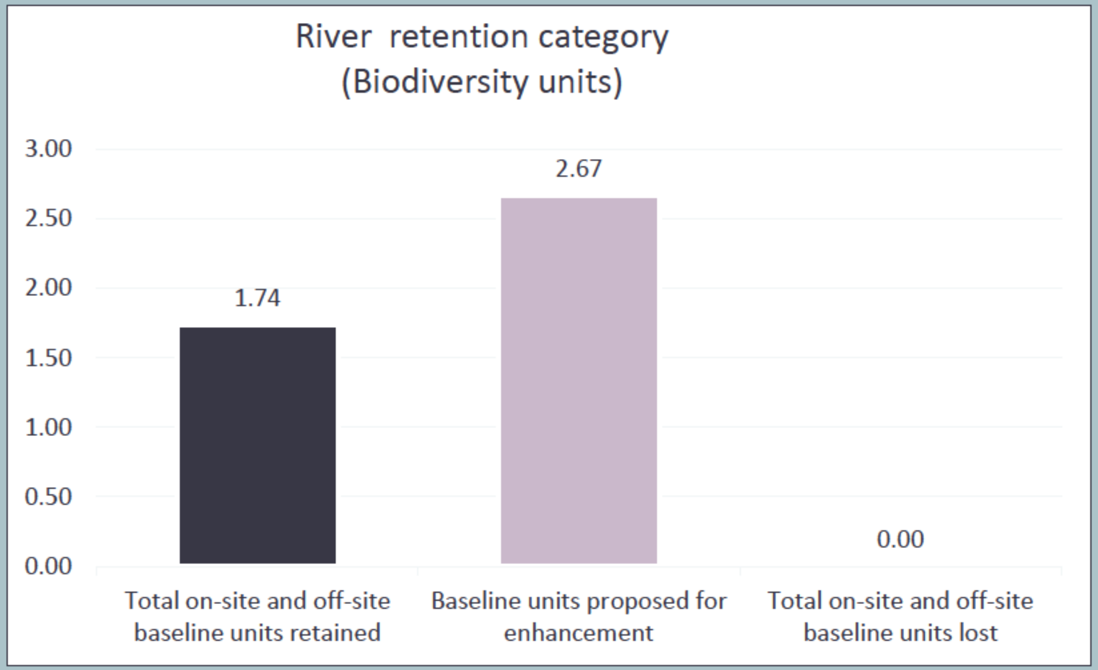

dge retention by category
gth (km)

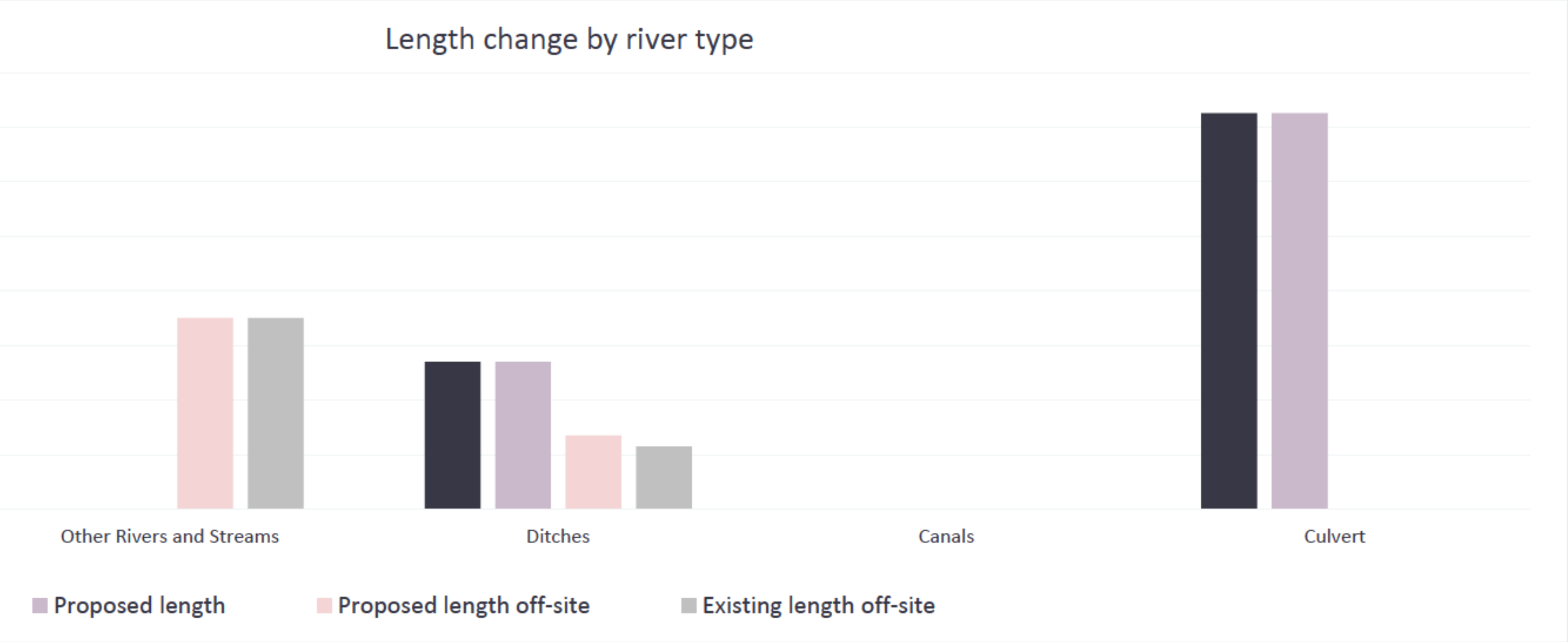

On-site and off-site hadge retention category biodiversity units

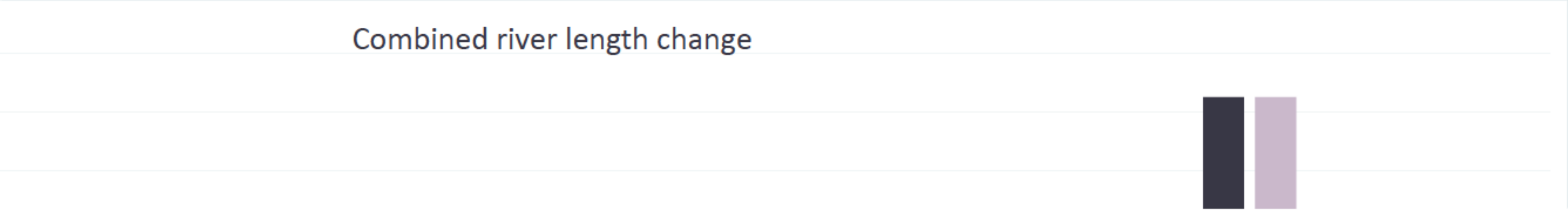

On site length change by hedgerow length (km)
pecies
erow -
d with
ditch
Native Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow
Native Hedgerow - Associated with bank or ditch
Native Hedgerow with trees
Line of Trees (Ecologically Valuable)
Line of Trees (Ecologically Valuable) - with Bank or Ditch
Native Hedgerow
Line of Trees
Line of Trees - Associated with bank or ditch
Hedge Ornamental Non Native
Existing length on-site
Proposed length on-site
Existing length off-site
Proposed length off-site

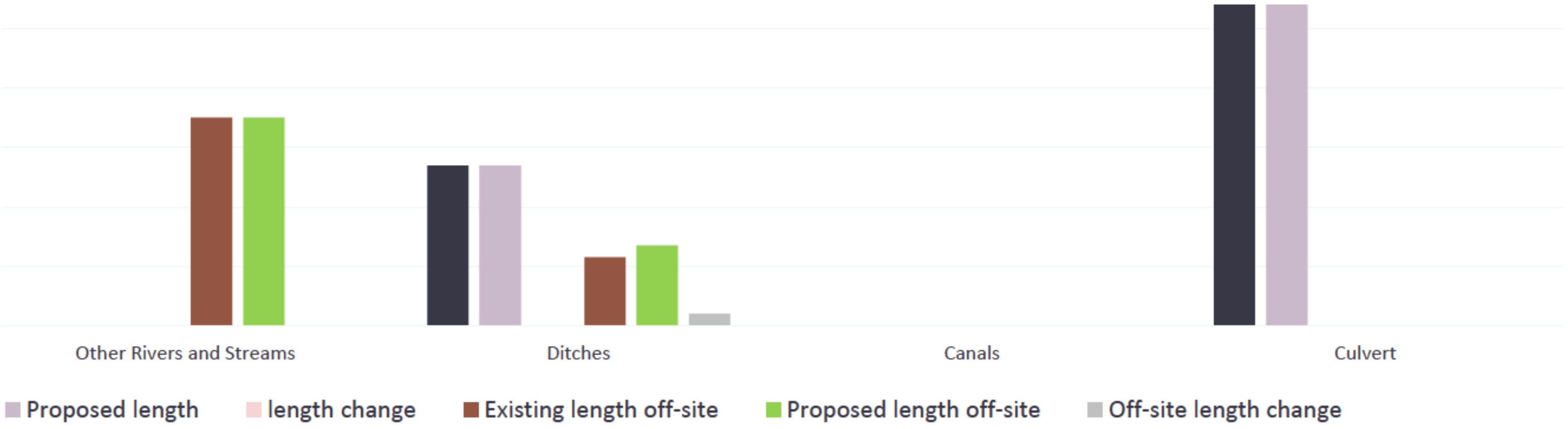

Combined hedgerow length change (km)
pecies
erow -
d with
ditch
Native Hedgerow with trees - Associated with bank or ditch
Native Species Rich Hedgerow
Native Hedgerow - Associated with bank or ditch
Native Hedgerow with trees
Line of Trees (Ecologically Valuable)
Line of Trees (Ecologically Valuable) - with Bank or Ditch
Native Hedgerow
Line of Trees
Line of Trees - Associated with bank or ditch
Hedge Ornamental Non Native
roposed length on-site
On-site length change
Off-site length change
Proposed length off-site
Existing length off-site


roposed for enhancement or
ength km)


River retention category
(Biodiversity units)


Length change by river type


Combined river length change


Other Rivers and Streams
Ditches
Canals
Culvert
Proposed length
length change
Existing length off-site
Proposed length off-site
Off-site length change

Trading Summary

Distinctiveness Group	Trading Rule
Very High	Bespoke compensation likely to be required 🛠
High	Same habitat required =
Medium	Same broad habitat or a higher distinctiveness habitat required (≥)
Low	Same distinctiveness or better habitat required ≥

Very High Distinctiveness

Habitat group	Group	On Site Unit Change	Off Site Unit Change	Project wide Unit Change
Grassland - Lowland dry acid grassland	Grassland	0.00	0.00	0.00
Grassland - Lowland meadows	Grassland	0.00	0.00	0.00
Grassland - Upland hay meadows	Grassland	0.00	0.00	0.00
Heathland and shrub - Mountain heaths and willow scrub	Heathland and shrub	0.00	0.00	0.00
Lakes - Aquifer fed naturally fluctuating water bodies	Lakes	0.00	0.00	0.00
Sparsely vegetated land - Calaminarian grasslands	Sparsely vegetated land	0.00	0.00	0.00
Sparsely vegetated land - Limestone pavement	Sparsely vegetated land	0.00	0.00	0.00
Wetland - Blanket bog	Wetland	0.00	0.00	0.00
Wetland - Depressions on Peat substrates (H7150)	Wetland	0.00	0.00	0.00
Wetland - Fens (upland and lowland)	Wetland	0.00	0.00	0.00
Wetland - Lowland raised bog	Wetland	0.00	0.00	0.00
Wetland - Oceanic Valley Mire[1] (D2.1)	Wetland	0.00	0.00	0.00
Wetland - Purple moor grass and rush pastures	Wetland	0.00	0.00	0.00
Wetland - Transition mires and quaking bogs (H7140)	Wetland	0.00	0.00	0.00
Woodland and forest - Wood-pasture and parkland	Woodland and forest	0.00	0.00	0.00
Rocky shore - High energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00
Rocky shore - Moderate energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00
Rocky shore - Low energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00
Rocky shore - Features of littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00
Intertidal sediment - Littoral seagrass on peat, clay or chalk	Intertidal sediment	0.00	0.00	0.00
		0.00	0.00	0.00

High Distinctiveness

Habitat group	Group	On Site Unit Change	Off Site Unit Change	Project wide Unit Change
Grassland - Traditional orchards	Grassland	0.00	0.00	0.00
Grassland - Floodplain Wetland Mosaic (CFGM)	Grassland	0.00	0.00	0.00

