



# OUTLINE LANDSCAPE AND BIODIVERSITY STRATEGY

## Drax Bioenergy with Carbon Capture and Storage

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## EXECUTIVE SUMMARY

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The purpose of this Outline Landscape and Biodiversity Strategy (OLBS) is to capture the key actions required to deliver habitat creation and landscape enhancement measures for the Drax Bioenergy With Carbon Capture and Storage (BECCS) project (hereafter referred to as the 'Proposed Scheme'). The habitat and landscape measures proposed have been developed in response to predicted ecological and landscape effects, as set out in **Chapter 8 (Ecology)** of Volume 1 of the ES (document reference 6.1.8) and **Chapter 9 (Landscape and Visual Amenity)** of Volume 1 of the ES (document reference 6.1.9).

This OLBS includes measures for the creation and establishment of new habitats; the enhancement of existing habitats; and measures to deliver effective management and maintenance of these habitats.

The OLBS is submitted as part of the Development Consent Order (DCO) Application for the Proposed Scheme. At this stage in development of the Proposed Scheme, the OLBS is necessarily high level, and does not include full details and techniques for all habitat and landscape measures that are predicted to be needed. It is intended that prior to the construction phase of the Proposed Scheme, the OLBS would be updated and refined, to produce a detailed Landscape and Biodiversity Strategy, appropriate for implementation.

The **draft DCO (dDCO)** (document reference 3.1) includes a requirement in **Schedule 2** that, prior to commencement of construction works for elements of the Proposed Scheme, a detailed Landscape and Biodiversity Strategy must be produced. This must also be submitted to and approved by North Yorkshire County Council. This proposed requirement for the DCO will support delivery of the measures set out in this OLBS, and ensure they are delivered as part of the Proposed Scheme.

For those aspects outside of the Order limits, a section 106 Agreement is proposed to be entered into, to ensure that the measures in the detailed Landscape and Biodiversity Strategy are delivered on that land.

# 1. THE OUTLINE STRATEGY

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## 1.1. INTRODUCTION

### OVERVIEW

- 1.1.1. This Outline Landscape and Biodiversity Strategy (Strategy) has been prepared on behalf of Drax Power Limited (the Applicant). It forms part of the application for a Development Consent Order (DCO) that is to be submitted to the Secretary of State (SoS).
- 1.1.2. The purpose of this Strategy is to outline the key measures required to mitigate and compensate for effects on sensitive ecological and landscape receptors as identified in the Environmental Statement, specifically **Chapter 8 (Ecology)** (document reference 6.1.8) and **Chapter 9 (Landscape and Visual Amenity)** (document reference 6.1.9) as a result of the Proposed Scheme. This Strategy also sets out the habitat measures identified so far to support the delivery of Biodiversity Net Gain (BNG).
- 1.1.3. The Strategy outlines the mitigation measures required to safeguard biodiversity during construction including compensatory measures to offset predicted losses of habitats as a result. The measures aim to ensure impacts are minimised as far as practicably possible. It also outlines enhancement measures for existing landscape and biodiversity features and how they would be managed and maintained, including the creation of new habitats that would provide additional opportunities for biodiversity whilst enhancing the landscape character.

### The Proposed Scheme

- 1.1.4. The Proposed Scheme would involve 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). The installation of this technology constitutes an extension to the biomass Units 1 and 2. It 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.
- 1.1.5. The carbon dioxide captured will undergo processing and compression before being transported via a proposed new pipeline for storage under the southern North Sea. Transport and storage infrastructure will be consented through separate applications submitted by other parties (not the Applicant).
- 1.1.6. It is intended that core items of the existing infrastructure at the Drax Power Station are re-used by installing and integrating the Carbon Capture Plant onto existing infrastructure including existing biomass power generating units (Units 1 and 2) for extraction of steam, re-using the cooling water systems, Main Stack and electrical connections.

- 1.1.7. 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)** (document reference 6.1.2). A more detailed 2D layout can be seen in **Figure 2.2 (Indicative Plant Equipment Layout)** (document reference 6.2.2.2). Construction sequencing for the Proposed Scheme and information regarding construction activities is provided in **Section 2.3 of Chapter 2 (Site and Project Description)** (document reference 6.1.2). Construction is planned to commence in 2024, with completion in 2029.

## **1.2. THE PURPOSE AND STRUCTURE OF THE STRATEGY**

- 1.2.1. The purpose of this Strategy is to outline measures that would mitigate effects of the Proposed Scheme on landscape and biodiversity features and enhance the value of such features in accordance with relevant national and local planning policies. The measures in this Strategy have been devised specifically to respond to the ecological and landscape effects identified in **Chapter 8 (Ecology)** of Volume 1 of the ES and the Landscape and Visual Impact Assessment presented in **Chapter 9 (Landscape and Visual Amenity)** of Volume 1 of the ES.
- 1.2.2. This Outline Landscape and Biodiversity Strategy is produced to accompany the DCO Application for the Proposed Scheme. It provides indicative proposals for habitat and landscape interventions, that respond to the impacts of the Proposed Scheme as understood at the time of the DCO Application. It is likely that impacts will be refined as the Proposed Scheme progresses through detailed design. It is also likely that additional information about locations where habitat and landscape interventions are proposed will come to light. As such, the measures set out in this Outline Landscape and Biodiversity Strategy will require updating prior to implementation of the Proposed Scheme.

## **1.3. CONSULTATION AND APPROVAL OF DETAILED LANDSCAPE AND BIODIVERSITY STRATEGY**

- 1.3.1. Following DCO consent and prior to commencement of construction, a detailed Landscape and Biodiversity Strategy (LBS) would be produced. This would include additional detail, refining the habitat and landscape interventions proposed. This would provide suitable information to enable implementation of the LBS by a suitably qualified Landscape Contractor and others as required.
- 1.3.2. It is intended that the detailed LBS would be subject to consultation with and approval by Selby District Council (SDC) (consulting with North Yorkshire County Council (NYCC) / SDC Ecology and Landscape Officers as needed). This approval would be secured via a requirement to the DCO, as set out below.
- 1.3.3. The **dDCO** includes a requirement in Schedule 2 providing that:
- (1) No part of numbered works 1, 2, 3, 5 and 6 must be commenced until, a written strategy for that part, which is substantially in accordance with the outline

landscape and biodiversity strategy, has been submitted to and, after consultation with North Yorkshire County Council (unless the relevant planning authority is a unitary council replacing North Yorkshire County Council), approved by the relevant planning authority.

- 1.3.4. For those aspects to be delivered outside of the Order Limits, a Section 106 Agreement is proposed to be entered into, to ensure that the measures in the detailed Landscape and Biodiversity Strategy are delivered on that land.

## **1.4. INTERACTION WITH OTHER DCO DOCUMENTS**

### **ENVIRONMENTAL IMPACT ASSESSMENT (EIA)**

- 1.4.1. The Landscape and Visual Impact Assessment (LVIA) in **Chapter 9 (Landscape and Visual Amenity)** concluded that there would be a limited number of significant effects in relation to visual receptor groups, these being experienced during the construction phase and decommissioning only. No significant effects were concluded in respect of impacts upon landscape character as a result of the Proposed Scheme. The inclusion of primary landscape mitigation measures is accordingly limited. Identified mitigation measures are intended to lower the magnitude of change experienced by specific visual receptor groups in the vicinity of the East Construction Laydown Area (refer to **Section 9.10 of Chapter 9 (Landscape and Visual Amenity)** of Volume 1 of the ES for more detail).
- 1.4.2. The Ecological Impact Assessment (EclA) in **Chapter 8 (Ecology)** of the ES concluded that significant effects on habitats and species could arise (in the absence of mitigation) as a result of the Proposed Scheme. This Outline Landscape and Biodiversity Strategy identifies the provision of replacement / compensatory habitats, to address loss and disturbance of existing habitats and the species they support. These measures provide mitigation for effects upon the following ecological receptors, (refer to **Section 8.10 of Chapter 8 (Ecology)** of the ES for more detail):
- a. Habitats;
  - b. Foraging and commuting bats;
  - c. Breeding and wintering birds;
  - d. Reptiles;
  - e. Terrestrial invertebrates; and
  - f. Green-winged orchid.

### **REGISTER OF ENVIRONMENTAL ACTIONS AND COMMITMENTS (REAC)**

- 1.4.3. A Register of Environmental Actions and Commitments (**REAC**) has been produced for the Proposed Scheme (document reference 6.5). The **REAC** sets out how the actions and commitments set out within it are secured and includes within it a requirement for a Construction Environmental Management (CEMP) to be produced for the Proposed Scheme.

- 1.4.4. Impact avoidance and construction phase mitigation that was identified during the Environmental Impact Assessment (EIA) is documented in the **REAC**. This describes measures to be included within the CEMP that would prevent effects arising on ecological receptors identified within **Chapter 8 (Ecology)** as a result of construction related activities.

