EAST YORKSHIRE SOLAR FARM

East Yorkshire Solar Farm
EN010143

Framework Landscape and Ecological Management Plan

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1. Introduction

1.1 Overview

1.1.1 This Framework Landscape and Ecological Management Plan (LEMP) has been prepared on behalf of East Yorkshire Solar Farm Limited (hereafter referred to as the Applicant). It includes provision for the successful establishment and future management of biodiversity and landscaping works.

1.1.2 This document forms part of a Development Consent Order (DCO) application and provides a framework for delivering the landscape strategy and the successful establishment and future management of proposed landscape works associated with East Yorkshire Solar Farm (hereafter referred to as 'the Scheme'). It sets out the short and long-term measures and practices that will be implemented by the Applicant to establish, monitor, and manage landscape and ecology mitigation and enhancement (biodiversity net gain) measures embedded in the design. The latter will be achieved through habitat creation over and above that used for habitat mitigation.

1.1.3 The Scheme will comprise the construction, operation (including maintenance and repair), and decommissioning of a solar photovoltaic (PV) electricity generating facility with a total capacity exceeding 50 megawatts (MW) and export connection to the National Grid at Drax Substation, and associated infrastructure. Due to its proposed generating capacity being more than 50 MW, the Scheme is classified as a Nationally Significant Infrastructure Project (NSIP) and will therefore require consent via a DCO under the Planning Act 2008. The Scheme is described in **Chapter 2: The Scheme, Environmental Statement (ES) Volume 1 [EN010143/APP/6.1]**.

1.1.4 The Scheme will be located within the 'Order limits'. The Site – the collective term for all land within the Order limits – comprises the Solar PV Site, Ecology Mitigation Area, Interconnecting Cable Corridor, Grid Connection Corridor, and Site Accesses totalling approximately 1,276.5 hectares (ha) (as shown on **Figures 1-3 and 2-3, ES Volume 3 [EN010143/APP/6.3]**) and as described below:

a. Solar PV Site – the total area covered by all the Solar PV Areas;

   i. Solar PV Areas – areas of land within which the following solar infrastructure is located: solar PV panels and associated solar PV infrastructure, including two Grid Connection Substations. The Solar PV Areas also incorporate areas of habitat creation/enhancement and landscaping;

b. Ecology Mitigation Area – area of land in the north-east of the Site to be managed to provide good quality habitat for overwintering and migratory bird species, mitigating the loss of habitat elsewhere in the Site considered to be functionally linked to the international designated sites of the Lower Derwent Valley Special Protection Area (SPA)/Ramsar and Humber Estuary SPA/Ramsar;

c. The Interconnecting Cable Corridor describes the area outside of the Solar PV Site and Grid Connection Corridor within which the 33 kilovolt (kV) cables will be installed linking the Solar PV Areas to the Grid Connection Substation;

d. The Grid Connection Corridor describes the area outside of the Solar PV Site within which the 132 kV Grid Connection Cables (and between Solar PV Areas 3b and 1c some 33 kV Interconnecting Cables) will be installed; and

e. Site Accesses – land required to facilitate access to the Site, such as new access routes or measures to provide better visibility splays.

1.1.5 The Solar PV Site and the Interconnecting Cable Corridor lie wholly within the East Riding of Yorkshire, whilst the Grid Connection Corridor which links the Solar PV Site to National Grid's Drax Substation lies within the unitary authorities of East Riding of Yorkshire and North Yorkshire.

1.1.6 The **Framework Landscape Masterplan**, provided in Appendix A has been produced for the Site (the area of land required for the construction, operation and maintenance, and decommissioning of the Scheme (refer to **Figure 1-2, ES Volume 3 [EN010143/APP/6.3]**). The Framework LEMP forms part of the strategy for successfully integrating the Scheme within this landscape, and also mitigating related impacts identified within the Application. The **Framework Landscape Masterplan** (Appendix A) is based on the Indicative Site Layout (refer to **Figure 2-3, ES Volume 3 [EN010143/APP/6.3]**) which represents a tangible physical example of how the Scheme could be constructed, with parameters set within the **Outline Design Principles Statement [EN010143/APP/7.4]**.