Grassland - Lowland calcareous grassland	Grassland	0.00	0.00	0.00
Grassland - Tall herb communities (H6430)	Grassland	0.00	0.00	0.00
Grassland - Upland calcareous grassland	Grassland	0.00	0.00	0.00
Heathland and shrub - Lowland Heathland	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Sea buckthorn scrub (Annex 1)	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Upland Heathland	Heathland and shrub	0.00	0.00	0.00
Lakes - High alkalinity lakes	Lakes	0.00	0.00	0.00
Lakes - Low alkalinity lakes	Lakes	0.00	0.00	0.00
Lakes - Marl Lakes	Lakes	0.00	0.00	0.00
Lakes - Moderate alkalinity lakes	Lakes	0.00	0.00	0.00
Lakes - Peat Lakes	Lakes	0.00	0.00	0.00
Lakes - Ponds (Priority Habitat)	Lakes	1.95	0.00	1.95
Lakes - Temporary lakes, ponds and pools	Lakes	0.71	0.00	0.71
Sparsely vegetated land - Coastal sand dunes	Sparsely vegetated land	0.00	0.00	0.00
Sparsely vegetated land - Coastal vegetated shingle	Sparsely vegetated land	0.00	0.00	0.00
Sparsely vegetated land - Inland rock outcrop and scree habitats	Sparsely vegetated land	0.00	0.00	0.00
Sparsely vegetated land - Maritime cliff and slopes	Sparsely vegetated land	0.00	0.00	0.00
Urban - Open Mosaic Habitats on Previously Developed Land	Urban	0.00	0.00	0.00
Wetland - Reedbeds	Wetland	0.00	0.00	0.00
Woodland and forest - Felled	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Lowland beech and yew woodland	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Lowland mixed deciduous woodland	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Native pine woodlands	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Upland birchwoods	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Upland mixed ashwoods	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Upland oakwood	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Wet woodland	Woodland and forest	0.00	0.00	0.00
Coastal lagoons - Coastal lagoons	Coastal lagoons	0.00	0.00	0.00
Rocky shore - High energy littoral rock	Rocky shore	0.00	0.00	0.00
Rocky shore - Moderate energy littoral rock	Rocky shore	0.00	0.00	0.00
Rocky shore - Low energy littoral rock	Rocky shore	0.00	0.00	0.00
Rocky shore - Features of littoral rock	Rocky shore	0.00	0.00	0.00
Intertidal sediment - Littoral mud	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00
Coastal saltmarsh - Saltmarshes and saline reedbeds	Coastal Saltmarsh	0.00	0.00	0.00
Intertidal sediment - Littoral biogenic reefs - Mussels	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Littoral biogenic reefs - Sabellaria	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Features of littoral sediment	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Littoral muddy sand	Intertidal sediment	0.00	0.00	0.00
		2.65	0.00	2.65

Medium Distinctiveness

Habitat Group	Group	On site unit change	Off Site unit Change	Project wide unit change
Cropland - Arable field margins cultivated annually	Cropland	0.00	0.00	0.00

Cropland - Arable field margins game bird mix	Cropland	0.00	0.00	0.00
Cropland - Arable field margins pollen & nectar	Cropland	0.00	0.00	0.00
Cropland - Arable field margins tussocky	Cropland	0.00	0.00	0.00
Grassland - Other lowland acid grassland	Grassland	0.00	0.00	0.00
Grassland - Other neutral grassland	Grassland	28.91	27.84	56.75
Grassland - Upland acid grassland	Grassland	0.00	0.00	0.00
Heathland and shrub - Blackthorn scrub	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Bramble scrub	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Gorse scrub	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Hawthorn scrub	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Hazel scrub	Heathland and shrub	0.00	0.00	0.00
Heathland and shrub - Mixed scrub	Heathland and shrub	0.18	5.00	5.18
Lakes - Ponds (Non- Priority Habitat)	Lakes	0.00	0.00	0.00
Lakes - Reservoirs	Lakes	0.00	0.00	0.00
Sparsely vegetated land - Other inland rock and scree	Sparsely vegetated land	0.00	0.00	0.00
Urban - Cemeteries and churchyards	Urban	0.00	0.00	0.00
Urban - Biodiverse green roof	Urban	0.00	0.00	0.00
Urban - Urban Tree	Urban	0.00	0.00	0.00
Woodland and forest - Other Scot's Pine woodland	Woodland and forest	0.00	0.00	0.00
Woodland and forest - Other woodland; broadleaved	Woodland and forest	-12.73	16.05	3.32
Woodland and forest - Other woodland; mixed	Woodland and forest	-0.93	0.00	-0.93
Intertidal sediment - Littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Littoral sand	Intertidal sediment	0.00	0.00	0.00
Intertidal Hard Structures - Artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI)	Intertidal	0.00	0.00	0.00
		15.43	48.89	64.32

Low Distinctiveness

Habitat group	Group	On site unit change	Off Site Unit Change	Project wide unit change
Cropland - Cereal crops	Cropland	-4.66	-4.85	-9.51
Cropland - Horticulture	Cropland	0.00	0.00	0.00
Cropland - Intensive orchards	Cropland	0.00	0.00	0.00
Cropland - Non-cereal crops	Cropland	-0.01	0.00	-0.01
Cropland - Temporary grass and clover leys	Cropland	-0.01	0.00	-0.01
Cropland - Cereal crops winter stubble	Cropland	0.00	0.00	0.00
Grassland - Modified grassland	Grassland	-15.85	-3.74	-19.59
Grassland - Bracken	Grassland	0.00	0.00	0.00
Heathland and shrub - Rhododendron scrub	Heathland and shrub	0.00	0.00	0.00
Lakes - Ornamental lake or pond	Lakes	0.00	0.00	0.00
Sparsely vegetated land - Ruderal/Ephemeral	Sparsely vegetated land	-0.02	0.00	-0.02
Urban - Bioswale	Sparsely vegetated land	0.00	0.00	0.00
Urban - Allotments	Urban	0.00	0.00	0.00
Urban - Facade-bound green wall	Urban	0.00	0.00	0.00

Urban - Ground based green wall	Urban	0.00	0.00	0.00
Urban - Ground level planters	Urban	0.00	0.00	0.00
Urban - Other green roof	Urban	0.00	0.00	0.00
Urban - Intensive green roof	Urban	0.00	0.00	0.00
Urban - Introduced shrub	Urban	-0.13	0.00	-0.13
Urban - Rain garden	Urban	0.00	0.00	0.00
Urban - Actively worked sand pit quarry or open cast mine	Urban	0.00	0.00	0.00
Urban - Sustainable urban drainage feature	Urban	0.00	0.00	0.00
Urban - Vacant/derelict land/ bareground	Urban	-0.22	0.00	-0.22
Urban - Vegetated garden	Urban	0.00	0.00	0.00
Woodland and forest - Other coniferous woodland	Woodland and forest	0.00	0.00	0.00
Coastal saltmarsh - Artificial saltmarshes and saline reedbeds	Coastal saltmarsh	0.00	0.00	0.00
Intertidal sediment - Artificial littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral mud	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral sand	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral muddy sand	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral seagrass	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral biogenic reefs	Intertidal sediment	0.00	0.00	0.00
Intertidal Hard Structures - Artificial hard structures	Intertidal	0.00	0.00	0.00
Intertidal Hard Structures - Artificial features of hard structures	Intertidal	0.00	0.00	0.00
Heathland and shrub - Sea buckthorn scrub (other)	Heathland and shrub	0.00	0.00	0.00
		-20.89		-29.49

Trading Satisfied?
Yes ✓
Yes ✓
Yes ✓
Yes ✓

Unit Losses
0.00

Very High Distinctiveness Summary

Very High Distinctiveness Units available to offset lower distinctiveness defecit	0.00

Losses not yet accounted for

High Distinctiveness Summary

High Distinctiveness Units available to offset lower distinctiveness defecit	2.65
Unit Defecit; Like for like not satisfied	✓ 0.00

0.00

Cumulative Broad Habitat Change

Medium Distinctiveness Summary

Medium Distinctiveness Units available to offset lower distinctiveness defecit	64.32
Medium Distinctiveness Broad Habitat Deficit to be offset by trading up	0.00

0.00
56.75
5.18
0.00
0.00
0.00
2.39
0.00

Higher distinctiveness surplus units minus Medium Distinctivenss Broad Habitat Defecit	2.65
Cumulative surplus of units	66.97

Low Distinctiveness Summary

Low Distinctiveness Net Change in Units	-29.49
Cumulative surplus of units	37.49

Drax BECCS

A-1 Site Habitat Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Habitats and areas			Distinctiveness		Condition	
Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Score	Condition	Score
1	Grassland	Modified grassland	2.969002	Low	2	Poor	1
2	Grassland	Other neutral grassland	0.011138	Medium	4	Moderate	2
3	Heathland and shrub	Mixed scrub	1.537477	Medium	4	Poor	1
4	Sparsely vegetated land	Ruderal/Ephemeral	0.087742	Low	2	Poor	1
5	Urban	Vacant/derelict land/ bareground	0.941806	Low	2	Poor	1
6	Urban	Artificial unvegetated, unsealed surface	1.094056	V.Low	0	N/A - Other	0
7	Urban	Developed land; sealed surface	48.555369	V.Low	0	N/A - Other	0
8	Urban	Introduced shrub	0.941684	Low	2	Condition Assessment N/A	1
9	Lakes	Temporary lakes, ponds and pools	0.093867	High	6	Moderate	2
10	Woodland and forest	Other coniferous woodland	0.106455	Low	2	Poor	1
11	Woodland and forest	Other woodland; broadleaved	0.994071	Medium	4	Good	3
12	Woodland and forest	Other woodland; mixed	0.351602	Medium	4	Moderate	2
13							
14	Grassland	Modified grassland	1.688135	Low	2	Poor	1
15	Heathland and shrub	Mixed scrub	0.278957	Medium	4	Poor	1
16	Sparsely vegetated land	Ruderal/Ephemeral	0.009636	Low	2	Poor	1
17	Urban	Vacant/derelict land/ bareground	0.045465	Low	2	Poor	1
18	Lakes	Temporary lakes, ponds and pools	0.172959	High	6	Moderate	2

19	Urban	Artificial unvegetated, unsealed surface	0.081769	V.Low	0	N/A - Other	0
20	Urban	Developed land; sealed surface	19.701966	V.Low	0	N/A - Other	0
21	Urban	Introduced shrub	0.0617	Low	2	Condition Assessment N/A	1
22	Woodland and forest	Other woodland; broadleaved	0.532617	Medium	4	Moderate	2
23	Woodland and forest	Other woodland; mixed	0.116237	Medium	4	Moderate	2
24							
25	Grassland	Modified grassland	5.312435	Low	2	Poor	1
26	Heathland and shrub	Mixed scrub	0.407668	Medium	4	Poor	1
27	Lakes	Temporary lakes, ponds and pools	0.17275	High	6	Moderate	2
28	Urban	Developed land; sealed surface	0.894055	V.Low	0	N/A - Other	0
29	Urban	Introduced shrub	0.296579	Low	2	Condition Assessment N/A	1
30	Woodland and forest	Other coniferous woodland	0.119514	Low	2	Poor	1
31	Woodland and forest	Other woodland; broadleaved	1.570362	Medium	4	Moderate	2
32	Woodland and forest	Other woodland; mixed	1.563885	Medium	4	Moderate	2
33							
34	Cropland	Cereal crops	6.575727	Low	2	Condition Assessment N/A	1
35	Grassland	Modified grassland	8.511479	Low	2	Poor	1
36	Heathland and shrub	Mixed scrub	0.04311	Medium	4	Poor	1
37	Urban	Vacant/derelict land/ bareground	1.906364	Low	2	Poor	1
38	Urban	Developed land; sealed surface	8.784213	V.Low	0	N/A - Other	0
39	Urban	Introduced shrub	0.009662	Low	2	Condition Assessment N/A	1
40	Woodland and forest	Other woodland; broadleaved	2.196697	Medium	4	Moderate	2
41							
42						Poor	
43							
44	Heathland and shrub	Mixed scrub	0.06273	Medium	4	Poor	1
45							
46	Grassland	Modified grassland	0.907887	Low	2	Poor	1