### **BIODIVERSITY NET GAIN**

- 1.4.5. The Strategy is key to the delivery of Biodiversity Net Gain through the proposals for habitat creation and enhancement. At present the Proposed Scheme, under a worst-case scenario (assuming the greatest impact on biodiversity), would result in a small gain for area-based habitats and a substantial net gain in hedgerows (refer to **Biodiversity Net Gain Report** (document reference 6.10)). The Applicant is targeting a 10% biodiversity net gain overall. Additional opportunities would be explored to reduce the areas of lost habitats through selective safeguarding of habitats, during the detailed design of the Proposed Scheme. It is expected that the BNG position will be improved following detailed design, without recourse to additional provision of Biodiversity Units. Should a 10% BNG still not be achieved following detailed design, additional habitat provision and off-site enhancements would be considered.
- 1.4.6. Although it is anticipated that there would be no loss of rivers or watercourses as a result of the Proposed Scheme, Carr Dike drain (which runs underneath Drax Power Station) has been included within the river metric as it falls within the Order Limits and lies underneath the Drax Power Station Site.
- 1.4.7. At the time of writing, the Applicant is exploring how best to achieve 10% biodiversity net gain for river and watercourse habitats. This may be through interventions on land controlled by the Applicant, or may be through contribution to an appropriate off-site scheme.
- 1.4.8. The specific habitats and their respective measurements and calculations are located in the **Biodiversity Net Gain Assessment** (document reference 6.10).
- 1.4.9. A final Biodiversity Net Gain Assessment calculation would be completed as part of the finalisation of the detailed design and detailed Landscape and Biodiversity Strategy. This updated calculation will be based on more accurate information for losses and gains of biodiversity units than is available at the time of writing.

## **1.5. ROLES AND RESPONSIBILITIES**

- 1.5.1. The Applicant or its appointed contractor would be responsible for employing a suitably qualified and experienced ecologist / arboriculturalist and landscape architect. In addition, the Applicant or its appointed contractor would be responsible for securing:
- a. Submission of documentation to the LPA to obtain approval of the detailed Landscape and Biodiversity Strategy;

- b.** Instruction of all parties contributing to delivery of the detailed approved LBS (including but not restricted to the Applicant staff, ecologists, arboriculturalists, landscape architects, landscape contractors, construction contractors and management organisations);
- c.** Compliance with the LBS, relevant legislation and any related DCO requirements
- d.** Keeping the appointed ecologist / arboriculturalist and landscape architect (if necessary) informed of work activities that require support and supervision, so that it is clear when attendance at site is required;
- e.** Enacting / enforcing recommendations made by the ecologist / landscape architect / arboriculturalist, or otherwise agreeing an appropriate alternative course of action if it is subsequently determined that previous advice is not practicable or is out of date; and
- f.** Keeping a record of measures taken to deliver the requirements of the LBS to provide an auditable record of compliance.

1.5.2. The appointed ecologist would be responsible for:

- a.** Liaising with the NYCC Ecologist, SDC, and Natural England as required, in relation to specific ecological queries regarding the LBS;
- b.** Advising the Applicant on ecological matters, providing support as instructed, and monitoring compliance with and achievements of the objectives of the LBS;
- c.** Providing the Applicant with survey reports and other written evidence required by accordance with the agreed scope of work and contractual obligations; and
- d.** Planning and undertaking ecological monitoring surveys (where necessary) which will be outlined in detail in the LBS.

1.5.3. The appointed landscape architect would be responsible for:

- a.** Liaising with the NYCC Landscape Officer and SDC as required, in relation to specific landscape queries regarding the LBS;
- b.** Providing specialist site supervision in the form of walk over assessments relating to relevant landscape areas. This will be to assess landscape components and their condition, during the construction and operational phases of the Proposed Scheme;
- c.** Monitoring and assessing the landscape related elements of the LBS for their successful establishment and subsequent effectiveness on an annual basis for the first five years following the completion of the development;
- d.** Ensuring that the landscape related elements of the LBS are reviewed every five years beyond the initial monitoring and assessment stage for a period of 30 years in order to:
  - i.** Identify any changes to site conditions and circumstances that materially affect implementation of the LBS and identify to the applicant that changes to the LBS are required in response;
  - ii.** Identify, whether the aims and objectives of the LBS are being met; and

- iii. Identify where changes are needed to the management practices and timeframes for their delivery identified within the LBS.

## 2. EXISTING SITE ENVIRONMENT

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### 2.1. OVERVIEW

2.1.1. The existing site environment pertains to the areas within the Order Limits, and outside within areas owned by the Applicant. These are in **Figure 1.1 (Order Limits)** of the ES (document reference 6.2.1.1) and **Figure 1.2 (Indicative Site Layout Plan)** (document reference 6.2.1.2). The relationship of these areas to the Outline Landscape and Biodiversity Strategy is shown on **Figure 1 (Landscape and Biodiversity Mitigation Plan)** (document reference 6.6.2.1), **Figure 2 (Landscape and Biodiversity Mitigation Plan – Off-site Habitat Provision Area)** (document reference 6.6.2.2) and **Figure 3 (Retained Vegetation)** (document reference 6.6.2.3).

### 2.2. POWER STATION SITE

- 2.2.1. Much of Drax Power Station is made up of hardstanding and buildings which are used as power station infrastructure and transport routes. There are a number of natural habitats that lie within the Drax Power Station Site, these are primarily situated to the northern, eastern and southern perimeters.
- 2.2.2. Areas of amenity / ornamental planting are located throughout Drax Power Station Site, providing a landscape structure to parking areas and key pedestrian routes. This comprises of mature trees and shrubs, amenity hedges and low value amenity grasslands lining walkways.
- 2.2.3. An area referred to as the Woodyard, located in the north west comprises a mosaic of poor condition semi-improved grassland, scrub, swamp and woodland screening. The main infrastructure associated with the Proposed Scheme is being located within this area, primarily in the west of the Site.

### 2.3. EAST CONSTRUCTION LAYDOWN AREA

2.3.1. Land within the East Construction Laydown Area comprises predominantly arable farmland with bordering hedgerows. It is situated just to the east of the Drax Power Station Site. The area is being used for the purposes of construction laydown, contractor parking and vehicular movements.

### 2.4. HABITAT PROVISION AREA

2.4.1. The Habitat Provision Area comprises two areas. One area associated with the provision of new hedgerows is located to the north of Drax Power Station. The second area is a trapezium shaped parcel of land located to the east, north east of the Power Station. The areas comprise predominantly arable farmland and both improved and amenity grasslands. The trapezium shaped parcel of land is seasonally waterlogged in the northern reaches of the area and lines of trees are located just further north, to the north and south of Pear Tree Avenue.

- 2.4.2. No habitat removal is required in this area to facilitate construction of the Proposed Scheme and it has been provisioned for the purposes of ecological mitigation, compensation and landscape enhancement.

## **2.5. OFF-SITE HABITAT PROVISION AREA**

- 2.5.1. The land outside of the Order Limits is referred to as the Off-Site Habitat Provision Area and has been set aside to provide ecological mitigation, compensation and enhancement of landscape features. This area is located to the west of Drax Power Station. No habitat removal is required in this area to facilitate construction of the Proposed Scheme.
- 2.5.2. There are two distinct parcels within this area, referred to as Arthur's Wood and Fallow Field. Arthur's Wood comprises multiple parcels of broadleaved woodland, comprising a mixture of oak (*Quercus robur*), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), silver birch (*Betula pendula*) and a ground flora of bramble (*Rubus fruticosus agg.*), bluebell (*Hyacinthoides non-scripta*) and Himalayan balsam (*Impatiens glandulifera*). Fallow Field is made up of rank grassland and former arable land which has recently fallen out of agricultural production, separated by a ditch and a native hedgerow. The western border of Fallow Field is curtailed by ash, hawthorn (*Crataegus monogyna*) and bramble scrub.

## **2.6. EXISTING LANDSCAPE FEATURES**

- 2.6.1. There are a wide variety of existing landscape and biodiversity features associated with the Site and Off-Site Habitat Provision Area. The main character defining elements include:
- a.** Broadleaved woodland plantation;
  - b.** Mixed woodland;
  - c.** Native hedgerows and trees;
  - d.** Broadleaved parkland / scattered trees (ornamental tree planting and avenue tree planting);
  - e.** Scrub;
  - f.** Ornamental shrub planting;
  - g.** Reedbed;
  - h.** Arable land; and
  - i.** Semi-improved and amenity grassland
- 2.6.2. The original landscape strategy for Drax Power Station was designed by A Weddle in the 1960s and is supported by a number of plans and a landscape management report dating from July 1987 / Revised July 1990 (Weddle, A.E, 1987). Planting in the original planting Scheme sought to achieve the following summary objectives:
- a.** Harmonise and integrate the large-scale form of the power station within the landscape;

- b. Maximise benefits of screening from critical viewpoints;
- c. Establish a new landscape framework of small indigenous species woodlands and productive farmland;
- d. Encourage agricultural use of land within the power station ownership;
- e. Create an attractive working environment within the confines of the station;
- f. Provide a landscape structure capable of incorporating continuing development of ancillary industry; and
- g. Use ecological principles to create and maintain a mosaic of diverse habitat.