1.1.7 As set out in the **Draft DCO [EN010143/APP/3.1]**, a requirement will necessitate the submission and approval of a detailed Landscape and Ecology Management Plan (LEMP) to deliver the provisions as set-out in this Framework LEMP.

1.1.8 This Framework LEMP is a live document, the context of which will continue to be updated, refined and (where necessary) added to, based on ongoing discussions between the Applicant and statutory bodies and relevant Local Planning Authorities. It will be updated by the Applicant into a final detailed LEMP prior to the commencement of works in accordance with the Requirements contained in Schedule 2 of the **Draft DCO [EN010143/APP/3.1]**.

1.2 Purpose of this Document

1.2.1 The purpose of this Framework LEMP is to set out the measures proposed to mitigate the effects of the Scheme on landscape and biodiversity features. The Framework LEMP also sets out the measures proposed to enhance the biodiversity, landscape, and green infrastructure value of the Scheme, to secure compliance with relevant national and local planning policies. The Framework LEMP also sets out the measures proposed to replant where practicable any areas of the Site which are temporarily impacted during construction, e.g., the cable corridors and temporary site accesses.

1.2.2 The Scheme has been designed, as far as practicable, to avoid or reduce effects on landscape and biodiversity features through siting of the Scheme components, including structures and new planting. For further information

see in particular **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]** and **Chapter 10: Landscape and Visual Amenity, ES Volume 1 [EN010143/APP/6.1]**.

1.2.3 This document outlines the landscape and biodiversity avoidance measures that would be implemented prior to, and during the construction of the Scheme, as well as the habitat and landscape restoration, enhancement, management, and monitoring measures to be implemented once the Scheme is operational. Implementation of these measures is proposed to be secured by the requirement of a detailed LEMP to be produced in accordance with this Framework LEMP.

1.2.4 In order to avoid potential conflicts in approach to impact avoidance and enhancement, this document identifies the measures required for both landscape and biodiversity together, to demonstrate a cohesive strategy.

1.2.5 This Framework LEMP is structured as follows:

a. Section 1 sets out the context, objectives responsibilities and arrangements for delivery of the plan;

b. Section 2 sets out the legislation, policy and guidance;

c. Section 3 describes the existing baseline for landscape and biodiversity features;

d. Section 4 describes the landscape and ecology strategy for the Scheme which incorporates proposals for landscape and biodiversity impact mitigation;

e. Section 5 describes how existing and proposed habitats will be protected or implemented during construction;

f. Section 6 describes how existing and proposed habitats will be managed, maintained, and monitored; and

g. Section 7 discusses the pre-construction survey and post-construction monitoring that will be undertaken.

1.3 Objectives

1.3.1 The overarching objectives of the Framework LEMP are to:

a. Integrate the Scheme into its landscape setting and avoid or minimise adverse landscape, biodiversity, heritage, and visual effects as far as practicable;

b. Promote the conservation, protection and improvement of the physical, natural and historic environment within the Scheme and its setting. The landscape framework should be seen as an integral part of the surrounding landscape;

c. Diversify ecological value of existing habitats, for example through restoration and enhancement of hedgerow, restoration and creation of diverse habitats; and

d. Guide the design and management of landscape and biodiversity components that respond to and enhance the character of the landscape, local distinctiveness and sense of place.

1.4 Responsibilities

1.4.1 The Applicant will establish the appropriate roles and responsibilities for site staff as set out in the **Framework Construction Environmental Management Plan (CEMP) [EN010143/APP/7.7]**. An Environmental Clerk of Works (ECoW) will be responsible for ensuring construction environmental mitigation measures are correctly implemented, monitored, and maintained. These measures will include, but not limited to, vegetation clearance, species identification and exclusion (protected or otherwise).

1.4.2 The ECoW's role will cover activities that have the potential to impact biodiversity, for example by advising on methods and techniques to prevent or minimise light spill and the delivery of Toolbox Talks prior to the start of works that could potentially affect habitats and species.