47							
48	Cropland	Cereal crops	1.478837241	Low	2	Condition Assessment N/A	1
49	Grassland	Modified grassland	2.699243185	Low	2	Poor	1
50	Urban	Developed land; sealed surface	0.610816	V.Low	0	N/A - Other	0
51	Woodland and forest	Other woodland; broadleaved	0.242751	Medium	4	Moderate	2
52							
53							
54	Cropland	Temporary grass and clover leys	0.326971	Low	2	Condition Assessment N/A	1
55	Cropland	Non-cereal crops	0.225611	Low	2	Condition Assessment N/A	1
56	Grassland	Modified grassland	0.500868	Low	2	Poor	1
57	Heathland and shrub	Mixed scrub	0.088199	Medium	4	Poor	1
58	Urban	Developed land; sealed surface	0.618826	V.Low	0	N/A - Other	0
59	Urban	Artificial unvegetated, unsealed surface	0.012212	V.Low	0	N/A - Other	0
60	Woodland and forest	Other woodland; broadleaved	0.040111	Medium	4	Moderate	2
61							
62	Grassland	Modified grassland	1.09092464	Low	2	Poor	1
63	Grassland	Modified grassland	0.339755739	Low	2	Poor	1
64	Grassland	Modified grassland	0.296092405	Low	2	Poor	1
65	Heathland and shrub	Mixed scrub	0.581270337	Medium	4	Poor	1
66	Heathland and shrub	Mixed scrub	0.0016	Medium	4	Poor	1
67							
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		Total habitat area	128.86				

Strategic significance			Suggested action to address habitat losses	Ecological baseline
Strategic significance	Strategic significance	Strategic Significance multiplier		Total habitat units
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	5.94
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.09
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	6.15
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.18
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.88
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.88
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	1.13
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.21
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	11.93
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	2.81
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1		
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	3.38
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	1.12
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.02
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.09
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	2.08

Retention category biodiversity value				
Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost
2.969002		5.94	0.00	0.00
0.011138		0.09	0.00	0.00
1.537477		6.15	0.00	0.00
0.087742		0.18	0.00	0.00
0.941806		1.88	0.00	0.00
1.094056		0.00	0.00	0.00
48.555369		0.00	0.00	0.00
0.941684		1.88	0.00	0.00
0.093867		1.13	0.00	0.00
0.106455		0.21	0.00	0.00
0.994071		11.93	0.00	0.00
0.351602		2.81	0.00	0.00
		0.00	0.00	1.69
		0.00	0.00	0.28
		0.00	0.00	0.01
		0.00	0.00	0.05
		0.00	0.00	0.17

Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00				0.00	0.00	0.08
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00				0.00	0.00	19.70
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.12				0.00	0.00	0.06
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	4.26				0.00	0.00	0.53
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.93				0.00	0.00	0.12
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1								
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	10.62		5.312435		10.62	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	1.63		0.407668		1.63	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	2.07		0.17275		2.07	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00		0.894055		0.00	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.59		0.296579		0.59	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.24		0.119514		0.24	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	12.56		1.570362		12.56	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	12.51		1.563885		12.51	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	13.15				0.00	0.00	6.58
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	17.02				0.00	0.00	8.51
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.17				0.00	0.00	0.04
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	3.81				0.00	0.00	1.91
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00				0.00	0.00	8.78
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.02				0.00	0.00	0.01
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	17.57				0.00	0.00	2.20
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1								
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.25				0.00	0.00	0.06
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.82			0.907887	0.00	1.82	0.00

Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	2.96		0.413645		0.83	0.00	1.07
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	5.40		0.6930702	1.724479	1.39	3.45	0.28
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00		0.610816		0.00	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	1.94		0.242751		1.94	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.65		0.287667		0.58	0.00	0.04
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.45		0.163002		0.33	0.00	0.06
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.00		0.388275		0.78	0.00	0.11
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.35		0.081515		0.33	0.00	0.01
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00		0.569969		0.00	0.00	0.05
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00		0.012212		0.00	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.32		0.025734		0.21	0.00	0.01
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	2.18				0.00	0.00	1.09
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.68			0.33975574	0.00	0.68	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.59			0.29609241	0.00	0.59	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	2.33		0.5812703		2.33	0.00	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.01		0.0016		0.01	0.00	0.00

				157.11	72.09	3.27	81.13	6.54	53.50

Total area lost (excluding area of Urban trees and Green walls)	53.50

	Bespoke compensation agreed for unacceptable losses	Comments	
Units lost		Assessor comments	Reviewer comments
0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
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0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
0.00		Modification to Urban Features Only	
3.38		BECCS Infrastructure - Permanent Loss	
1.12		BECCS Infrastructure - Permanent Loss	
0.02		BECCS Infrastructure - Permanent Loss	
0.09		BECCS Infrastructure - Permanent Loss	
2.08		BECCS Infrastructure - Permanent Loss	

0.00		BECCS Infrastructure - Permanent Loss	
0.00		BECCS Infrastructure - Permanent Loss	
0.12		BECCS Infrastructure - Permanent Loss	
4.26		BECCS Infrastructure - Permanent Loss	
0.93		BECCS Infrastructure - Permanent Loss	
0.00		Retained	
0.00		Retained	
0.00		Retained	
0.00		Retained	
0.00		Retained	
0.00		Retained	
0.00		Retained	
0.00		Retained	
13.15		Temporary Loss	
17.02		Temporary Loss	
0.17		Temporary Loss	
3.81		Temporary Loss	
0.00		Temporary Loss	
0.02		Temporary Loss	
17.57		Temporary Loss	
0.25		NG CO2 Pipeline / Temporary Loss (replanted with other habitat)	
0.00		Retained and Enhanced	

2.13		Habitat Provision Area	
0.56		Habitat Provision Area	
0.00		Habitat Provision Area	
0.00		Habitat Provision Area	
0.08		Overhead Line Area	
0.13		Overhead Line Area	
0.23		Overhead Line Area	
0.03		Overhead Line Area	
0.00		Overhead Line Area	
0.00		Overhead Line Area	
0.12		Overhead Line Area	
2.18		Flood Compensation Area	
0.00		Flood Compensation Area	
0.00		Flood Compensation Area	
0.00		Flood Compensation Area	
0.00		Flood Compensation Area	

69.44			

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A-2 Site Habitat Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition	
			Distinctiveness	Score	Condition	Score
Cropland	Cereal crops	6.575727	Low	2	Condition Assessment N/A	1
Grassland	Modified grassland	8.511479	Low	2	Poor	1
Heathland and shrub	Mixed scrub	0.04311	Medium	4	Poor	1
Urban	Vacant/derelict land/ bareground	1.906364	Low	2	Poor	1
Urban	Developed land; sealed surface	8.784213	V.Low	0	N/A - Other	0
Urban	Introduced shrub	0.009662	Low	2	Condition Assessment N/A	1
Woodland and forest	Other woodland; broadleaved	2.196697	Medium	4	Moderate	2
Grassland	Modified grassland	0.06273	Low	2	Poor	1
Grassland	Other neutral grassland	1.09092464	Medium	4	Moderate	2
Urban	Developed land; sealed surface	22.689441	V.Low	0	N/A - Other	0

Woodland and forest	Other woodland; broadleaved	0.114347	Medium	4	Moderate	2
Grassland	Other neutral grassland	0.341556	Medium	4	Moderate	2
Heathland and shrub	Mixed scrub	0.236562	Medium	4	Moderate	2
Lakes	Ponds (Priority Habitat)	0.269337	High	6	Moderate	2
Lakes	Temporary lakes, ponds and pools	0.38508	High	6	Moderate	2
Cropland	Temporary grass and clover leys	0.039304	Low	2	Condition Assessment N/A	1
Cropland	Non-cereal crops	0.062609	Low	2	Condition Assessment N/A	1
Grassland	Modified grassland	0.112593	Low	2	Poor	1
Heathland and shrub	Mixed scrub	0.006684	Medium	4	Poor	1
Urban	Developed land; sealed surface	0.048857	V.Low	0	N/A - Other	0
Woodland and forest	Other woodland; broadleaved	0.014377	Medium	4	Moderate	2

	Total habitat area	53.50				
	Site Area (Excluding area of Urban trees and Green walls)	53.50				

Post development/ post intervention habitats						
Strategic significance			Temporal multiplier			
Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	5	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	2	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied

Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	1	Standard time to target condition applied
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	1	Check details- Delay in starting habitat in required condition? ⚠

		Difficulty multipliers					Co
Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered	Assessor comments
6	0.808	Low	Standard difficulty applied	Low	1	10.62	Temporary Loss
6	0.808	Low	Standard difficulty applied	Low	1	13.75	Temporary Loss
6	0.808	Low	Standard difficulty applied	Low	1	0.14	Temporary Loss
1	0.965	Low	Standard difficulty applied	Low	1	3.68	Temporary Loss
0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Temporary Loss
6	0.808	Low	Standard difficulty applied	Low	1	0.02	Temporary Loss
20	0.490	Low	Standard difficulty applied	Low	1	8.62	Temporary Loss
6	0.808	Low	Standard difficulty applied	Low	1	0.10	NG C02 Pipeline / Temporary Loss (replanted with other habitat)
7	0.779	Low	Standard difficulty applied	Low	1	6.80	Flood Compensation Area
0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Permanent Habitat Loss - BECCS Infrastructure

15	0.586	Low	Standard difficulty applied	Low	1	0.54	Habitat Provision Area
5	0.837	Low	Standard difficulty applied	Low	1	2.29	Habitat Provision Area
5	0.837	Low	Standard difficulty applied	Low	1	1.58	Habitat Provision Area
3	0.899	Medium	Standard difficulty applied	Medium	0.67	1.95	Habitat Provision Area
3	0.899	Medium	Standard difficulty applied	Medium	0.67	2.78	Habitat Provision Area
2	0.931	Low	Standard difficulty applied	Low	1	0.07	Overhead Line Area Reinstatement
2	0.931	Low	Standard difficulty applied	Low	1	0.12	Overhead Line Area Reinstatement
2	0.931	Low	Standard difficulty applied	Low	1	0.21	Overhead Line Area Reinstatement
2	0.931	Low	Standard difficulty applied	Low	1	0.02	Overhead Line Area Reinstatement
1	0.965	Low	Standard difficulty applied	Medium	0.67	0.00	Overhead Line Area Reinstatement
16	0.566	Low	Standard difficulty applied	Low	1	0.07	Overhead Line Area Reinstatement

					Total Units	53.35	

mments
Reviewer comments

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A-3 Site Habitat Enhancement

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Baseline habitats						
Baseline ref	Baseline habitat	Total habitat area (hectares)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category
46	Grassland - Modified grassland	0.907887	Low	2	Poor	1	Low Strategic Significance
49	Grassland - Modified grassland	2.699243185	Low	2	Poor	1	Low Strategic Significance
63	Grassland - Modified grassland	0.339755739	Low	2	Poor	1	Low Strategic Significance
64	Grassland - Modified grassland	0.296092405	Low	2	Poor	1	Low Strategic Significance

			Proposed Habitat (Pre-populated but can be overridden)	
Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed Broad Habitat	Proposed habitat
1	1.82	Same distinctiveness or better habitat required ≥	Grassland	Other neutral grassland
1	5.40	Same distinctiveness or better habitat required ≥	Grassland	Other neutral grassland
1	0.68	Same distinctiveness or better habitat required ≥	Grassland	Other neutral grassland
1	0.59	Same distinctiveness or better habitat required ≥	Grassland	Other neutral grassland

							Post development/ post intervention habitats
Change in distinctiveness and condition		Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significan
Distinctiveness change	Condition change						Strategic significance
Low - Medium	Lower Distinctiveness Habitat - Moderate	0.907887	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
Low - Medium	Lower Distinctiveness Habitat - Moderate	1.724479	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
Low - Medium	Lower Distinctiveness Habitat - Moderate	0.339755739	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
Low - Medium	Lower Distinctiveness Habitat - Moderate	0.296092405	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy

		3.27					

ce		Temporal risk multiplier						
Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of enhancement
Low Strategic Significance	1	10		2	Check details- Delay in starting habitat in required condition? ⚠	12	0.652	Low
Low Strategic Significance	1	10		0	Standard time to target condition applied	10	0.700	Low
Low Strategic Significance	1	10		2	Check details- Delay in starting habitat in required condition? ⚠	12	0.652	Low
Low Strategic Significance	1	10		2	Check details- Delay in starting habitat in required condition? ⚠	12	0.652	Low

Difficulty risk multipliers			Habitat units delivered	Comments	
Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied		Assessor comments	Reviewer comments
Standard difficulty applied	Low	1	5.37	Flood Compensation Area	
Standard difficulty applied	Low	1	10.69	Habitat Provision Area	
Standard difficulty applied	Low	1	2.01	Flood Compensation Area	
Standard difficulty applied	Low	1	1.75	Flood Compensation Area	