2.6.3. Externally, the functional design intention was that planting should completely screen open views from main roads and villages and improve connectivity, giving the illusion of an extensive woodland by linking existing areas of planting (woodland, hedgerows and trees) and creating, where feasible, large-scale areas of woodland. The scale of planting sought to replicate the size of the original Drax Power Station.

2.6.4. Internally, planting aimed to provide a high-quality and coherent landscape setting for workers and visitors, a means of reducing visual clutter and a sense of linkage between the power station and its surrounding landscape. Extensive lengths of hedgerow planting provided visual screening at a low level and areas of amenity or wildflower grassland served a function in integrating the power station within the surrounding landscape.

2.6.5. Whilst the original design has been modified internally as a result of progressive on-site development, much of the mature woodland belts which form a part of Weddle’s original design framework remain largely intact. Further background explanation of the Weddle landscape strategy for the Applicant and the design principles employed are referenced in the **Design Framework Document** (document reference 6.9). Information pertaining to the landscape and visual baseline is located in **Chapter 9 (Landscape and Visual Amenity)** of the ES.

## 2.7. EXISTING BIODIVERSITY FEATURES

2.7.1. A variety of habitats have been recorded within the Order Limits and within the Off-Site Habitat Provision Area, largely made up of the following Phase 1 habitat types as per the Joint Nature Conservation Committee’s (JNCC) Phase 1 Handbook (JNCC, 2016). **Table 2.1** below lists out habitats in each land use area of the Order Limits. **Table 2.2** lists out habitats identified within the Off-Site Habitat Provision Area.

**Table 2.1 - Habitats within the Order Limits**

Land Use Area	Habitats Present	Approximate Area (ha)
Drax Power Station	Broad-leaved woodland – plantation Broad-leaved woodland – semi-natural	109.37

Land Use Area	Habitats Present	Approximate Area (ha)
	Coniferous woodland – plantation Mixed woodland - plantation Parkland and scattered trees – broadleaved Scrub – dense / continuous Scrub - scattered Neutral grassland – semi-improved Poor semi-improved grassland Other tall herb and fern - ruderal Swamp Standing water Running water Cultivated / disturbed land – amenity grassland Cultivated / disturbed land – introduced shrub Intact hedge, native species-rich Intact hedge. native species-poor Hedge and trees, native species-rich Buildings Bare ground Hardstanding	
Habitat Provision Area	Broad-leaved woodland – plantation Mixed woodland – plantation Neutral grassland – semi-improved Improved grassland Poor semi-improved grassland Cultivated / disturbed land – arable Cultivated / disturbed land – amenity Intact hedge, native species rich Intact hedge, native species poor Hedge and trees, native species poor	5.05

Land Use Area	Habitats Present	Approximate Area (ha)
	Buildings	
East Construction Laydown Area	Broadleaved woodland – plantation Improved grassland Cultivated / disturbed land – arable Cultivated / disturbed land – amenity Intact hedgerow, native species poor Hedge and trees, native species-poor Dry ditch	7.92

**Table 2.2 - Habitats within the Off-Site Habitat Provision Area**

Land Use Area	Habitats Present	Approximate Area (ha)
Off-Site Habitat Provision Area	Broadleaved woodland – plantation Scrub – dense / continuous Intact hedge, native species poor Dry ditch Cultivated / disturbed land – arable Poor semi-improved grassland	12.3

2.7.2. The above habitats have suitability to support a range of protected and notable species, including those that are considered Important Ecological Features as documented in **section 8.7 of Chapter 8 (Ecology)**. These include:

- a. Commuting and foraging bats;
- b. Badger;
- c. Otter;
- d. Water vole;
- e. Breeding and wintering birds;
- f. Reptiles;
- g. Amphibians;
- h. Terrestrial invertebrates; and
- i. Vascular plants

2.7.3. Information pertaining to the ecological baseline is located in **section 8.7** of **Chapter 8 (Ecology)** of the ES.

## 3. PROPOSED MITIGATION AND COMPENSATION MEASURES

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### 3.1. OVERVIEW

- 3.1.1. The following sections outline the proposed measures necessary to mitigate and compensate for potential impacts on ecological receptors (as identified in **Chapter 8 (Ecology)** of Volume 1 of the ES) in relation to provision of compensatory / enhanced habitats, and visual receptors (as identified in **Chapter 9 (Landscape and Visual Amenity)** of Volume 1 of the ES) in relation to visual effects. The proposed measures would also provide enhancement to landscape features.

### 3.2. CONSTRUCTION PHASE MEASURES

- 3.2.1. A series of ecological surveys and assessment would be required prior to construction taking place. This would include walkovers to re-confirm the ecological baseline to ensure construction phase mitigation remains appropriate.
- 3.2.2. Additionally, precautionary working methods, ecological supervision including toolbox talks, sensitive site and vegetation clearance strategies and associated method statements, would be required during the construction phase and would be included in the CEMP for the Proposed Scheme. These elements are necessary to ensure disturbance to ecological receptors is minimised as far as practicably possible and the potential for killing and injury is eliminated. Measures to minimise and mitigate the impacts of construction and decommissioning are recorded in the **REAC** submitted with the DCO Application. A DCO requirement ensures that these measures are included in a CEMP, to be prepared for the Proposed Scheme before construction begins. The CEMP will be used to manage and mitigate the potential environmental impacts that could result from the construction of the Proposed Scheme.
- 3.2.3. As such these measures would not be secured through the detailed Landscape and Biodiversity Strategy, to avoid duplication of requirements.
- 3.2.4. The landscape mitigation planting measures identified in relation to the East Construction Laydown Area (see paragraph 3.3.12 below) would be implemented prior to the commencement of the construction phase. The extent of mitigation is located on the **Landscape and Biodiversity Mitigation Plan (Figure 1)**.
- 3.2.5. Existing trees are to be lost within the Drax Power Station Site as a consequence of the Proposed Scheme. Where works would be undertaken in proximity to retained trees, such works would be in accordance with best practice, including:
- a. British Standard (BS) 5837:2012 trees in relation to design, demolition and construction – recommendations (British Standards Institute, 2012)
  - b. National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (National Joint Utilities Group, 2007)

- 3.2.6. Working areas for demolition and construction activities would be offset from existing and retained landscape features and associated habitats (where they fall within or adjacent to the Order Limits) to minimise the risk of accidental damage. This would include offsets to hedgerows, woodland and existing ditches (where these are not Internal Drainage Board drains) and buildings to allow maintenance access.
- 3.2.7. A number of Internal Drainage Board (IDB) drains are present within or in proximity to the Order Limits, namely Carr Dike drain, Hooks Fields Drain, Drain 44 and a culverted drain south of Pear Tree Avenue. The relevant IDB drains are located on the **Landscape and Biodiversity Mitigation Plan (Figure 1)** and the **Landscape and Biodiversity Mitigation Plan - Off-Site Habitat Provision Area (Figure 2)**.
- 3.2.8. Selby IDB require a 7 m offset from the landward toe of the ditch for maintenance of all IDB drains. All woody planting in proximity to IDB drains such as hedgerows and trees will be planted outside of this 7 m offset where this is in proximity to an IDB drain.

### **3.3. OUTLINE MEASURES WITHIN EACH AREA**

- 3.3.1. Habitat reinstatement, creation and enhancement measures would be delivered within specific areas within the Order Limits. Creation and enhancement measures would also be delivered within the Off-Site Habitat Provision Area.
- 3.3.2. Landscape and biodiversity measures associated with the Proposed Scheme will:
- a.** Reinstatement of vegetation temporarily lost as a result of the Proposed Scheme;
  - b.** Create new, diverse habitats that support protected and notable species;
  - c.** Improve ecological connectivity in the wider landscape; and
  - d.** Enhance the landscape fabric and aid screening of low-level filtered views.
- 3.3.3. The following sections summarise in general terms the features which would be reinstated, enhanced, and created alongside the proposed planting palette for the Proposed Scheme. Specific information on the reinstatement, enhancement and creation measures would be developed and included as part of the LBS.
- 3.3.4. The proposed planting palette for each area within the Order Limits and within the Off-Site Habitat Provision Area would be drawn from species outlined in **Tables 3.1 to 3.3** below and informed by updated ecological walkovers, Weddle's Landscape Management Report 1987 / Revised July 1990 (Weddle, A.E, 1987) and consultation with NYCC, SDC, and Yorkshire Wildlife Trust. The lists are not comprehensive but do identify species which have an abundant, frequent or occasional presence within and in proximity to the Order Limits. Ash has been omitted from each planting palette due to the ongoing issues with ash dieback and has been replaced with a suitable alternative broadleaved species.
- 3.3.5. Management and maintenance prescriptions of the outline measures are included within **Section 5**.