1.4.3 The Contractor appointed by the Applicant to construct the Scheme will be responsible for establishing, managing, and monitoring the implementation and establishment of landscape and ecological mitigation within the five-year establishment aftercare period. The Applicant will inspect and report on the success of establishment during this period. For more detail, please refer to Section 4.

1.4.4 Any long-term biodiversity monitoring and management requirements are specified in this document and will be carried out by the Applicant and/or a Contractor appointed by the Applicant.

2. Legislation, Policy and Guidance

2.1.1 The relevant legislation and policies are listed below. For more detail, please refer to **Appendix 10-1, ES Volume 2 [EN010143/APP/6.2]**.

Legislation

a. Directive 2009/147/EC on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended) (Birds Directive) (Ref. 1);

b. Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) (Ref. 2);

c. Regulation (EU) 1143/2014 on the introduction and spread of invasive alien species (Ref. 3);

d. Convention on Biological Diversity (Ref. 4);

e. COP15: Global biodiversity framework (2023) (Ref. 5);

f. Ramsar Convention (Ref. 6);

g. The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref. 7);

h. The Wildlife and Countryside Act 1981 (as amended) (WCA) (Ref. 8);

i. The Countryside and Rights of Way Act 2000 (Ref. 9);

j. The Natural Environment and Rural Communities Act 2006 (NERC) (Ref. 10);

k. The Protection of Badgers Act 1992 (Ref. 11);

l. The Hedgerows Regulations 1997 (Ref. 12);

m. The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) (Ref. 13);

n. Animal Welfare Act 2006 (Ref. 14);

o. Salmon and Freshwater Fisheries Act 1975 (Ref. 15);

p. Eels (England and Wales) Regulations 2009 (Ref. 16);

q. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref. 17); and

r. The European Landscape Convention (2000) (Ref. 18).

National Policy

a. Overarching National Policy Statement (NPS) for Energy (EN-1) (2011) (Ref. 19);

b. Draft NPS for Energy (EN-1) (2023) (Ref. 20);

c. NPS for Renewable Energy Infrastructure (EN-3) (2011) (Ref. 21);

d. Draft NPS for Renewable Energy (EN-3) (2023) (Ref. 22);

e. NPS for Electricity Networks Infrastructure (EN-5) (2011) (Ref. 23);

f. Draft NPS for Electricity Networks Infrastructure (EN-5) (2023) (Ref. 24);

g. National Planning Policy Framework (NPPF) (2023) (Ref. 25); and

h. Environmental Improvement Plan 2023 (Ref. 26)

Local Policy

a. East Riding Local Plan, Lower Derwent Valley Supplementary Planning Document (Ref. 27);

b. East Riding Local Plan Strategy 2012–2029 Strategy Document (adopted April 2016) (Ref. 28);

c. East Riding of Yorkshire Local Plan Update 2020–2039 Draft Strategy Document Update Strategy Document Update (2021) (Ref. 29);

d. Adopted Selby District Core Strategy Local Plan (adopted October 2013) (Ref. 30); and

e. Selby District Local Plan (adopted February 2005) – Saved Policies (Ref. 31).

Other Guidance

a. National Planning Practice Guidance (PPG), Natural Environment (Landscape) (2019) (Ref. 32);

b. Biodiversity 2020: A strategy for England’s Wildlife and Ecosystem Services with regards to marine habitats, ecosystems, and fisheries (Ref. 33);

c. 25-year Environment Plan (Ref. 34);

d. UK Post 2010 Biodiversity Framework (including priority habitats and species listed which succeeds the UK Biodiversity Action Plan (UK BAP) (Joint Nature Conservation Committee (JNCC) and Defra, 2018) (Ref. 35);

e. Landscape Institute, Infrastructure Technical Guidance Note 04/20 (2020) (Ref. 36);

f. Local Biodiversity Action Plans (LBAPs) for Selby (Ref. 37) and ERYBAP (Ref. 38);

g. British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations (Ref. 39);

h. BS 3998: 2010 Treework – Recommendations (Ref. 40); and

i. National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Ref. 41).