			19.82		

Drax BECCS

D-1 Off Site Habitat Baseline

Condense / Show Columns

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Instructions

	Habitats and areas			Habitat distinctiveness		Habitat condition	
Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score
1							
2							
3							
4							
5							
6	Cropland	Cereal crops	2.42446	Low	2	Condition Assessment N/A	1
7	Grassland	Modified grassland	1.872155	Low	2	Poor	1
8	Heathland and shrub	Mixed scrub	1.653877	Medium	4	Poor	1
9	Urban	Developed land; sealed surface	0.753023	V.Low	0	N/A - Other	0
10	Woodland and forest	Other woodland; broadleaved	5.73089	Medium	4	Moderate	2
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			12.43				

Strategic significance			Suggested action to address habitat losses	Ecological baseline
Strategic significance	Strategic significance	Strategic position multiplier		Total habitat units
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	4.85
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	3.74
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	6.62
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	45.85

Retention category biodiversity value				
Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost
		0.00	0.00	2.42
	1.872155	0.00	3.74	0.00
	0.826261	0.00	3.31	0.83
0.753023		0.00	0.00	0.00
	5.73089	0.00	45.85	0.00

			Total Site baseline	61.06

0.75	8.43	0.00	52.90	3.25

Total area lost (excluding area of Urban trees and Green walls)	3.25

	Bespoke compensation agreed for unacceptable losses	Comments	
Units lost		Assessor comments	Reviewer comments
4.85		Off-Site Habitat Provision Area	
0.00		Off-Site Habitat Provision Area	
3.31		Off-Site Habitat Provision Area	
0.00		Off-Site Habitat Provision Area	
0.00		Off-Site Habitat Provision Area	

8.16			

Drax BECCS

D-2 Off Site Habitat Creation

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Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score
Grassland	Other neutral grassland	2.42446	Medium	4	Moderate	2
Heathland and shrub	Mixed scrub	0.827616	Medium	4	Moderate	2

Total Length	3.25

Site Area (Excluding area of Urban trees and Green walls)	3.25

Post development/ post intervention habitats								
Strategic significance			Temporal risk multiplier					
Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0	Standard time to target condition applied	5	0.837
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0	Standard time to target condition applied	5	0.837

Difficulty risk multipliers				Spatial risk multiplier	
Standard difficulty of creation	Applied difficullty multiplier	Final difficulty of creation	Difficulty multiplier applied	Spatial risk category	Spatial risk multiplier
Low	Standard difficulty applied	Low	1	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1
Low	Standard difficulty applied	Low	1	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1

Total Units

Habitat units delivered	Comments	
	Assessor comments	Reviewer comments
16.23	Off-Site Habitat Provision Area	
5.54	Off-Site Habitat Provision Area	

21.77

Drax BECCS

D-3 Off Site Habitat Enhancment

Condense / Show Columns

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Instructions

	Baseline habitats					
Baseline ref	Baseline habitat	Total habitat area	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score
7	Grassland - Modified grassland	1.872155	Low	2	Poor	1
8	Heathland and shrub - Mixed scrub	1.653877	Medium	4	Poor	1
10	Woodland and forest - Other woodland; broadleaved	5.73089	Medium	4	Moderate	2

				Prop
Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed Broad Habitat
Low Strategic Significance	1	3.74431	Same distinctiveness or better habitat required ≥	Grassland
Low Strategic Significance	1	6.615508	Same broad habitat or a higher distinctiveness habitat required (≥)	Heathland and shrub
Low Strategic Significance	1	45.84712	Same broad habitat or a higher distinctiveness habitat required (≥)	Woodland and forest

osed Habitat (Pre-Populated but can be overridden)	Change in distinctiveness and condition		Area ha	Distinctiveness	Score	Condition
Proposed Habitat	Distinctiveness change	Condition change				
Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat - Moderate	1.87216	Medium	4	Moderate
Mixed scrub	Medium - Medium	Poor - Moderate	0.82626	Medium	4	Moderate
Other woodland; broadleaved	Medium - Medium	Moderate - Good	5.73089	Medium	4	Good

			8.43			

Post development/ post intervention habitats							
Score	Strategic significance			Temporal multiplier			
	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/years	Standard or adjusted time to target condition
2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10		0	Standard time to target condition applied
2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0	Standard time to target condition applied
3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10		0	Standard time to target condition applied

		Difficulty multipliers			
Final time to target condition/years	Final time to target multiplier	Difficulty of enhancement category	Applied difficullty multiplier	Difficulty	Difficulty multiplier applied
10	0.700	Low	Standard difficulty applied	Low	1
5	0.837	Low	Standard difficulty applied	Low	1
10	0.700	Low	Standard difficulty applied	Low	1

Spatial risk multiplier		Habitat units delivered	Co
Spatial risk category	Spatial risk multiplier		Assessor comments
Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1	11.61	Off-Site Habitat Provision Area
Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1	6.07	Off-Site Habitat Provision Area
Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1	61.90	Off-Site Habitat Provision Area

		79.58	

omments
Reviewer comments

B-1 Site Hedge Baseline

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Instructions

	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic signif
Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance
1		Line of Trees	0.005459	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy
2		Native Hedgerow	0.313354	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy
3		Native Species Rich Hedgerow	0.251145	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy
4								
5		Native Species Rich Hedgerow	0.007846	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy
6		Native Species Rich Hedgerow with trees	0.084061	High	6	Good	3	Area/compensation not in local strategy/ no local strategy
7								
8		Native Hedgerow	0.141963	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy
9		Native Hedgerow - Associated with bank or ditch	0.008264	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
10		Native Species Rich Hedgerow	0.295212	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy
11								
12		Native Species Rich Hedgerow	0.010475	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy
13								Area/compensation not in local strategy/ no local strategy
14		Line of Trees	0.090616	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy
15		Native Hedgerow	0.133351	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy
16		Native Hedgerow - Associated with bank or ditch	0.63273	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
17		Native Hedgerow with trees	0.000282	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
18								
19		Native Hedgerow with trees	0.404909	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
20								
21								

22		Line of Trees	0.214419	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy
23		Native Hedgerow	0.015515	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy
24		Native Hedgerow - Associated with bank or ditch	0.101231	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
25		Native Hedgerow with trees - Associated with bank or ditch	0.36468	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy
26								
27		Native Species Rich Hedgerow with trees	0.231652	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy
28		Native Species Rich Hedgerow	0.2	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy
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icance			Ecological baseline	Retention category biodiversity value						Comm
Strategic significance	Strategic position multiplier	Suggested action to address habitat losses	Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments
Low Strategic Significance	1	Same distinctiveness band or better	0.01	0.005459		0.01	0.00	0.00	0.00	Modifications to Urban Features Only
Low Strategic Significance	1	Same distinctiveness band or better	1.25	0.313354		1.25	0.00	0.00	0.00	Modifications to Urban Features Only
Low Strategic Significance	1	Like for like or better	3.01	0.251145		3.01	0.00	0.00	0.00	Modifications to Urban Features Only
Low Strategic Significance	1	Like for like or better	0.09			0.00	0.00	0.01	0.09	Permanent Loss
Low Strategic Significance	1	Like for like or better	1.51			0.00	0.00	0.08	1.51	Permanent Loss
Low Strategic Significance	1	Same distinctiveness band or better	0.57	0.141963		0.57	0.00	0.00	0.00	Retained
Low Strategic Significance	1	Like for like or better	0.07	0.008264		0.07	0.00	0.00	0.00	Retained
Low Strategic Significance	1	Like for like or better	3.54	0.295212		3.54	0.00	0.00	0.00	Retained
Low Strategic Significance	1	Like for like or better	0.13			0.00	0.00	0.01	0.13	Temporary Loss
Low Strategic Significance	1									
Low Strategic Significance	1	Same distinctiveness band or better	0.18			0.00	0.00	0.09	0.18	Permanent Loss
Low Strategic Significance	1	Same distinctiveness band or better	0.53			0.00	0.00	0.13	0.53	Temporary Loss
Low Strategic Significance	1	Like for like or better	5.06			0.00	0.00	0.63	5.06	Temporary Loss, reinstated and enhanced
Low Strategic Significance	1	Like for like or better	0.00			0.00	0.00	0.00	0.00	Permanent Loss
Low Strategic Significance	1	Like for like or better	3.24		0.404909	0.00	3.24	0.00	0.00	Retained and Enhanced

Low Strategic Significance	1	Same distinctiveness band or better	0.86		0.214419		0.86	0.00	0.00	0.00	Habitat Provision Area
Low Strategic Significance	1	Same distinctiveness band or better	0.06		0.015515		0.06	0.00	0.00	0.00	Habitat Provision Area
Low Strategic Significance	1	Like for like or better	0.81		0.101231		0.81	0.00	0.00	0.00	Habitat Provision Area
Low Strategic Significance	1	Like for like or better	4.38		0.36468		4.38	0.00	0.00	0.00	Habitat Provision Area
Low Strategic Significance	1	Like for like or better	2.78		0.231652		2.78	0.00	0.00	0.00	Flood Compensation Area
Low Strategic Significance	1	Like for like or better	1.60		0.2		1.60	0.00	0.00	0.00	Overhead Line Area

			29.69

2.14	0.40	18.94	3.24	0.96	7.51	

nents
Reviewer comments

B-2 Site Hedge Creation

Condense / Show Columns

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Instructions

		Proposed habitats		Habitat distinctiveness		Habitat condition	
Baseline ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score
1		Native Species Rich Hedgerow	1.27904	Medium	4	Good	3
2		Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.265423	V.High	8	Good	3
3							
4							
5		Native Hedgerow	0.133351	Low	2	Moderate	2
6		Native Species Rich Hedgerow - Associated with bank or ditch	0.63273	High	6	Moderate	2
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Strategic significance			Temporal multiplier				
Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	12		0	Standard time to target condition applied	12
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	20		0	Standard time to target condition applied	20
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		5	Check details- Delay in starting habitat in required condition? ⚠	10
Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		5	Check details- Delay in starting habitat in required condition? ⚠	10

	Difficulty risk multipliers				Hedge units delivered	Comments	
Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
0.652	Low	Standard difficulty applied	Low	1	10.01	Habitat Provision Area	
0.490	Low	Standard difficulty applied	Low	1	3.12	Habitat Provision Area	
0.700	Low	Standard difficulty applied	Low	1	0.37	Temporary Loss, Reinstated	
0.700	Low	Standard difficulty applied	Low	1	5.32	Temporary Loss, Reinstated and Enhanced	

					18.82		

Drax BECCS

B-3 Site Hedge Enhancement

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Baseline Habitats							
Baseline ref	Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score
19	Native Hedgerow with trees	0.404909	Medium	4	Moderate	2	Low Strategic Significance	1

			Change in distincitiveness and condition	
Baseline habitat units	Suggested action	Proposed (Pre-populated but can be overridden)	Distinctiveness movement	Condition movement
3.239272	Like for like or better	Native Species Rich Hedgerow with trees	Medium - High	Lower Distinctiveness Habitat - Good

Post development/ post intervention habitats									
Length (km)	Distinctiveness		Condition		Strategic significance				
	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat enhanced in advance/years
0.404909	High	6	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	

0.40									

Temporal multiplier				Difficulty risk multipliers				Hedge units delivered
Delay in starting habitat enhancement/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of enhancement	Applied difficullty multiplier	Final difficulty of enhancement	Difficulty multiplier applied	
5	Check details- Delay in starting habitat in required condition? ⚠	10	0.700	Low	Standard difficulty applied	Low	1	6.07

								6.07

Comments	
Assessor comments	Reviewer comments
East Construction Laydown Area	

Drax BECCS

E-1 Off Site Hedge Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Existing hedgerow habitats			Habitat distinctiveness		Habitat condition		Strategic significance	
Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance
1		Native Hedgerow	0.48199	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance
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			0.48199						

		Ecological baseline
Strategic position multiplier	Suggested action	Total hedgerow units
1	Same distinctiveness band or better	1.93

Retention category biodiversity value						Comments	
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
	0.481989	0	1.927956	0.00	0.00	Off-Site Habitat Provision Area	

		1.93	0.00	0.48	0.00	1.93	0.00	0.00		

Drax BECCS

E-2 Off Site Hedge Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

		Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic signifi
Baseline ref	New hedge number	Habitat type	Length KM	Distinctiveness	Score	Condition	Score	Strategic significance
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cance		Spatial risk multiplier		T		
Strategic significance	Strategic position multiplier	Spatial risk category	Spatial risk multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years

emporal multiplier			Difficulty risk multipliers				Hedge units delivered	Com
Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of creation	Applied difficullty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments

							0.00	

nents
Reviewer comments

E-3 Off Site Hedge Enhancement

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Baseline habitats							
Baseline ref	Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score
1	Native Hedgerow	0.48199	Low	2	Moderate	2	Low Strategic Significance	1