- 3.3.6. The areas referred to below are shown on **Figure 1.2 of Chapter 1 (Introduction)** of Volume 2 of the ES (document reference 6.2.1.2) with proposals displayed on **Figure 1 (Landscape and Biodiversity Mitigation Plan)** of this Strategy.

### **POWER STATION SITE**

- 3.3.7. Where practicable the Proposed Scheme has designed out the removal of existing, natural habitats such as those in the north and north-eastern area of the Power Station Site through changes in Order Limits. Specific areas of existing vegetation within the Power Station Site and within the Order Limits are identified for retention and protection, these being located and described on **Figure 3 (Retained Vegetation)** of this Strategy.
- 3.3.8. Areas of existing amenity planting located elsewhere within the Works Plans will be retained wherever practicable. There may however be necessary loss of amenity planting in order to facilitate works, the extent and detail of which will require resolution at detailed design. Where the loss of such planting is unavoidable, the detailed design will seek to reinstate those landscape elements that are temporarily lost, or to incorporate new amenity planting measures in-keeping with the original Weddle strategy aspirations for Drax Power Station. These design measures will be progressed in accordance with design principles described within **Chapter 9 (Landscape and Visual Amenity)** of Volume 1 of the ES and referenced within the **Design Framework** (document reference 6.9) and will be agreed in consultation with the Planning Authority. All new planting measures would be included as part of the LBS as it is progressed.
- 3.3.9. A section of broadleaved woodland and grassland to the east of the National Grid substation area (**Works No. 1F**) in the east of the Power Station is to be removed to facilitate the laying of electric cabling within the ground. On completion of cable placement, the habitats that have been removed are anticipated to be reinstated to their original condition. Details of the footprint of these works and reinstatement requirements would be included as part of the LBS.
- 3.3.10. No other habitat measures are proposed within the Power Station Site.

### **EAST CONSTRUCTION LAYDOWN AREA**

- 3.3.11. The Proposed Scheme has designed out the requirement to remove other existing habitats within the land via reduction in the Order Limits to the south of the East Construction Laydown Area, protecting the grassland and woodland parcels to the south.
- 3.3.12. The existing hedgerow along the eastern side of the East Construction Laydown Area would remain in place and be enhanced along its entire length to include the thickening of the hedge and planting of frequent broadleaved tree species along its length. This would provide additional filtering of views into the East Construction Laydown Area for footpath users east of the Drax Power Station Site and for occupiers of nearby residential properties during construction. It would further

increase botanical diversity, provide additional opportunities for nesting birds, commuting and foraging bats and terrestrial invertebrates

### Reinstated Hedgerows

- 3.3.13. On completion of construction of the Proposed Scheme, the arable land within the East Construction Laydown Area would be reinstated. The western hedgerow would be reinstated and enhanced to a species-rich hedgerow including a more diverse ground flora. The hedgerow would be managed to ensure it remains at an appropriate width and structural diversity to enable a good condition hedgerow. Additional hedgerow and tree planting would be completed along the eastern boundary of the East Construction Laydown Area, to provide ecological and landscape benefits to the existing vegetation.

**Table 3.1 - Planting Palette for East Construction Laydown**

Habitat Types	Indicative Species
Arable land	N / A – agricultural crops
Native hedgerow, species-rich Native hedgerow with trees	Pedunculate Oak ( <i>Quercus robur</i> ) Blackthorn ( <i>Prunus spinosa</i> ) Field maple Hawthorn Dog rose ( <i>Rosa canina</i> ) Hazel ( <i>Corylus avellana</i> ) Wild cherry ( <i>Prunus avium</i> ) Honeysuckle ( <i>Lonicera periclymenum</i> ) Elder ( <i>Sambucus nigra</i> )

- 3.3.14. No other habitat creation and enhancement proposals are to be implemented within this area.

### HABITAT PROVISION AREA

- 3.3.15. There are two sub-areas within the Habitat Provision Area. These are associated with the creation of new hedgerows and enhancement of existing ones and a trapezium shaped section of land to the north of the East Construction Laydown Area and a linear area to the north of Drax Power Station Site. These areas are included on the **Landscape and Biodiversity Mitigation Plan (Figure 1)**.

### **Species-Rich Grassland**

- 3.3.16. Species rich grassland would be established in place of the arable land and improved grassland north of the East Construction Laydown Area following topsoil removal and stripping or inversion and ground preparation. The definitive approach to preparing topsoil would be included in the LBS.
- 3.3.17. The grassland seed mix sown would be appropriate to the local geographic context and consultation would take place with Yorkshire Wildlife Trust to determine where suitable seed could be obtained for subsequent sowing. Seed would be those of native species (i.e., no cultivars or non-native species) of local provenance and typically represent a lowland meadow seed mix or wetland meadow seed mix (the seed mixes largely comprise those species which are listed in **Table 3.2**). Specific species if required could be plug planted during the appropriate season. The species composition would be agreed with North Yorkshire County Council and Selby District Council.

### **Pond Creation and Wetland Planting**

- 3.3.18. Given the inundation of water in the north of the area to the north of the East Construction Laydown Area, a seasonally wet pond is proposed with the inclusion of wetland planting around its perimeter. The pond proposed in the Habitat Provision Area would be designed in such a way as to provide potential habitat for a range of freshwater and wetland flora and fauna. The pond would not be stocked as it is considered most appropriate to allow native, locally occurring wetland species to colonise new water features. No topsoil would be placed into new ponds, to avoid introducing excess nutrients.
- 3.3.19. A site visit to assess the ground conditions of the Habitat Provision Area would be undertaken to ascertain the specific design of the proposed pond which would be finalised as part of the LBS.
- 3.3.20. The area proposed for wetland planting is already seasonally wet and comprises intermittent (*Juncus* sp.) and bulrush (*Typha latifolia*). This area would be managed to exclude hardy cropland species and would be sown with pond edge and wetland meadow seed mix which would include plant species such as devil's bit scabious (*Succisa pratensis*), meadowsweet (*Filipendula ulmaria*) and purple loosestrife (*Lythrum salicaria*) among others. Plug plants of species such as cuckoo flower *Cardamine pratensis* and ragged robin (*Silene flos-cuculi*) could also be included.

### **Proposed Woodland and Scrub Creation**

- 3.3.21. Broadleaved woodland is proposed to the south of the wetland planting to provide pond cover and screening with species such as alder (*Alnus glutinosa*) and sessile oak (*Quercus patrea*) and intermittent willow species (*Salix* sp.). Management would focus on maintenance of the proposed wetland planting to allow the woodland to become wet woodland and reach HPI status in the future.
- 3.3.22. A linear stretch of dense scrub would be introduced further south in this area to provide refuges and hibernacula for a range of species including reptiles, amphibians

and terrestrial invertebrates. Species such as blackthorn and hawthorn would be included with dog or field rose and honeysuckle. The scrub would be managed to prevent encroaching into the new species-rich grassland.

- 3.3.23. New broadleaved woodland and scrub would be planted at a range of densities. The distribution of species and sizes (a mix of transplants, whips and feathered trees) would seek to maximise habitat diversity, cover and connectivity as well as provide a screening function and enhance local landscape features. Straight lines and regular spacing would be avoided to create a natural structure and edges would vary between tree groups and understorey planting. Trees would be distributed in small groups with gaps to allow for natural regeneration.
- 3.3.24. All trees would be notch planted into cultivated ground and supported by an appropriate timber stake and tree shelter (fitted in accordance with manufacturer's instructions). Protective fencing would be introduced for a minimum of five years until growth is taller than 1.5 m to prevent deer and rabbit damage.
- 3.3.25. Opportunities for plug planting of woodland ground cover plants would be identified as part of the LBS within proposed areas of woodland to provide increased cover and diversity of vegetation. Suitable locations are more likely to be on the woodland edges where there is a partial canopy and more light is available, and where the screening function of the woodland is not a priority, refer to **Table 3.2** for an indicative planting list.
- 3.3.26. Appropriate fencing would be erected around areas of new ground flora planting to prevent damage by rabbits and deer. Dead wood habitat piles would also be provided with retained woodland areas to benefit terrestrial invertebrates, and other wildlife such as birds and bats as part of ongoing management of the area. Deadwood could be provided from trees felled as part of the Proposed Scheme.

#### **Existing and Proposed Hedgerows**

- 3.3.27. Existing hedgerows where there are proposals for enhancement would be infilled where gapped or outgrown with hedgerow planting and new hedgerow trees (see **Figure 1 (Landscape and Biodiversity Mitigation Plan)**). Species would replicate those within the immediate vicinity and be drawn from **Table 3.2** below.
- 3.3.28. Within the Order Limits to the north of Drax Power Station Site, a series of new native, species rich hedgerows would be introduced and existing hedgerows enhanced. These include two hedgerows west and east of Carr Dyke, an enhanced hedgerow to the north-west of Carr Dyke which would be infilled with additional woody species and a new north to south hedgerow running perpendicular to Hooks Field's drain. These proposals offer additional connectivity to the wider landscape, provide commuting routes for bats and offer new nesting opportunities for breeding birds.
- 3.3.29. Hedgerows would be notch planted in cultivated ground at 500 mm spacings in a double staggered row and supported by an appropriate timber stake and guard (fitted in accordance with manufacturers' instructions).