			Change in distincitiveness and condition			Distinctive
Baseline habitat units	Suggested action	Proposed (Pre-Populated but can be overridden)	Distinctiveness movement	Condition movement	Length (km)	Distinctiveness
1.927956	Same distinctiveness band or better	Native Species Rich Hedgerow	Low - Medium	Lower Distinctiveness Habitat - Good	0.481989	Medium

					0.48	

Post development/ post intervention habitats								
Change in distinctiveness and condition								
ness	Condition		Strategic significance			Temporal		
Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/years
4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0

l multiplier			Difficulty risk multipliers			
Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of enhancement	Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied
Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1

Spatial risk multiplier			Comments	
Spatial risk category	Spatial risk multiplier	Hedge units delivered	Assessor comments	Reviewer comments
Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1	5.15	Off-Site Habitat Provision Area	

		5.15		

C-1 Site River Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

Existing river type			Habitat distinctiveness		Habitat condition		Strategic significance	
Baseline ref	River type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance
1	Culvert	0.725	Low	2	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance
2	Ditches	0.27	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance
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	Watercourse encroachment		Riparian encroachment		Suggested action	Ecological baseline
Strategic significance multiplier	Extent of encroachment	Multiplier	Extent of encroachment	Multiplier		Total river units
1	N/A - Culvert	1	Major	0.75	Restore	1.09
1	Minor	0.8	Major	0.75	Restore	0.65

Retention category biodiversity value					
Length retained	Length enhanced	Units retained	Units enhanced	Length Lost	Units Lost
0.725		1.09	0.00	0.00	0.00
0.27		0.65	0.00	0.00	0.00

						1.74

1.00	0.00	1.74	0.00	0.00	0.00

Comments	
Assessor Comments	Reviewer comments
Carr Dike in culvert	
Cooling Towers Ditch	

C-2 Site River Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance		
Baseline ref	River type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier
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Temporal multiplier						Difficulty multipliers				Watercourse enc
Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of creation	Applied difficullty multiplier	Final difficulty of creation	Difficulty multiplier applied	Extent of encroachment

roachment	Riparian encroachment		River units delivered	Comments	
Multiplier	Extent of encroachment	Multiplier		Assessor comments	Reviewer comments

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F-1 Off Site River Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

Existing river type			Habitat distinctiveness		Habitat condition		Strategic significance	
Baseline ref	River type	length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance
1	Other Rivers and Streams	0	High	6	Moderate	2	Within Catchment Plans	High strategic significance
2	Other Rivers and Streams	0.23	High	6	Moderate	2	Within Catchment Plans	High strategic significance
3	Other Rivers and Streams	0.12	High	6	Fairly Poor	1.5	Within Catchment Plans	High strategic significance
4	Ditches	0.115	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance
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		0.47						

Check Lengths ⚠

	Watercourse encroachment		Riparian encroachment		Suggested action	Ecological baseline
Strategic position multiplier	Extent of encroachment	Multiplier	Extent of encroachment	Multiplier		Total river units
1.15	Major	0.5	No Encroachment	1	Restore	0.00
1.15	Major	0.5	No Encroachment	1	Restore	1.59
1.15	Major	0.5	No Encroachment	1	Restore	0.62
1	No Encroachment	1	No Encroachment	1	Restore	0.46

Retention category biodiversity value					
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost
	0.0001	0.00	0.00	0.00	0.00
	0.23	0.00	1.59	0.00	0.00
	0.12	0.00	0.62	0.00	0.00
	0.115	0.00	0.46	0.00	0.00

						2.67

0.00	0.47	0.00	2.67	0.00	0.00

Comments	
Assessor comments	Reviewer comments
Included due to glitch in metric (please ignore this line)	
Black brook upstream section	
Black Brook downstream section	
Ditch on floodplain near Black Brook	

F-2 Off Site River Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance		
Baseline ref	River type	Length km	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier
1	Ditches	0.02	Medium	4	Moderate	2	Low potential/action not identified in any plan	Low Strategic Significance	1
2									
3									
4									
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Temporal multiplier						Difficulty multipliers			
Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target Multiplier	Standard difficulty of creation	Applied difficullty multiplier	Final difficulty of creation	Difficulty multiplier applied
5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1

Watercourse encroachment		Riparian encroachment		Spatial risk category		River units delivered	Comments	
Extent of encroachment	Multiplier	Extent of encroachment	Multiplier	Offset location	Multiplier		Assessor comments	Reviewer comments
No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	0.10	Created ditch connecting to wetland area	

						0.10		

F-3 Off Site River Enhancement

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

	Baseline habitats						
Baseline ref	Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category
1	Other Rivers and Streams	0	High	6	Moderate	2	Within Catchment Plans
2	Other Rivers and Streams	0.23	High	6	Moderate	2	Within Catchment Plans
3	Other Rivers and Streams	0.12	High	6	Fairly Poor	1.5	Within Catchment Plans
4	Ditches	0.115	Medium	4	Poor	1	Low potential/action not identified in any plan

		0.47					

					Change in distinctiv
Strategic significance	Baseline strategic significance score	Suggested action	Total units	Proposed habitat (Pre-Populated but can be overridden)	Distinctiveness movement
High strategic significance	1.15	Restore	0	Other Rivers and Streams	High - High
High strategic significance	1.15	Restore	1.587	Other Rivers and Streams	High - High
High strategic significance	1.15			Other Rivers and Streams	High - High
Low Strategic Significance	1			Ditches	Medium - Medium

Post development/									
eness and condition	Length (km)	Habitat distinctiveness		Habitat condition		Strategic significance			
Condition movement		Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years
Moderate - Fairly Good	0.0001	High	6	Fairly Good	2.5	Delivery within Catchment Plans	High strategic significance	1.15	2
Moderate - Moderate	0.23	High	6	Moderate	2	Delivery within Catchment Plans	High strategic significance	1.15	1
Fairly Poor - Moderate	0.12	High	6	Moderate	2	Delivery within Catchment Plans	High strategic significance	1.15	2
Poor - Moderate	0.115	Medium	4	Moderate	2	Low potential/action not identified in any plan	Low Strategic Significance	1	4

	0.47								

post intervention habitats

Temporal multiplier					Difficulty multipliers			
Habitat enhanced in advance/years	Delay in starting habitat enhancement/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of enhancement	Applied difficullty multiplier	Final difficulty of enhancement	Difficulty multiplier applied
0	0	Standard time to target condition applied	2	0.931	High	Standard difficulty applied	High	0.33
0	0	Standard time to target condition applied	1	0.965	Medium	Standard difficulty applied	Medium	0.67
0	0	Standard time to target condition applied	2	0.931	Medium	Standard difficulty applied	Medium	0.67
0	0	Standard time to target condition applied	4	0.867	Medium	Standard difficulty applied	Medium	0.67

Watercourse encroachment		Riparian encroachment		Spatial risk category		River units delivered	Comm
Extent of encroachment	Multiplier	Extent of encroachment	Multiplier	Offset location	Multiplier		Assessor comments
No Encroachment	1	No Encroachment	1	Outside catchment	0.5	0.00	Included due to glitch in metric (please ignore this line)
No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	2.38	Black brook upstream section
No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	1.13	Black Brook downstream section
No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	0.55	Ditch on floodplain near Black Brook

						4.05	

ments
Reviewer comments

6.3. APPENDIX C – BOWERS MILL BLACK BROOK RESTORATION PROJECT REPORT

Biodiversity Net Gain Technical Report

Bowers Mill, Black Brook

Version Control

Version	Author	Date	Amendments	Issued to
1.0	Andy Bray	30.01.2023	Draft Report—for comment	Frances Marlow Jennifer Collins
1.1	Andy Bray	01.02.2023	Final Draft	Frances Marlow Jennifer Collins
1.2	Andy Bray	20.02.2023	Accepted Report	Frances Marlow Jennifer Collins

Summary

This Black Brook river and floodplain restoration scheme has been developed by Calder Rivers Trust in collaboration with the Landowner and is planned to be delivered in summer 2023. The scheme will:

- remove the left bank retaining wall and re-profile the bank to restore floodplain connectivity
- expand the footprint and improve the quality of existing floodplain wetland habitat
- divert and improve the field boundary ditch to feed floodplain wetlands
- remove a weir to restore sediment flow and habitat connectivity within the river

These interventions will result in an uplift of 2.96 "Other Rivers and Streams" biodiversity units and 0.4 "Ditches" 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 the local economy.

1.0 Introduction

1.1 Scope of report

This work was commissioned by WSP to explore the possibility of finding off-site rivers and streams and ditches habitat units on the Bowers Mill, Black Brook project site (SE 07170 20339).

1.2 Project location

SE 07172 20316

1.3 Project site

Black Brook is a tributary of the Middle Calder which emerges on Moss Moor and drains through Deanhead Reservoir and Scammonden Water, eventually joining the River Calder near Greetland. The waterbody is Heavily Modified with at least 11 weirs along its ~14 km length, remains of the mills in the valley. Black Brook has an overall WFD waterbody classification of moderate. This project is based on the ~6 ha land adjacent to Bowers Mill, sitting on Black Brook.

2.0 Methods

2.1 Desk Study

The distinctiveness of Black Brook was determined by consulting with Natural England Priority River Habitat – Rivers dataset[1]. Strategic significance was determined by consulting with the Humber River Basin Management Plan[2], Catchment Partnership pages[3], and Calder Catchment Management Plan[4].

2.2 Field Survey Methods

The baseline and projected Rivers and Streams (other) habitat units were determined using the MoRPh River Condition Assessment methodology[5]. The baseline and projected Ditch

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[1] Natural England—Priority River Habitats – Rivers (2021) https://www.data.gov.uk/dataset/20019cdb-9fef-4024-81af-daf1d1b74762/priority-river-habitat-rivers

[2] Humber river basin district (RBD) River Basin Management Plan (2022) https://www.gov.uk/guidance/humber-river-basin-district-river-management-plan-updated-2022

[3] Calder Catchment Partnership Pages (2022) https://environment.data.gov.uk/catchment-planning/v/c3-plan/CatchmentPartnership/WEIF201.2

[4] Calder Catchment Management Plan 2021-2027 (2022) [redacted]

[5] Modular River Survey River Condition Assessment for Biodiversity Metric 3.1 (2022) [redacted]

habitat units were determined using the Ditch Habitat Condition Assessment Sheet[6]. Field surveys were completed by Dr. Andy Bray 26/10/22 and 25/11/22.

3.0 Baseline Conditions

3.1 Distinctiveness

Black Brook is not included in the Natural England Priority Habitat – Rivers data set and is not within a culvert in the project site boundary, it is therefore categorised as having High Distinctiveness. Ditches are categorised as having Medium Distinctiveness.

3.2 Strategic Significance

Black Brook falls within the Calder Catchment Partnership's Calder Catchment Management Plan and therefore has High Strategic Significance. The ditch on site is not identified in any plan and is therefore categorised as having Low Strategic Significance.

3.3 River Type

Based on field observations and desk study, Black Brook is categorised as a Type D river (Table 1).

Table 1. River Type indicators

Code	Indicator	
A1	Braiding index	1
A2	Sinuosity index	1.06
A3	Anabranching index	1
A4	Level of confinement	Partly Confined
A5	Valley gradient	0.017
A6	Bedrock reaches	False
A7	Coarsest bed material	Boulder
A8	Average bed material	Gravel/Pebble

3.4 River Condition

The reach of interest on Black Brook is 350 m long and sits between a grassland pasture (L bank) and ancient semi-natural woodland (R bank). The reach can be divided into two distinct river sections, with different characteristics and river conditions (Map 1, Table 2).

Section 1 – Moderate condition, 230 m. Condition defining characteristics: artificial profile and reinforced bank (L bank), Non-Native Invasive Plant Species (NNIPS) present.

Section 2 – Fairly Poor condition, 120 m. Condition defining characteristics: artificial profile and reinforced bank (L and R banks), NNIPS present, weir, reinforced bed.

3.5 Ditch Condition

The ditch on site is 115 m long and meets 5 of the 8 condition assessment criteria, categorising the ditch as in Poor condition (Table 3)

4.0 Proposed Interventions

The proposed interventions will reconnect the river with the floodplain, restore a natural left bank profile, expand and enhance existing floodplain wetland features, remove a weir, and divert and improve the field boundary ditch to feed existing wetland area (Map 2).

4.1 Section 1

Works in section 1 include left bank reprofiling, left bank wall dismantling, riparian woodland creation, riparian backwater and wetland creation, creation of shallow floodplain scrapes.