### Swales / Scrapes and Hibernacula

- 3.3.30. Small depressions in the ground to the north-east of the proposed pond would also be created to allow for a scrape / swale type habitat and would comprise similar species make up as the surrounding new species-rich grassland.
- 3.3.31. To the east of the proposed scrub, the profile of the land would be altered to allow for a raised topography. This raised area would remain as species-rich grassland with the inclusion of patches of excavated and crop-free soil to allow for a multi-faceted habitat feature. This would provide a south facing slope for reptiles and hibernacula for both amphibians and terrestrial invertebrates.
- 3.3.32. These new habitat provisions would provide additional opportunities for foraging bats, breeding and wintering birds, reptiles, amphibians and terrestrial and aquatic invertebrates.

**Table 3.2 - Planting Palette for the Habitat Provision Area**

Habitat Types	Indicative Species
Species-rich grassland	Yarrow ( <i>Achilea millefolium</i> ) Betony ( <i>Betonica officinalis</i> ) Common knapweed ( <i>Centaurea nigra</i> ) Devil's bit scabious ( <i>Succisa pratensis</i> ) Tufted vetch ( <i>Vicia cracca</i> ) Common bird's-foot trefoil ( <i>Lotus corniculatus</i> ) Oxeye daisy ( <i>Leucanthemum vulgare</i> ) Rough hawkbit ( <i>Leontodon hispidus</i> ) Meadow buttercup ( <i>Ranunculus acris</i> ) Common bent ( <i>Agrostis capilaris</i> ) Crested dog's tail ( <i>Cynosurus cristatus</i> ) Quaking-grass ( <i>Briza media</i> )
Pond and Wetland	Meadowsweet Purple loosestrife Wild angelica ( <i>Angelica sylvestris</i> ) Rough chervil ( <i>Chaerophyllum temulum</i> ) Pepper saxifrage ( <i>Silaum silaus</i> )
Broadleaved woodland and scrub	Alder

Habitat Types	Indicative Species
	Silver Birch ( <i>Betula pendula</i> ) Goat willow ( <i>Salix caprea</i> ) Sessile oak Hawthorn Blackthorn Dog rose Field rose <i>Rosa arvensis</i> Honeysuckle
Hedgerows	Pedunculate Oak Blackthorn Field maple ( <i>Acer campestre</i> ) Hawthorn Dog rose Hazel Wild cherry Honeysuckle Elder Crack willow ( <i>Salix fragilis</i> )

### OFF-SITE HABITAT PROVISION AREA

- 3.3.33. Proposals within this area are primarily focussed on creating new species-rich grasslands and enhancing existing grasslands. Fallow Field has also been set aside as a receptor site for green-winged orchid plants that would be translocated from within the Drax Power Station Site (see **paragraph 8.10.39 of Chapter 8 (Ecology)** of Volume 1 of the ES. Arthur’s Wood and Fallow Field are displayed within **Figure 2 (Landscape and Biodiversity Mitigation Plan – Off-site Habitat Provision Area)**.

#### Grassland Creation and Orchid Translocation Site

- 3.3.34. Rank grassland within Fallow Field would be managed and enhanced to a species rich grassland to increase botanical diversity and allow for a varied sward. The disused arable land (broadly analogous with the extent of rank grassland) would be modified through topsoil removal or topsoil inversion. The ground would then be prepared for species-rich grassland to be sown. This would increase the area of valuable grassland habitat within Fallow Field and attract terrestrial invertebrates and

offer additional ground nesting opportunities for nesting birds. The new grassland would be homogenous with the proposed enhanced grassland.

- 3.3.35. Once the ground preparations have been completed to ensure existing cropland and undesirable species have been removed, Fallow Field would receive soils from within the Woodyard that contain green-winged orchid plants. The individual plants would also be carefully removed and translocated along with the soils. Given the dependency of green-winged orchid on mycorrhizal fungi within the soils, the translocation site must contain this same fungi or establishment would fail. The detail of the orchid translocation would be included within the LBS.
- 3.3.36. A Public Right of Way (PRoW) is located within Fallow Field and runs from south-east to north-west. This PRoW would be temporarily stopped up during habitat creation works (expected to be required for a period of up to six months, but most likely under two months).

### **Existing and Proposed Woodland and Scrub**

- 3.3.37. Existing areas of broadleaved woodland within the Off-Site Habitat Provision Area would be managed and enhanced to improve their longevity and diversity, as shown on **Figure 1 (Landscape and Biodiversity Mitigation Plan)**. Investigations would be undertaken prior to submission of the LBS to determine the condition of trees and whether appropriate replacement planting should be introduced where there are suitable gaps in the woodland and where trees have failed and gaps are evident. Where practical and suitable, coppicing would be undertaken on select trees to allow for a varied woodland structure, woodland longevity and additional nesting opportunities
- 3.3.38. Removal of undesirable species including invasive non-native Himalayan balsam (*Impatiens glandulifera*) would be undertaken to enhance the understory and to allow bluebells (*Hyacinthoides non-scripta*) and other woodland plants to flourish and recolonise the woodland.
- 3.3.39. An existing scrub parcel in the centre of Fallow Field would be retained and managed via the removal of undesirable species and the introduction of species such as dog or field rose. and honeysuckle.
- 3.3.40. The scrub border along the eastern perimeter of Fallow Field would be managed to achieve successional woodland status with the intermittent planting of broadleaved tree species such as pedunculate oak, field maple and hazel.
- 3.3.41. All trees would be notch planted and new fencing would be introduced, as per the approach to new planting within the Habitat Provision Area.
- 3.3.42. Opportunities for plug planting of woodland ground cover would be identified in the LBS, in relation to existing areas of woodland to provide increased cover and diversity of vegetation. Suitable locations are more likely to be on the woodland edges where there is a partial canopy and more light is available, and where the screening function of the woodland is not a priority, refer to **Table 3.3** for an indicative planting list.

- 3.3.43. Appropriate fencing would be erected around areas of new ground flora planting to prevent damage by rabbits and deer.
- 3.3.44. Dead wood habitat piles would also be provided with retained woodland areas to benefit terrestrial invertebrates, and other wildlife such as birds and bats. Wood would be available from trees felled on site to facilitate the Proposed Scheme.

**Existing Hedgerow**

- 3.3.45. The native hedgerow separating the rank grasslands and arable land would be enhanced to a species-rich hedgerow with the inclusion of additional woody species of local provenance. Removal of undesirable species and management of overgrown areas would ensure the hedgerows maintain a good condition.

**Table 3.3 - Planting Palette for the Off-Site Habitat Provision Area**

Habitat Types	Indicative Species
Broadleaved Woodland	Silver Birch Pedunculate Oak Rowan ( <i>Sorbus aucuparia</i> ) Bird Cherry ( <i>Prunus padus</i> ) Guelder Rose ( <i>Viburnum opulus</i> ) Dog Rose Dogwood ( <i>Cornus sanguinea</i> ) Hawthorn Hazel Elder Field Maple Holly ( <i>Ilex aquifolium</i> )
Scrub	Field maple Hazel Holly Honeysuckle
Species-rich grassland	Yarrow Betony Common knapweed Meadowsweet

Habitat Types	Indicative Species
	Devil's bit scabious Tufted vetch Common bird's-foot trefoil Oxeye daisy Rough hawkbit Meadow buttercup Common bent Crested dog's tail Quaking grass
Hedgerows	Pedunculate Oak Blackthorn Field maple Hawthorn Dog rose ( <i>Rosa Canina</i> ) Hazel Wild cherry Honeysuckle Elder Crack willow

## HABITAT CREATION AND ENHANCEMENT REQUIREMENTS

- 3.3.46. Where planting and the creation of new habitats is undertaken the following principles will apply:
- a.** Consultation will take place pre-construction with NYCC and SDC to agree the indicative planting palette including seed mixes and sourcing of material;
  - b.** All seed mixes and planting stock will be ordered as early as possible prior to planting, to ensure that the supply does not risk substitution.
  - c.** All seed mixes and tree stock will be sourced from a specialist producer of British native plants;
  - d.** Native trees and shrubs will be sourced from a supplier which follows the Forestry Commission's Voluntary Identification Scheme for British Native trees and Shrubs;

- e. Grassland wildflower mixes will be approved by Defra under the Seed (Registration, Licensing and Enforcement) (England) Regulations 2002; and
- f. Terms of supply will include a condition that no part of the order shall be substituted with alternative species or of unapproved origin and that any change must be mutually agreed.

3.3.47. The above requirements will be incorporated into contractors' contracts as appropriate to deliver agreed planting stock in accordance with the aims and objectives of this Strategy.

## 4. LANDSCAPE AND HABITAT MANAGEMENT AND MAINTENANCE

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### 4.1. OVERVIEW

- 4.1.1. The following section outlines the indicative measures for effective management and maintenance of the reinstatement, enhancement and creation proposals. The associated landscape management plan for the Proposed Scheme including timescales for management is located in **Section 2** of this Strategy.
- 4.1.2. All new habitat creation and enhancement works would be subject to a long term (30 year) management, maintenance and monitoring plan to ensure the full and successful establishment of the planting. The plan would form part of the LBS. The plan would prescribe the maintenance regimes for all different landscaping and habitats considering the aims, objectives and functions of each area of planting / habitat, including delivering BNG aspirations for the Proposed Scheme. Further details would be agreed with NYCC and SDC prior to construction of works associated with each Work Number.
- 4.1.3. New planting would be subject to a five year defects liability period, secured by a requirement in Schedule 2 of the **dDCO**. This period would commence on completion of landscaping and habitat creation works associated with each Work Number. All plants found dead or dying would be replaced within the first available planting season.
- 4.1.4. If areas of planting are seen to be failing, soil samples would be taken to identify potential soil issues affecting plant health and soil remediation considered and / or alternative more suitable plants chosen to maintain proposed features. An approved contractor would undertake a number of operations including weed control, checking plants, pruning and replacement planting as well as watering.
- 4.1.5. The plan would consider the management of the elements in the following sections in further detail.

### EXISTING AND PROPOSED WOODLAND AND TREES

- 4.1.6. The management, maintenance and monitoring plan as well as the detailed plans of each Habitat Provision Area would be informed by the UK Forestry Standards (Forestry Commission, 2017) and would consider opportunities to:
- a. Create a diverse structure where opportunities arise to improve habitat diversity and encourage natural regeneration;
  - b. Retain a proportion of fallen or standing deadwood to improve ecological value;
  - c. Explore opportunities to enhance the woodland edge where light and space is available through the introduction of ground flora and understorey planting;
  - d. Create the opportunities for glades through the felling of single trees or groups of trees where this does not contradict visual screening objectives;

- e. Undertake woodland and hedgerow management outside of the breeding bird season;
- f. Consider risk and opportunities for climate change in the selection of new woodlands and restocking;
- g. Thinning and coppicing of trees and shrubs where necessary and appropriate would achieve a diverse form structure and undertaken on rotation in specific blocks;
- h. Coppice stools would be protected from deer / rabbit browsing by piling brash and arisings around them; and
- i. Coppice stools would be monitored for regrowth and replanted where appropriate.

### **EXISTING AND PROPOSED HEDGEROWS**

4.1.7. The following issues would be considered for existing and proposed hedgerows:

- a. In order to maintain a natural profile, hedgerows would be cut between September and February inclusive to avoid impacting on breeding birds;
- b. Hedgerows would be cut on a rotational basis, allowing the growth of individual hedgerow trees;
- c. Dead / diseased wood would be pruned back, and material removed except where its retention would have ecological benefit;
- d. Consideration would be given to coppicing or laying; and
- e. Ground flora beneath the hedge line would be allowed to develop and herbicides / pesticides avoided.

### **EXISTING AND PROPOSED GRASSLAND**

4.1.8. An appropriate management regime for grassland would be defined and agreed with NYCC and SDC. Specific mowing regimes for different types of grassland would be agreed and arisings either removed or left for a period of time to allow seed and invertebrates to drop out. Grassland management should be undertaken as per Grassland Restoration and Management (Blakesley, D. and Buckley, G.P, 2016)

### **New Ponds**

- 4.1.9. Appropriate management regimes for new water bodies would be defined and agreed with NYCC and SDC. Consideration would be given to the desilting of ponds and management of vegetation with any necessary thinning of wetland vegetation.
- 4.1.10. Inspection of wetland planting would be carried out to assess weeds and pests and disease control, and any required litter picking. Access in and out of the water bodies by personnel engaged in management activities would also be assessed prior to each survey to ensure safe and easy means of escape from water are maintained.
- 4.1.11. This section outlines the establishment and management techniques for the proposed and retained planting types to support establishment of created and enhanced habitats.

4.1.12. The following planting types have been proposed as detailed on the Landscape and Biodiversity Mitigation Plan (Figure 1) and Landscape and Biodiversity Mitigation Plan – Off-Site Habitat Provision Area (Figure 2).

- a. New broadleaved woodland planting;
- b. New hedgerows with trees;
- c. New and reinstated hedgerows;
- d. New scrub parcels;
- e. New species-rich grassland;
- f. New wetland planting;
- g. Existing woodland to be enhanced;
- h. Existing hedgerows to be enhanced; and
- i. Existing scrub to be enhanced.

## **4.2. ESTABLISHMENT PLAN**

4.2.1. The following table (**Table 4.1**) sets out the desired objectives and the necessary activities to establish and manage the habitat types during the initial five years following planting. The table should be read in conjunction with **Table 4.2** Management Requirements and Maintenance Schedule, which includes indicative management measures for years 6 – 30 following habitat enhancement and creation measures.

**Table 4.1 – Management Objectives and Habitat Establishment Activities**

Habitat Types	Objectives	Establishment Period Year 1	On-going Activities Year 2 - 5
<p>New Broadleaved Planting within Habitat Provision Area</p>	<p>To bind soils and stabilise banks adjacent to the pond.</p> <p>To establish marginal vegetation and to provide cover to fauna.</p> <p>To provide ecological mitigation and compensation in the form of replacement woodland which would offer foraging opportunities for terrestrial invertebrates, breeding and wintering birds, mammals, amphibians and to provide vegetation suitable to the wetland environment.</p>	<p>Newly planted whips will be inspected annually during the growing season. Check for damaged, dead or diseased plants, remove plants where damage has occurred that would jeopardise long term survival of the plant and replace in the next planting season following identification.</p> <p>Inspect for presence and effectiveness of mulch mats at base of plants.</p> <p>Ensure grass / herbaceous competitive growth is controlled by strimming outside of areas controlled by mulch mats.</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>During establishment, water at a frequency of no less than two times per week for a period of six weeks. Thereafter, the watering regime will be based on continuous monthly advanced review of weather forecasts to determine appropriate watering frequency.</p> <p>Inspect planting for windblow, re-firm trees and check staking and tree ties, replace where necessary.</p> <p>Check for damaged or diseased trees, replace trees where sufficient damage has occurred to jeopardise long term survival of the tree (during first available planting season).</p> <p>Where disease is identified treat with appropriate pesticide should removal not be required.</p>	<p>Undertake annual walkover inspection of planted areas.</p> <p>Inspect at the beginning of the growing season for the first 5 years to ensure that grassland and herbaceous species within planted areas remain clear of individual trees.</p> <p>Inspect for presence and effectiveness of mulch mats at base of plants.</p> <p>Review watering regime based on continuous monthly advanced review of weather forecasts and determine appropriate watering frequency (years 2 and 3).</p> <p>Strim to control competition from grass and herbaceous growth outside of areas controlled by mulch mats (requirement for strimming to be reviewed following year three as growth reduces impact of competition).</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>Replace failed trees identified annually during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p> <p>Subject to suitable growth, remove ties, stakes and tree guards where appropriate.</p> <p>Coppice / cut back relevant shrub species to encourage vigour and density.</p> <p>Remove rabbit proof fencing / guards (end of year 3, 4 or 5 – subject to review of plant vigour and density).</p>
<p>New Hedgerows with Trees within the East Construction Laydown Area</p>	<p>To provide intermittent screening, visual interest and ecological benefit within the Habitat Provision Area and East Construction Laydown Area.</p> <p>To enhance habitats and to improve biodiversity including replacement of lost hedgerows.</p> <p>To buffer existing habitats to provide shelter and nesting habitat for breeding birds and additional foraging and commuting opportunities for bats.</p> <p>To provide screening for sensitive visual receptors.</p>	<p>Carry out regular watering of newly planted trees within the first 0 - 12 weeks of planting (specific requirements would be heavily dependent on levels of rainfall at the time).</p> <p>Monitor every six months and loosen ties as necessary.</p>	<p>Trees will be inspected annually during the growing season. Check for damaged, dead or diseased trees, remove trees where damage has occurred that would jeopardise long term survival of the tree and replace in the next planting season following identification. This annual inspection will also re-firm trees where leaning / in uneven soil and check staking and tree ties; replace where necessary.</p> <p>Remove rabbit proof fencing / guards (end of year or 5 – subject to review of plant vigour and density)</p> <p>Cut back and remove any epicormic growth.</p>