4.2 Section 2

Works in section 2 include left bank reprofiling, left bank wall dismantling, riparian backwater creation, and weir removal.

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[6] Biodiversity Metric 3.1 – Habitat Condition Assessment Sheets with Instructions (2022) ISBN 978-1-78354-955-9[redacted]

Table 2. Baseline River Condition indicators. Green indicators contribute positively to river condition, red indicators contribute negatively to river condition

	Indicator	Code	Section 1		Section 2	
			Baseline	Post	Baseline	Post
	Preliminary condition score		0.850	2.113	-0.134	1.101
	Average Positive Index		2.158	2.421	1.789	1.947
	Average Negative Index		-1.308	-0.308	-1.923	-0.846
Bank top	Vegetation structure	B1	2	2	2	3
	Tree feature richness	B2	3	3	1	1
	Water-related features	B3	0	3	2	2
	NNIPS cover	B4	-1	0	-3	-2
	Managed ground cover	B5	0	0	0	0
Bank face	Riparian vegetation structure	C1	2	2	2	2
	Tree feature richness	C2	2	2	1	1
	Natural bank profile extent	C3	2	3	1	2
	Natural bank profile richness	C4	3	4	1	2
	Natural bank material richness	C5	3	3	2	2
	Bare sediment extent	C6	4	4	2	2
	Artificial bank profile extent	C7	-3	0	-4	-3
	Reinforcement extent	C8	-3	0	-4	-3
	Reinforcement material severity	C9	-2	0	-3	-2
	NNIPS cover	C10	-2	0	-2	-1
Channel-water margin	Aquatic vegetation extent	D1	2	2	2	2
	Aquatic morphotype richness	D2	1	1	1	1
	Physical feature extent	D3	2	2	1	1
	Physical feature richness	D4	1	1	2	2
	Artificial features	D5	0	0	-1	0
Channel bed	Aquatic morphotype richness	E1	1	1	2	2
	Tree features richness	E2	3	3	2	2
	Hydraulic features richness	E3	2	2	1	1
	Natural features richness	E4	3	3	3	3
	Natural features extent	E5	2	2	2	2
	Material richness	E6	3	3	4	4
	Siltation	E7	-4	-4	0	0
	Reinforcement extent	E8	0	0	-2	0
	Reinforcement severity	E9	0	0	-2	0
	Artificial features	E10	-1	0	-4	0
	NNIPS extent	E11	-1	0	0	0
	Filamentous algae extent	E12	0	0	0	0

Table 3. Ditch Condition indicators

Code	Indicator	Achieved?
1	Good water quality	Y
2	Range of emergent, submerged and floating leaved plants present	N
3	Less that 10% cover of filamentous algae and/or duckweed	Y
4	Fringe of marginal vegetation along more than 75% of ditch	Y
5	Less that 5% of ditch physically damaged	Y
6	Sufficient water levels	N
7	Less than 10% of ditch is heavily shaded	N
8	Absence of non-native plant and animal species	Y

4.3 Ditch

Works around the Ditch include extending the ditch into the existing wetland area, vegetation management to reduce shading, and aquatic/emergent/submerged/floating vegetation planting.

4.4 Habitat condition

These interventions were used to estimate the change in river condition against baseline condition (Table 2). The condition of both Section 1 and Section 2 is anticipated to be uplifted by these interventions, increasing the condition from Moderate to Fairly Good and Fairly Poor to Moderate, respectively. The ditch condition is anticipated to be uplifted from Poor to Moderate through a decrease in shaded area and increase in the range of aquatic plants.

5.0 Biodiversity Net Gain Metric

Both the baseline and post intervention habitat scenarios have been included in the associated Biodiversity Metric 3.1 Calculation[7]. The proposed interventions are estimated to deliver 2.96 “Other Rivers and Streams” habitat units, and 0.4 “Ditches” habitat units. This uplift is calculated assuming on-site enhancement, and does not consider any spatial risk for off-site use.

6.0 Intervention timeline

Work to enhance the river and ditch habitats on Black Brook will be completed in 2023. Necessary tree removal for riverbank work will take place in March/April 2023, but river bank work is to be completed between July and September—avoiding impacts the Coarse and Salmonid spawning seasons.

7.0 Biodiversity Net Gain Management and Monitoring Plan

The detailed BNG MMP for Black Brook is yet to be finalised. Post intervention monitoring and reporting will be carried out as built, after 1 year, 3 years, 5 years and then every 5 years, up to the end of the 30-year management period.

The project site will be monitored using fixed-point photography, River Condition Assessments, and Habitat Condition Assessment of the ditch. Annual site visits will highlight deviation from restoration trajectory, and enable management measures to be deployed to ensure planned habitat uplift is achieved.

8.0 Proposed River Habitat Unit value formula

Currently, there is no guidance or accepted funding formula for off-site river habitat units. In West Yorkshire, off-site terrestrial habitat units have a value of £20,000—this value covers land management change and 30 years of management. In instances where developers will defer to the LPA to deliver habitat units, Calderdale MBC will require developers to pay an additional £5,000/unit, of which £2,000 (10%) will cover BNG project facilitation, £2,000 (10%) to cover the monitoring and reporting for the 30-year management period, and £1000 for LPA services.

This approach of separating habitat uplift and management costs from facilitation and monitoring costs is what we would recommend for river habitat units. The value of a river habitat unit could therefore be defined as:

$$\text{£ RHU} = \frac{\text{Cap}}{n} + \text{Mgmt}_{30}$$

where, the value a river habitat unit (£ RHU) is the capital costs of delivering the river condition uplift (Cap; including any feasibility, surveying, and design work) divided by the number of units (*n*), plus a

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[7] 230130_Bowers Mill_Biodiversity Metric 3.1 document attachment

base rate for the 30-year habitat management ($Mgmt_{30}$) of a river unit. $Mgmt_{30}$ 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:

$$\text{£ Total } = n\,\text{£RHU} + \left(\frac{n}{5}\text{£RHU}\right)$$

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

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

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

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

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.

Wetland Engineering

Design Stage : CONCEPT DESIGN ☐
DEVELOPED DESIGN ☒
CONSTRUCTION DRAWINGS ☐

Client :
CALDER RIVERS TRUST

Project :
BLACK BROOK RESTORATION

Location:
BOWERS MILL
BARKISLAND
HALIFAX, HX4 0AD

Detail :
GENERAL ARRANGEMENT
INTERVENTIONS ONLY

Date: 07 OCT 2022
Scale: 1:500@A1
Prepared by: BG
Checked by: GS

Project Number: CCRT 2101
Drawing Number: CCRT 2101_02
Revision Number: ii

9 Stoodley Glen
Todmorden
West Yorkshire
OL14 6DL

[redacted]

Notes :
1. This drawing to be read in conjunction wi h all Engineer's drawings and the specification.
2. The contractor is responsible for all dimensions and for the correct setting out of the work on site.
3. Only figured dimensions are to be used. Any discrepancies are to be reported to the Engineer before proceeding.
4. All materials and workmanship to comply with the current British Standards and Codes of Prac ice.

~~6.3.~~6.4. APPENDIX D – RIVERS AND STREAMS METRIC TECHNICAL NOTE

Biodiversity Net Gain: Rivers and Streams Metric

DATE:	09 May 2023	**CONFIDENTIALITY:**	Public
PROJECT NAME:	Drax BECCS DCO	**PROJECT NUMBER:**	EN010120
DOCUMENT NO. | REV. NO:	6.10 Appendix D | 1.0	**DOCUMENT OWNER :**	Drax Power Limited
AUTHOR:	F. Marlow	**APPROVER:**	J. Collins, P. Peterson
SUBJECT:	Biodiversity Net Gain: Rivers and Streams Metric		

INTRODUCTION

The Applicant has completed a Biodiversity Net Gain (BNG) assessment for the Drax BECCS Development Consent Order (DCO) project at Drax Power Station. This briefing note is produced to inform North Yorkshire Council (NYC), the Environment Agency and Natural England of the progress to date regarding the rivers and stream component of the BNG assessment, including the exploration of enhancement opportunities both within and outside of the Order Limits.

The assessment submitted as part of the DCO application was supported by the Biodiversity Metric 3.1. Where the note mentions fairly poor, poor, moderate, fairly good or good this refers to the condition of the habitats as per Natural England's 'Habitat Condition Assessment Sheets with Instructions' document[1].

The aims of this technical note are to:

- Summarise the baseline biodiversity units for Rivers and Streams and the required units to deliver 10% BNG;
- Demonstrate how the Applicant will deliver the 10% BNG target for rivers and streams using offsite unit provision; and
- Demonstrate that the chosen opportunity for delivering the 10% BNG target in rivers and streams is suitable against the trading rules and the timescales of the Proposed Scheme.

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[1] Natural England (2022) Biodiversity Metric 3.1: Auditing and accounting for biodiversity. Technical Supplement Part 1a

BASELINE AND POST DEVELOPMENT UNITS

This section sets out the baseline units for rivers and streams within the Order Limits and how many units are required to deliver the 10% BNG target. Within the Order Limits there are two watercourses which form the baseline river units (RU) and ditch units (DU) for the Biodiversity Metric 3.1:

- Carr Dyke – 1.09 RU (0.725 km)
  - Carr Dyke is a main river which flows through a culvert beneath the existing Drax Power Station. This is assumed to have poor river condition due to being culverted[2]. There are no proposed works to this watercourse and therefore there is no change to the baseline unit value of 1.09 RU as a result of the Proposed Scheme.
- Cooling Towers Ditch – 0.65 DU (0.27 km)
  - Cooling Towers Ditch is a drainage ditch within the Order Limits located to the north east of the northern cooling towers. Following a ditch condition assessment, this watercourse was assessed to be in poor condition with minor watercourse encroachment and major riparian encroachment, due to infrastructure within the riparian zone. There are no proposed works to this watercourse and therefore there is no change to the baseline unit value of 0.65 DU as a result of the Proposed Scheme.

BNG TARGETS

The Applicant has committed to achieving 10% BNG in all habitat types of the Biodiversity Metric. As there is no change in baseline unit value as a result of the Proposed Scheme, the delivery of the following units is required either on or offsite, in order to achieve the 10 % BNG target:

- 0.109 RU in other rivers and streams; and
- 0.065 DU in ditches.

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[2] Natural England (2022) Biodiversity Metric 3.1: Auditing and accounting for biodiversity. User Guide. Paragraph 9.17.

DELIVERY OF BNG IN RIVERS AND STREAMS

Where enhancements are required to achieve BNG, these should first be sought on site (within the Order Limits). Only where this is not possible, offsite areas should be adopted for the provision of enhancements with a consideration of distance from the Proposed Scheme.

For the Proposed Scheme, it is not possible to deliver the required river units on site due to site constraints. On site enhancements would involve de-culverting the Carr Dyke and improving the Cooling Towers Ditch which would not be practicable due to significant infrastructure being located above or adjacent to the watercourses. Therefore, offsite enhancement or creation is required to deliver the 10% BNG target. This was discussed and agreed with the Environment Agency on 10 February 2022.

The Applicant investigated various offsite options by collecting baseline data for nearby watercourses, as well as consulting with organisations which may be delivering biodiversity in the region.

Potential enhancements to nearby watercourses were restricted as the watercourses are managed by the local internal drainage board (IDB) and therefore are required to provide sufficient capacity for flood flows. Operational management of these watercourses restricted the type and amount of enhancement possible which did not provide sufficient enhancement to contribute to BNG. In addition, the BNG requirement for management of enhancements for 30 years was limited by the operations of the local IDB.

Through consultation with organisations which typically deliver biodiversity enhancements in the region, various opportunities were identified. The most suitable offsite provision identified was the Bowers Mill Black Brook Habitat Restoration Project. The other options identified are detailed in the next section of this technical note, along with an appraisal of their suitability and viability in **Table 5**.

BOWERS MILL BLACK BROOK HABITAT RESTORATION PROJECT OVERVIEW

The proposed Bowers Mill Black Brook Habitat Restoration Project (BMBBHRP) is due to be delivered by the Calder and Colne Rivers Trust (CCRT) in 2023. The Black Brook is located within the Middle Calder Operational Catchment and both the Black Brook and the Proposed Scheme are located within the Humber River Basin District. CCRT proposes to complete the following works to restore the Black Brook:

- Removal of a weir at the downstream end of the study reach;
- Removal of a retaining wall along the left bank and creation of shallow flood plain scrapes; and
- Creation of riparian woodland, backwaters and wetlands.

The BMBBHRP is anticipated to improve the condition of 230 m of Black Brook from Moderate to Fairly Good, and 120 m of the Black Brook from Fairly Poor to Moderate condition.