Habitat Types	Objectives	Establishment Period Year 1	On-going Activities Year 2 - 5
			Review needs for mulch mats (Years 3 to 5).
<p>New Native Species Hedgerow and Reinstated Hedgerows within the Habitat Provision Area and East Construction Laydown Area</p>	<p>To reinstate habitat connectivity and linear features across the Habitat Provision Area and East Construction Laydown Area.</p> <p>To reflect field boundaries that are characteristic of the wider rural agricultural setting.</p> <p>To provide screening for sensitive visual receptors and compensation planting for lost hedgerows. Additional hedgerows would offer nesting and foraging opportunities for breeding birds, provide refuge and hibernacula for reptiles and amphibians and new commuting and foraging opportunities for bats.</p>	<p>Inspect for presence and effectiveness of mulch mats at base of plants.</p> <p>Ensure grass / herbaceous competitive growth is controlled by strimming outside of areas controlled by mulch mats.</p> <p>Spot treatment of planted areas with non-residual herbicide to eradicate noxious or notifiable weeds.</p> <p>During establishment, water at a frequency of no less than two times per week for a period of six weeks. Thereafter, the watering regime will be based on continuous monthly advanced review of weather forecasts to determine appropriate watering frequency.</p> <p>Inspect planting for windblow, re-firm trees and check staking and tree ties, replace where necessary.</p> <p>Check for damaged or diseased shrubs, replace shrubs where sufficient damage has occurred to jeopardise long term survival of the shrub (during first available planting season).</p> <p>Where disease is identified treat with appropriate pesticide should removal not be required.</p> <p>Inspect and maintain rabbit proof fencing / guards.</p>	<p>Undertake annual walkover inspection of planted areas.</p> <p>Inspect at the beginning of the growing season for the first 5 years to ensure that grassland and herbaceous species within planted areas remain clear of individual shrubs.</p> <p>Review needs for mulch mats (Years 3 to 5).</p> <p>A review schedule would be identified such that management of hedgerows for the Proposed Scheme is undertaken on a three year rotation. This management would be limited to trimming of the vegetation once every three years, to allow areas of the hedgerows to remain undisturbed. Cutting should aim to maintain the hedgerows at no less than 2m in height to retain a dense habitat. Trimming should be undertaken outside of the bird nesting season, and ideally during late winter (January to February), to allow any fruits and berries to be foraged by over-wintering birds and small mammals.</p> <p>Some bramble will be allowed to establish through self-seeding as it is valuable to wildlife, but it will be managed so that it does not become dominant.</p> <p>Review watering regime based on continuous monthly advanced review of weather forecasts and determine appropriate watering frequency (years 2 and 3).</p> <p>Strim to control competition from grass and herbaceous growth outside of areas controlled by mulch mats (requirement for strimming to be reviewed following year three as growth reduces impact of competition).</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>Replace failed shrubs identified annually during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p> <p>Inspection of rabbit-proof fencing / guards during routine maintenance visits and make good any damage.</p> <p>Remove rabbit proof fencing/guards (end of year 3, 4 or 5 – subject to review of plant vigour and density)</p>

Habitat Types	Objectives	Establishment Period Year 1	On-going Activities Year 2 - 5
New Scrub Parcels within the Habitat Provision Area	<p>To establish dense scrub and to retain and increase habitat diversity and connectivity. To provide ecological mitigation and compensation in the form of new nesting and foraging opportunities for breeding birds, commuting and foraging routes for bats and foraging opportunities for terrestrial invertebrates and to provide visual variety appropriate to the setting.</p>	<p>Inspect for presence and effectiveness of mulch mats at base of plants.</p> <p>Ensure grass / herbaceous competitive growth is controlled by strimming outside of areas controlled by mulch mats.</p> <p>Spot treatment of planted areas with non-residual herbicide to eradicate noxious or notifiable weeds.</p> <p>During establishment, water at a frequency of no less than two times per week for a period of six weeks. Thereafter, the watering regime will be based on continuous monthly advanced review of weather forecasts to determine appropriate watering frequency.</p> <p>Inspect planting for windblow, re-firm trees and check staking and tree ties, replace where necessary.</p> <p>Check for damaged or diseased shrubs, replace shrubs where sufficient damage has occurred to jeopardise long term survival of the shrub (during first available planting season).</p> <p>Where disease is identified treat with appropriate pesticide should removal not be required.</p> <p>Inspect and maintain rabbit proof fencing / guards.</p>	<p>Undertake annual walkover inspection of planted areas.</p> <p>Inspect at the beginning of the growing season for the first 5 years to ensure that grassland and herbaceous species within planted areas remain clear of individual shrubs.</p> <p>Inspect for presence and effectiveness of mulch mats at base of plants.</p> <p>Review watering regime based on continuous monthly advanced review of weather forecasts and determine appropriate watering frequency (years 2 and 3).</p> <p>Strim to control competition from grass and herbaceous growth outside of areas controlled by mulch mats (requirement for strimming to be reviewed following year three as growth reduces impact of competition).</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>Replace failed shrubs identified annually during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p> <p>Coppice / cut back relevant shrub species to encourage vigour and density.</p> <p>Inspection of rabbit-proof fencing during routine maintenance visits and make good any damage.</p> <p>Remove rabbit proof fencing / guards (end of year 3, 4 or 5 – subject to review of plant vigour and density)</p>
New Species Rich Grassland within the Order Limits and Off-Site Habitat Provision Area	<p>To provide ecological mitigation and compensation for lost grassland habitats and to enhance the local biodiversity and promote local wildlife interest within the Order Limits and within the Off-Site Habitat Provision Area.</p> <p>To provide a suitable translocation site for green-winged orchid.</p> <p>New species-rich grasslands would provide additional ground nesting opportunities for birds, new foraging and egg laying habitat for terrestrial invertebrates and basking habitat for reptiles.</p>	<p>Cut four times in establishment year to 70 mm. Cutting to 70 mm when height reaches 150 mm. Carry out a final cut (fourth cut) to 60 mm after flowering in September. Leave arisings in situ for 48 hours then remove from site.</p> <p>Monitor success of establishment, undertake over seeding if required during next season.</p>	<p>Cut twice a year when height reaches 150 mm, once in spring to 70 mm, and once in autumn to 60 mm once flowers have died back. Leave arisings in situ for 48 hours then remove from site or leave in localised heaps for hibernacula.</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p>

Habitat Types	Objectives	Establishment Period Year 1	On-going Activities Year 2 - 5
New Wetland Planting within the Habitat Provision Area	<p>To bind soils and stabilise banks adjacent to the pond.</p> <p>To establish marginal vegetation.</p> <p>To replace lost reedbed habitat and provide ecological mitigation for ecological receptors through offering new foraging and nesting habitat for terrestrial invertebrates, small mammals and breeding and wintering birds.</p>	<p>Cut four times in establishment year to 70 mm. Cutting to 70 mm when height reaches 150 mm. Carry out a final cut (fourth cut) to 60 mm after flowering in September. Leave arisings in situ for 48 hours then remove from site.</p> <p>Monitor success of establishment, undertake over seeding if required during next season.</p>	<p>Cut annually in September once wildflowers have seeded. Leave arisings in situ for 48 hours then remove from site or leave in localised heaps for hibernacula.</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p>
Existing Planting – Woodland within the Off-Site Habitat Provision Area	<p>To enhance woodland condition within Arthur’s Wood to create a good condition woodland with a diverse structure and understory which would offer greater value habitat for breeding birds, terrestrial invertebrates and commuting and foraging bats.</p> <p>To enhance integration and screening of the Power Station Site.</p>	<p>Cut back 25% of species suitable for coppicing (hazel / birch / willow) to within 150 mm of the ground in first winter. Cut should be clean, with a south sloping face to encourage shedding of water and drying.</p> <p>Check for damaged or diseased trees, replace trees where sufficient damage has occurred to jeopardise long term survival of the tree (during first available planting season).</p> <p>Where disease is identified treat with appropriate pesticide should removal not be required.</p>	<p>Coppice woodland would be managed on a 5 to 20 year rotation.</p> <p>The coppice should be harvested after leaf-fall and before bud burst.</p> <p>Replace failed trees identified annually during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p> <p>Subject to suitable growth of any replacement trees, remove ties and stakes and tree guards where appropriate.</p> <p>Annual check of trees for signs of wind damage, disease or requirements for pruning.</p>
Existing Planting - Hedgerows within the East Construction Laydown Area, Habitat Provision Area, Off-Site Habitat Provision Area	<p>To enhance species diversity within hedgerows to offer additional foraging opportunities to breeding birds, foraging bats and foraging terrestrial invertebrates.</p> <p>Promote a stronger hedgerow structure to field boundaries and provide enhanced integration with surrounding hedgerows and woodland.</p>	<p>Hedgerow should be ‘gapped up’ with suitable tree and shrub planting where gaps are identified on field boundaries, or where species diversity within an existing area of planting needs to be increased.</p>	<p>Allow existing hedgerow to grow out whilst maintaining vigour and density through appropriate trimming of annual extension in growth. Annual trimming regime to be carried out at the appropriate time of year (January / February) to establish an overall height no less than 2 m, subject to review.</p> <p>Annual check of existing hedgerow trees for signs of wind damage, disease or requirements for pruning.</p> <p>Management should be undertaken on a three-year rotation with different areas of hedgerows limited to trimming of the vegetation once every three years, to allow areas of the hedgerows to remain undisturbed. Trimming should be undertaken outside of the bird nesting season, and ideally during late winter (January to February), to allow any fruits and berries to be foraged by over-wintering birds and small mammals.</p>

Habitat Types	Objectives	Establishment Period Year 1	On-going Activities Year 2 - 5
			<p>Some bramble will be allowed to establish through self-seeding as it is valuable to wildlife, but it will be managed so that it does not become dominant.</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>Replace failed new shrubs identified annually during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p>
Existing Planting – Scrub within the Off-Site Habitat Provision Area	<p>To enhance to a better, more robust scrub parcel with a greater species diversity to offer additional and more suitable nesting habitat for breeding birds and to provide foraging opportunities.</p> <p>To retain and increase habitat diversity and connectivity within the Habitat Provision Area.</p> <p>To provide foraging opportunities for birds, mammals, amphibians and invertebrates, and to provide visual variety appropriate to the setting.</p>	<p>Planting should be ‘gapped up’ with suitable shrub planting where gaps are identified, or where species diversity within an existing area of planting needs to be increased.</p> <p>Check existing shrubs for signs of wind damage, disease or requirements for pruning</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>Replace failed scrubs identified during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p> <p>Coppice / cut back relevant shrub species to encourage vigour and density.</p>	<p>Annual check of existing scrub for signs of wind damage, disease or requirements for pruning</p> <p>Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.</p> <p>Replace failed new shrubs identified annually during the first three growing seasons. Thereafter, replace if failure would reduce the effectiveness, density of the established planting (replacement during first available planting).</p> <p>Coppice / cut back relevant shrub species to encourage vigour and density.</p>
Pond within the Habitat Provision Area	To create a seasonal wetland habitat, which supports diversity of native wetland flora and fauna to offer additional habitat opportunities for terrestrial and aquatic invertebrates, birds, mammals, amphibians and invertebrates.	<p>Monitor water levels for seasonal variation</p> <p>Monitor for noxious / invasive weeds</p>	<p>Annual visit by suitably qualified individual to check pond condition, and to advise where remedial measures may be required.</p> <p>Necessary management as required.</p>
Hibernaculum within the Habitat Provision Area	To provide hibernation and refuge opportunities for fauna, particularly reptiles and amphibians.	N / A	<p>Annual visit by suitably qualified individual to check hibernaculum condition and status.</p> <p>Necessary management as required.</p> <p>Top up with new rocks, soil and logs in year 5.</p>
Scrapes and Swales within the Habitat Provision Area	To create a seasonal wetland habitat, which supports a diversity of native wetland flora and fauna.	N / A	<p>Annual visit by suitably qualified individual to check Scrape / Swale condition and to advise where remedial measures may be required.</p> <p>Necessary management as required.</p>

Habitat Types	Objectives	Establishment Period Year 1	On-going Activities Year 2 - 5
	To provide foraging opportunities for terrestrial and aquatic invertebrates specifically including breeding and wintering birds		

### **4.3. MANAGEMENT REQUIREMENTS (YEARS 6 – 30)**

- 4.3.1. **Table 4.2** below sets out the anticipated maintenance works and should be read in conjunction with the Management Requirements above. The schedule sets out the types of activity required to achieve the long term aims of the habitat creation and enhancement proposals for the Proposed Scheme.

#### **PROGRAMMING AND MONITORING**

- 4.3.2. It is recognised that detailed habitat management requirements on a year-on-year basis can vary depending on climatic conditions and other factors. Detailed requirements will accordingly be reviewed and programmed by the Applicant on a five yearly basis during the implementation period for the LBS. This will involve submission of a forward five-year programme by the Applicant to NYCC detailing anticipated operations for the following five-year period. Following the initial five-year programme, the subsequent programmes (every 5 years) will include a report of the maintenance undertaken during the previous five years and any modifications employed with relevant justifications.

**Table 4.2 - Maintenance Schedule (years 6-30)**

Planting Type	Action	Timescale (years)																									
		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Existing Woodland (Arthur's Wood)	Prune as appropriate to encourage vigour and to remove dead, dying or diseased branches. Chip small arisings on site with material over 150 mm diameter or leave in localised heaps for hibernacula.	•		•		•		•		•		•		•		•		•		•		•		•		•	
	Coppice approx. 25% of species suitable for coppicing if necessary (hazel / birch / willow) to 150 mm of ground level in year 1 and every subsequent 5-20 years.	•					•					•					•					•					
	Apply herbicide to control noxious weeds on visits once per year between April and September.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Undertake thinning operations to remove weak specimens and provide space for future growth. Place selected arisings from clearance as habitat piles within the planting					•											•										•
New Species Rich Grassland	After the first year, cut twice a year when height reaches 150 mm, once in spring to 70 mm, and once in autumn to 60 mm. Leave arisings in situ for 48 hours then remove from Site or leave in localised heaps for hibernacula.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Spot treatment with non-residual herbicide to eradicate	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Planting Type	Action	Timescale (years)																								
		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	noxious / notifiable weed species.																									
New Wetland Planting	Cut annually in September once wildflowers have seeded. Leave arisings in situ for 48 hours then remove from site or leave in localised heaps for hibernacula.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Existing Hedgerows, New Hedgerow Trees, New Scrub, and Broadleaved Woodland Planting (with wet woodland species)	Trim / cut back relevant shrub species to encourage vigour and density.		•			•			•			•			•			•			•			•		
	Cut hedgerows to maintain a height no less than 2 metres. *Hedgerows will be managed on a three-year rotation. Different sections will be trimmed once every three years to allow undisturbed growth in other areas.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Spot treatment with non-residual herbicide to eradicate noxious / notifiable weed species.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Undertake thinning operations to remove weak specimens and provide space for future growth. Place selected arisings from clearance as habitat piles within the planting					•											•									•

## 5. MONITORING

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- 5.1.1. Ecological monitoring surveys would be required to assess the efficacy of the mitigation stated in the Strategy and confirm the findings of the impact assessment in **Chapter 8 (Ecology)**. This monitoring would be secured by **Requirement 7** of the **dDCO (Provision of landscape and biodiversity mitigation and enhancement)**.

### **HABITATS**

- 5.1.2. A walkover survey of the Habitat Provision Area, East Construction Laydown Area and the Off-Site Habitat Provision Area including reinstated, created and enhanced habitats would be completed in years 1, 3, 5, and 10 following completion of the construction phase. This would assess the success of the reinstated, created and enhanced measures. Condition assessment data would be gathered, to enable progress towards delivering BNG to be measured.

### **BATS**

- 5.1.3. Walkover surveys of reinstated, created and enhanced habitats within the Order Limits and Off-Site Habitat Provision Area to assess suitability for foraging and commuting bats would be completed. In addition, bat activity transect surveys would be completed to assess any evident changes in bat populations. Surveys would be completed between May and September in years 3 and 10 following completion of the construction phase.

### **BREEDING AND WINTERING BIRDS**

- 5.1.4. Walkover surveys of reinstated, created and enhanced habitats within the Order Limits and Off-Site Habitat Provision Area to assess suitability of these for breeding and wintering birds would be completed. Targeted breeding bird surveys of landscape and habitat creation areas would also be completed. These surveys would be completed between April and July in years 3 and 10 following completion of construction.
- 5.1.5. Targeted wintering bird surveys of habitats in the Habitat Provision Area and East Construction Laydown Area would be completed between September and March of years 3 and 10 following completion of construction. These would confirm the distribution and abundance of wintering bird species and identify whether any changes could be linked to changes arising from the Proposed Scheme.

### **Terrestrial Invertebrates**

- 5.1.6. Walkover surveys of reinstated, created and enhanced habitats including areas of plug planted and seeded areas to assess suitability and success, would be carried out in years 3 and 10 following completion of construction.
- 5.1.7. Targeted terrestrial invertebrate surveys would be undertaken in years 3 and 10 to ascertain the level of colonisation of each area by terrestrial invertebrates following completion of construction. In particular, surveys would seek to re-establish the

presence of Red Data Book (Wells, S.M., Pyle, R.M. and Collins, N.M., 1983) species, particularly alder leaf beetle as identified during surveys and in **Chapter 8 (Ecology)** of the ES.

### **VASCULAR PLANTS**

- 5.1.8. Walkover survey of the green-winged orchid translocation site within the Off-Site Habitat Provision Area to assess the success of the mitigation measures for this species. Targeted surveys to assess the presence of green-winged orchid would be completed within the translocation site and within regenerated habitat within the Woodyard. Surveys would be undertaken in years 3 and 10 following completion of construction.

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