It is also proposed that a ditch within the site is improved from Poor to Moderate condition through vegetation management and planting, as well as being extended to connect to a former channel in the flood plain which is currently a wetland.

The BMBBHRP is calculated to provide 2.96 RU for rivers and streams and 0.4 DU for ditches. A spatial multiplier of 0.75 must be applied as the BMBBHRP is not located within the same WFD water body as the Proposed Scheme, but is located within the same River Basin District. The BMBBHRP is located within the Black Brook from Source to River Calder WFD water body (GB104027062570) and the Proposed Scheme is located within the Ouse from River Wharfe to Upper Humber WFD water body (GB104027064270), which are both within the Humber River Basin District. With the appropriate spatial multiplier applied in the metric, the BMBBHRP would still provide sufficient RU and DU to satisfy the BNG targets of the Proposed Scheme.

The BMBBHRP is due to be completed in November 2023 and there is suitable funding for the works to commence, regardless of the Applicant’s position in purchasing the biodiversity units. Maintenance and management of the works is to be agreed as part of the relevant legal agreements.

MANAGEMENT AND MONITORING

A management and monitoring plan for the BMBBHRP is yet to be completed. The Section 106 Agreement to be entered into by the Applicant and The North Yorkshire Council (NYC) will require that the Applicant cannot commence development of the Proposed Scheme until it has provided NYC with (i) detail of the works to be undertaken for the BMBBHRP, including how consent for the works will be obtained and management, maintenance, monitoring and reporting will be secured; and (ii) evidence that legal agreements are in place to secure delivery, management, maintenance, monitoring and reporting of the BMBBHRP for at least 30 years. The S106 Agreement will therefore act as the legal mechanism to ensure the appropriate management and monitoring plans are in place. Guidance has not yet been released by Natural England regarding habitat management and monitoring plans. It is due to be released prior to BNG becoming a mandatory requirement for Town and Country Planning Act applications in November 2023. Therefore, it is proposed that a management and monitoring plan is developed once the guidance is available. It should be noted that baseline data has been collected for the site which is anticipated to be in line with forthcoming guidance. Therefore, the delayed development of a management and monitoring plan is not likely to be limited by existing data collection.

The current proposal is to carry out post-intervention monitoring and reporting post-construction, after 1 year, 3 years and 5 years, and then every 5 years up to the end of the 30-year management period.

The BMBBHRP will be monitored using repeat fixed-point photography, River Condition Assessments[3] and ditch condition assessment. Post-construction site visits will highlight adverse

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[3] Gurnell, A.M., England, J., Scot, S.J., Shuker, L.J. (2020) A Guide to Assessing River Condition.

deviation from restoration trajectory and enable management measures to be deployed to ensure planned habitat uplift is achieved.

BIODIVERSITY METRIC

The completed Biodiversity Metric 3.1 is found in **Appendix B** of the **BNG Report**. A summary of the metric is presented in Table 1 to **Table 4**.

In summary, 2.96 RU and 0.40 DU are delivered through the BMBBHRP. As the BMBBHRP is located outside the catchment of the Carr Dyke but within the same river basin district (Humber), a 0.75 spatial multiplier is applied. Therefore, the restoration scheme offers 2.22 RU and 0.3 DU, part of which will be used to contribute to the BNG target of the Proposed Scheme.

This calculation is based on the following assumptions:

- The BMBBHRP is completed < 1 year in advance before the Proposed Scheme is constructed (therefore no temporal multiplier has been applied); and
- The improvement in condition and encroachment for all watercourses is realised.

The number of credits available through this restoration scheme may increase if the construction of Proposed Scheme is delayed, due to a temporal multiplier in the Biodiversity Metric. The benefit of this would be applicable between 1-5 years after the restoration scheme being completed.

The Applicant intends to attribute the necessary purchased credits to the Proposed Scheme to deliver to 10% BNG target. All remaining credits would be banked for future use. Therefore, the Applicant will bank at least 2.21 RU and 0.24 DU, depending on where and when these units are applied in the future.

Table 1 - Onsite River Baseline

River Type	Watercourse Name	Condition	Encroachment	Length (km)	Units
Culvert	Carr Dyke	Poor	Watercourse - N/A Riparian - Major	0.725	1.09 RU
Ditches	Cooling Towers Ditch	Poor	Watercourse - Minor Riparian - Major	0.270	0.65 DU

Table 2 - Offsite River Baseline and Enhancement

River Type	Watercourse Name	Condition	Encroachment	Length (km)	River Units	Post - Enhancement	Post Enhancement units
Other Rivers and Streams	Black Brook	Moderate	Watercourse – Major Riparian – No Encroachment	0.230	1.59	Fairly Good No Encroachment	3.67 RU
Other Rivers and Streams	Black Brook	Fairly Poor	Watercourse – Major Riparian – No Encroachment	0.120	0.62	Moderate No Encroachment	1.50 RU
Ditches	Floodplain Ditch	Poor	Watercourse – No Encroachment Riparian – No Encroachment	0.115	0.46	Moderate No Encroachment	0.73 DU

Table 3 - Offsite River Creation

River Type	Condition	Encroachment	Length (km)	Units
Ditches	Moderate	No Encroachment	0.020	0.13 DU

Table 4 - Summary of biodiversity units delivered by the BMBBHRP and the application to the Proposed Scheme

River Type	Offsite baseline units	Offsite created units	Offsite Post-Enhancement units	Offsite units delivered	Units with spatial multiplier applied	Units used for the Proposed Scheme	Remaining credits to bank
Other Rivers and Streams	2.21 RU		5.17 RU	2.96 RU	2.22 RU	0.11	2.11 RU
Ditches	0.46 DU	0.13 DU	0.73 DU	0.40 DU	0.30 DU	0.06	0.24 DU

SECURING THE BIODIVERSITY CREDITS

The Applicant has been negotiating a legal agreement with NYC pursuant to section 106 of the Town and Country Planning Act 1990 (“S106 Agreement”). That S106 Agreement is the overarching legal mechanism that will ensure the delivery, maintenance, monitoring and reporting are in place for the BMBBHRP.

The S106 Agreement is in draft form currently, however, its terms are well advanced and agreement is expected to be reached shortly, and parties anticipate completing the agreement before the end of the Examination. The Applicant and NYC are agreed on the principle of the obligation included in the S106 Agreement which is that, with respect to the BMBBHRP, the Applicant cannot commence development of the Proposed Scheme until it has provided to NYC:

- Information identifying the land the BMBBHRP will be delivered on, and detail of the works to be undertaken (including how consent for the works will be obtained and management, maintenance, monitoring and reporting will be secured);
- Evidence that legal agreements are in place to secure the delivery of the BMBBHRP, or that it has already been delivered; and
- Evidence that legal agreements are in place to secure the management, maintenance, monitoring and reporting of the BMBBHRP for at least 30 years.

In terms of the legal agreements that would be provided to NYC as evidence that the delivery and management, maintenance, monitoring and reporting for the BMBBHRP is in place, it is expected that these will constitute:

- A commercial contract between the Applicant and the landowner of the land where the BMBBHRP is located. That agreement is intended to secure the delivery of the BMBBHRP as well as its ongoing management, maintenance etc, and in doing so enables the Applicant to both demonstrate to NYC, and to ensure contractually, that the 10% BNG for rivers and streams will be provided and retained for at least 30 years; and
- A planning agreement between NYC and the landowner of the land on which the BMBBHRP is to be delivered. This is proposed to be a hybrid agreement as it will (i) create contractual obligations between NYC and the landowner, in order that NYC has enforceable contractual rights, whilst also (ii) be a unilateral undertaking by the landowner to the host authority, Calderdale Council (giving it enforcement powers as the local planning authority in whose area the biodiversity units are located).

The principle of this approach has been agreed with NYC.

DISCOUNTED OPTIONS

Prior to identifying the Bowers Mill Black Brook Habitat Restoration Project for delivering BNG, several other options were investigated. This section presents the other options considered and is concluded by **Table 5** which explains the suitability and viability of each option. Best practise was followed to identify potential enhancement opportunities in the following prioritisation:

1. Opportunities on site;
2. Opportunities offsite on watercourses within the same WFD water body as the Proposed Scheme;
3. Opportunities offsite on watercourses within the same catchment as the Proposed Scheme;
4. Opportunities offsite within the region being delivered by third parties where biodiversity units could be purchased by the Applicant; and
5. Opportunities offsite within the region being delivered by third parties where funding could be provided by the Applicant.

Opportunities were also appraised based on their suitability for satisfying BNG trading rules and their viability. Applicable trading rules include:

1. Enhancements on rivers cannot be used to deliver ditch units, and vice versa;
2. For rivers, offsetting should ideally be provided on reaches of the same waterbody/catchment. An offset should be on a section of river of a similar size, function and stream order, where the same hydrological and geomorphological processes give rise to similar river habitats in a natural state;
3. Enhancements delivered to improve the condition of protected areas (SSSI, SAC, SPA, Ramsar) cannot be used to deliver BNG; and
4. Enhancements delivered as part of WFD mitigation measures cannot be used to deliver BNG.

Assessment of viability was informed by the physical possibility of delivery and the likelihood of delivery based on current funding for the opportunity and the planned programme of delivery.

ONSITE OPPORTUNITIES

Where enhancements are required to achieve BNG, these should first be sought on site (within the Order Limits), therefore opportunities for on site enhancement were first investigated.

The Carr Dyke is within a culvert that extends from the eastern boundary of the Power Station to the west. Due to its location beneath the power station and proximity to the proposed BECCS infrastructure, it cannot be practicably enhanced to deliver the required RU.

The Cooling Towers Ditch is also constrained by other existing infrastructure within the site and as a result cannot be practicably enhanced to deliver the required DU.

There are no other watercourses within the site boundary which could be practicably enhanced to deliver the BNG target for rivers and streams, nor are there areas that could support the creation of these habitats. Therefore, onsite creation and enhancements are not practicable. This was presented to the Environment Agency on 10 February 2022 who recognised the constraints with on site enhancements.

OFFSITE OPPORTUNITIES

OPPORTUNITIES ON NEARBY LAND

The Applicant has investigated whether any of the watercourses north of Drax Power Station could be enhanced to deliver the rivers and streams targets for the Proposed Scheme. This land is not currently owned by the Applicant and the Carr Dyke and its tributaries are managed by Selby Area IDB. Based on discussions with the land owner and Selby Area IDB it was deemed that only riparian planting on one side of these watercourses would be suitable enhancement. This is due to the land use, flood risk and maintenance/easement constraints.

River Condition Assessments were completed along the Carr Dyke and its tributaries north of the Proposed Scheme in 2022 by accredited surveyors. The Carr Dyke downstream of the Proposed Scheme scored mostly fairly poor condition with one reach achieving moderate condition.

A scenario was modelled on Cartographer[4] to identify if riparian planting on one bank of the Carr Dyke would increase its condition to moderate. This exercise concluded that the possible enhancements on this watercourse and its tributaries would be insufficient to increase river condition or reduce encroachment sufficiently in order to improve the RU value and achieve the BNG target. Therefore this option was deemed unviable and not taken forward.

THIRD-PARTY PROJECTS TO PART FUND

As delivery of BNG is not possible on site, offsite enhancements opportunities were investigated which could either be delivered near to the Proposed Scheme, or by a third party within the region. As BNG enhancement opportunities on watercourses close to the Proposed Scheme were deemed unviable, consultation with the Environment Agency, Selby Area IDB, Yorkshire Wildlife Trust (YWT) and Yorkshire Dales Rivers Trust (YDRT) took place to understand if there were potential projects in the local area or wider WFD

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[4] Cartographer is the River Condition Assessment virtual workspace - [redacted]

catchment which could contribute to achieving the BNG targets for rivers and streams. A summary of this consultation is below.

Environment Agency

A consultation meeting with the Environment Agency in February 2022 resulted in several potential opportunities for local offsite enhancement opportunities, in the event that offsite enhancements were not practicable within the land holdings of the Applicant. Schemes at Barmby Barrage, Barlow Common Nature Reserve and the Escrick Estate were suggested and further consultation with Yorkshire Wildlife Trust was recommended.

Selby Area IDB

A consultation meeting was held in March 2022 with the Selby Area IDB to understand the current and future maintenance operations on Carr Dyke downstream of Drax Power Station to assess the feasibility of delivering BNG enhancements on IDB watercourses in the local area.

The IDB confirmed that deculverting IDB-managed watercourses would be an option for locally achieving BNG rivers and streams targets. The IDB confirmed that culverts present a maintenance and liability issue to landowners, as well as imposing restrictions on habitat potential. Therefore, deculverting may be viewed as beneficial to local landowners. The IDB holds details of landowners and could approach them on behalf of the Applicant if a potential deculverting scheme would satisfy the trading rules of the Biodiversity Metric.

This option is reliant on future IDB management requirements and cooperation with third-party land owners. This introduces uncertainty over being able to secure the 30 year BNG target. This option was not progressed as a more suitable option.

Yorkshire Wildlife Trust

YWT responded to an enquiry about whether there were any suitable projects that could be part funded by the Applicant. A consultation meeting was held in June 2022 where the following opportunities were discussed:

- Improvements at Barlow Common Nature Reserve: YWT suggested that watercourses within the nature reserve could be improved to deliver the BNG targets. This site was visited on behalf of the Applicant and observed that watercourses appear to be managed regularly (potentially by the IDB), potentially including dredging / desilting and vegetation clearance. Therefore, this watercourse would likely have the same restrictions on enhancements as the Carr Dyke;
- Purchase of floodplain and ongoing management (Rythre, 16.5km north west of Drax Power Station Site): Land may potentially become available for purchase on the floodplain of the River Wharf and River Ouse. YWT plan to purchase this land and place it in an agri-environmental management scheme to achieve habitat enhancements. Land has previously been available at Acaster Malbis on the River Ouse and further opportunities may become available in the future.

However, this site forms part of a SSSI and therefore may not be suitable for BNG enhancements. This is because works undertaken to improve SSSIs to favourable condition status should not be considered as BNG enhancements, as these efforts should be achieved via statutory responsibilities. YWT could purchase land at Rythre for habitat enhancements but this will need ongoing funding for management or lump-sum funding to purchase neighbouring plots so that the Ryther Ings could be placed in a management scheme. Rythre is on the River Wharf, upstream of the confluence with the River Ouse and therefore within the same WFD management catchment as the Carr Dyke. Plans for all of these potential sites include the introduction of tansy beetle, maintaining and improving habitat for breeding curlew and management of invasive non-native species;

- Barmby-on-the-Marsh SSSI: This site is a SSSI and, therefore, as discussed above should not count towards BNG targets. However, there are some areas near the SSSI which do not contribute to the SSSI status which might be justifiably funded if acceptable within the BNG trading rules. Plans include introduction of the tansy beetle and greater water parsnip and a replacement bird hide. Funding would likely be required in 2023; and
- Escrick Estate: There was little knowledge of the plans for this site, but it was recommended as something to follow up with Natural England.

The Applicant was unable to confirm with YWT about whether there are any completed projects since January 2020 which could be retrospectively funded.

As explained in **Table 5**, these opportunities were not taken forward as they would not directly satisfy the BNG trading rules.

Yorkshire Dales Rivers Trust

Yorkshire Dales Rivers Trust responded to an enquiry about whether there were any suitable projects that could be part funded by the Applicant. A potential option included improvements to habitat connectivity at the Escrick Estate. The other suggestion is sediment and nutrient management to improve water quality at Bishop Dyke. There was some uncertainty whether these schemes would have been suitable under the trading rules outlined by Natural England, therefore they were not progressed.

YDRT confirmed there were no suitable projects which could be retrospectively funded as their completed projects within this timeframe have been for WFD improvements and therefore should not be considered as BNG enhancements.

Further engagement with YDRT was on hold pending consultation with Natural England. The consultation with Natural England was required to understand what flexibility there could be within the Biodiversity Metric trading rules and which projects are viable for the Applicant to support to achieve the BNG targets of the Proposed Scheme. Consultation with Natural England did not occur on this matter as another option was identified which was considered more appropriate.

Natural England

During a general consultation meeting with Natural England (not related to the BECCS project) on the River Metric[5], it was advised that any suitable projects delivered after 30 January 2020 could be retrospectively funded as long as they were not delivered in order to achieve WFD or SSSI targets. Natural England also confirmed the trading rules and that improvements to ditches could not contribute to the enhancements required on rivers.

A meeting was held with Natural England in September 2022 to discuss the Proposed Scheme. As part of the meeting the BNG assessment was discussed, specifically the rivers and streams element of the Biodiversity Metric. The Applicant requested information of potential rivers and streams opportunities at Escrick Estate. Natural England could not provide information on the opportunities at the time of the meeting.

Further consultation was planned with Natural England on a project basis to discuss the suitability of projects suggested by YWT and YDRT for funding and opportunities at Escrick Estate, including the trading rules approach to the Biodiversity Metric. However, an alternative option for delivering 10% BNG in rivers was identified and progressed so this consultation was placed on hold.

Canal Restoration options and inland waterways

Several restoration projects for local canal trusts and inland waterways have been reviewed for their suitability for BNG. Primarily, improvements are on canals which are of different distinctiveness to rivers and ditches and therefore do not satisfy the trading rules for BNG. Furthermore, projects are more concerned with waterway restoration, mostly for recreation, flood risk or heritage objectives, rather than directly benefiting biodiversity. Of the restoration projects investigated, there was one identified which provided biodiversity benefits, however this was located within a SSSI and therefore not suitable for delivering BNG targets.

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[5] 14 July 2022: CIEEM Biodiversity Rivers & Streams Metric V3.1 Training, Q&A with Natural England & the Environment Agency

SUMMARY OF OPTIONS

A summary of options for delivering BNG targets in river units is presented in **Table 5**. This review of options provides:

- Location of the opportunity in relation to the Proposed Scheme and WFD catchments[6];
- Suitability of the opportunity regarding the BNG trading rules; and
- Viability of the opportunity.

The suitability and viability of the opportunities is graded using a red, amber, green system. Red is used to indicate opportunities which do not satisfy trading rules or are deemed unviable due to either physical or operational constraints. Amber is used to indicate opportunities which do not oppose trading rules, but where benefits of the opportunities cannot be readily quantified using the Biodiversity Metric. Amber is also used to indicate opportunities which could potentially be viable but were dependent on other factors for proceeding. Green is used to indicate opportunities which directly satisfy the trading rules and are viable (all funding provided and project planned to proceed).

Table 5 - Summary of BNG options for delivering river and ditch units

Opportunity	Stakeholder(s)	Location (with respect to Carr Dyke)	Suitability within BNG trading rules	Viability
Onsite enhancement	Drax Power Station, Selby Area IDB	Within the Order Limits	Deculverting of the Carr Dyke through the power station and enhancements on Cooling Towers Ditch would directly satisfy the BNG trading rules.	Not viable – Physical constraints within planning boundary to allow for deculverting of Carr Dyke or enhancements on Cooling Towers Ditch.
Offsite enhancement to Carr Dyke and tributaries	Landowner, Selby Area IDB	Immediately downstream of the Proposed Scheme	Improvements to Carr Dyke and its tributaries would directly satisfy the BNG trading rules.	Not viable – IDB operations and landowner requirements restrict the potential for improvement and, therefore, sufficient enhancement is not

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[6] https://environment.data.gov.uk/catchment-planning/

Opportunity	Stakeholder(s)	Location (with respect to Carr Dyke)	Suitability within BNG trading rules	Viability
				possible at this location in order to meet BNG targets.
Improvements to watercourses at Barlow Common	Landowner, Selby Area IDB	Upstream of Proposed Scheme, within the Carr Dyke catchment	Improvements to the Carr Dyke and its tributaries would directly satisfy the BNG trading rules. This assumes that there are ditches and rivers that can be improved and are of a similar character to the Carr Dyke within the site.	Unlikely to be viable - IDB operations restrict the potential for improvement and, therefore sufficient enhancement is not likely possible at this location in order to meet BNG targets.
Deculverting of IDB managed watercourse near Drax	Landowner, Selby Area IDB	Within the Carr Dyke catchment	Deculverting a river and a ditch would directly satisfy the BNG trading rules, assuming the watercourses identified by IDB are of a similar character to the watercourses within the Power Station.	Potentially viable – subject to identification of watercourses by IDB, feasibility study design and landowner agreement. However, no suitable options have been identified to date.
Purchase of floodplain and ongoing management (Acaster Malbis)	YWT, Natural England	River Ouse, within Humber River Basin District	As the proposed works are to improve a SSSI to favourable condition, this is not a suitable option for BNG enhancements as works are a statutory responsibility. These improvements are likely to be greater than 10 m from the watercourse. Therefore, these improvements cannot be quantified through the BM3.1 and	Potentially viable – subject to scheme securing funding to complete.

Opportunity	Stakeholder(s)	Location (with respect to Carr Dyke)	Suitability within BNG trading rules	Viability
			do not satisfy the core BNG trading rules.	
Purchase of floodplain and ongoing management (Rythre)	YWT	River Wharf, within the Wharf and Ouse Lower Management Catchment	Works would include improvements to floodplain habitat on the River Wharf, however, these improvements are likely to be greater than 10 m from the River Wharf. Therefore, these improvements cannot be quantified through the BM3.1 and do not directly satisfy the BNG trading rules.	Potentially viable – subject to scheme securing funding to complete.
Barmby on the Marsh SSSI	YWT, NE	River Derwent, within the Wharf and Ouse Lower Management Catchment	As the proposed works are to improve a SSSI to favourable condition, this is not a suitable option for BNG enhancements as works are a statutory responsibility. There are some proposed works which will not contribute to improvements to favourable condition status. However, these improvements are likely to be greater than 10 m from the watercourse. Therefore, these improvements cannot be quantified through the BM3.1 and do not directly satisfy the BNG trading rules.	Potentially viable – subject to scheme securing funding to complete.

Opportunity	Stakeholder(s)	Location (with respect to Carr Dyke)	Suitability within BNG trading rules	Viability
Escrick Estate	Natural England, Escrick Estate	River Ouse, within Humber River Basin District	This scheme was suggested by the Environment Agency however a relevant contact was not identified. Therefore the proposed improvements were not fully understood at this location as no details were provided on the scheme. No information was provided on maintenance or management.	Potentially unviable due to lack of detail provided.
Canal restoration projects and inland waterways	Local canal trusts, Canal and Rivers Trust, Inland Waterways	Various locations, some within the Humber River Basin District	All restoration schemes investigated involve improvements to canals which would not satisfy the trading rules for BNG as the targets needs to be achieved on rivers or ditches. Most of the improvements were targeted at recreation, flood risk or heritage and therefore do not directly provide biodiversity improvements. One of the projects reviewed involved biodiversity improvements however these were within a SSSI which therefore means it could not be used to contribute to BNG as it would be a conflict of statutory responsibilities.	Viable – subject to further discussion with local canal trusts.

Opportunity	**Stakeholder(s)**	**Location (with respect to Carr Dyke)**	**Suitability within BNG trading rules**	**Viability**
Black Brook	Calder and Colne Rivers Trust	Black Brook, within Humber River Basin District	A river restoration scheme on the Black Brook to provide 2.96 RU and 0.4 DU, available to purchase. The scheme is located within the same river basin but not within the same water body.	Viable – funding and design is confirmed and works likely to be completed prior to commencement of BECCS. There would be an agreement of provision of maintenance and management to be carried out by CCRT for 30 years.

CONCLUSIONS

Within the Order Limits there are two watercourses which form the baseline river and ditch units for the Biodiversity Metric 3.1 for the Proposed Scheme. There is no change in baseline unit value as a result of the Proposed Scheme. However, 0.109 RU and 0.065 DU are required to achieve the 10% BNG target and it is not deemed practicable to achieve this on site.

The Applicant has considered several options for delivering the 10% BNG target which are appraised in this report. The approach for considering options has followed best practice, where opportunities have been prioritised based on distance from the Proposed Scheme and suitability with trading rules.

The selected approach is to purchase credits which are being created through the Bowers Mill Black Brook Habitat Restoration Project, by CCRT. This scheme will deliver 2.96 RU and 0.4 DU, which would have a 0.75 spatial multiplier applied as the BMBBHRP is located in a different catchment to the Proposed Scheme, but within the same river basin district as the Proposed Scheme. Therefore, sufficient biodiversity units would be purchased to deliver the 10% BNG target for the Proposed Scheme. It is the intention of the Applicant to attribute the necessary purchased credits to the Proposed Scheme to deliver the 10 % BNG target and bank the remaining purchased credits for future use.

The Applicant is progressing necessary legal agreements to secure the purchase of the available biodiversity units due to be created by the CCRT on Black Brook, and to ensure the Proposed Scheme cannot be commenced until NYC is satisfied the delivery and ongoing maintenance of the 10% BNG for rivers and streams has been secured. The Applicant has received approval from the Environment Agency and Natural England on the proposed delivery of 10% BNG for rivers and streams as sufficient application of best practice to identify suitable units which satisfy the trading rules has been achieved.