Biodiversity Net Gain

2.1.2 It is government policy in NPS EN-1 that development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design and that such opportunities in and around developments should be maximised where appropriate and, in the NPPF 2023 (Ref. 25), that planning decisions should maximise impacts on and provide net gain for biodiversity.

2.1.3 In addition, the Environment Act 2021 (once the relevant provisions are in operation) includes a mandate for at least 10% Biodiversity Net Gain (BNG) for projects, including for Nationally Significant Infrastructure Projects (NSIPs).

2.1.4 The Applicant will provide at least 10% BNG as part of the Scheme.

2.1.5 Further information on BNG including an analysis of the BNG potential of the Scheme is provided in the **Biodiversity Net Gain Assessment Report [EN010143/APP/7.11]**.

3. Existing Landscape and Biodiversity Features

3.1 Existing Landscape Features

3.1.1 The landscape features within the Solar PV Site and Interconnecting Cable Corridor are located on low lying land within a relatively flat landscape. The land use is predominantly agricultural with medium to large scale arable fields and areas of pasture. Fields containing willow coppice used for biomass production are located within Solar PV Area 3c to the south-west of the Solar PV Site. Field boundaries are predominantly hedgerows of varying quality and height with mature oak trees as the dominant hedgerow tree species. Lines of mature trees, often oak, mark where hedgerows have been lost and fields amalgamated.

3.1.2 The River Foulness defines the eastern boundary of the Solar PV Site and lands within the Order limits act as floodplain. Long views are available where there is limited intervening hedgerows and vegetation, and some long-distance views are available from the east towards the Wolds.

3.1.3 There are several small settlements, isolated dwellings and farmsteads located between the Solar PV Areas and Interconnecting Cable Corridor.

3.1.4 The land use within the Grid Connection Corridor is predominantly agricultural and comprises medium to large scale arable fields, many of which have been amalgamated through loss of boundary features. Vegetation and tree cover is generally low, however there are several woodland blocks within the landscape surrounding the village of Drax and Drax Power Station. The river corridors are inconspicuous within the landscape due to limited vegetation and engineered banks.

3.1.5 The topography is generally flat across much of the Order limits with existing elevation ranging less than 10 m Above Ordnance Datum (AOD), and largely associated with flood plains of the River Ouse, River Derwent and River Foulness. Where there is a lack of intervening features, distant views are available to higher ground in the east.

3.1.6 As illustrated on the **Framework Landscape Masterplan** (Appendix A), a network of Public Rights of Way (PRoW) cross parts of the Order limits and wider area, linking settlements. The Long Distance Route (LDR) Trans Pennine Trail follows the north bank of the River Ouse in the south of the Order limits. The Howden 20 LDR is a circular route which follows part of the Trans Pennine Trail to the south, runs through Howden and Spaldington to the east, to the south of Bubwith to the north and the River Derwent, Wressle and Asselby to the east.

3.2 Existing Biodiversity Features

3.2.1 The following section summarises the baseline detail for biodiversity, as presented in **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]**.

Statutory and Non-Statutory Sites

3.2.2 There are 10 international statutory sites for nature conservation within 10 km of the Order limits (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites) and 10 other national statutory designated sites for nature conservation (Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs)) within 5 km of the Order limits. No SACs designated for bats were identified within 30 km of the Order limits. Parts of the River Derwent SAC and SSSI lie within the Grid Connection Corridor.

3.2.3 The River Derwent SAC/SSSI will be crossed using HDD, to avoid direct impacts to the River Derwent and associated riparian habitats. Where the Grid Connection Corridor crosses the A63 and also passes through the edge of the River Derwent SAC/SSSI, the Applicant has committed to prioritising options of cable installation using HDD which would avoid passing through the River Derwent SAC/SSSI (i.e., routeing north, outside of the SAC/SSSI and an HDD across the A63) unless unforeseen and engineering constraints/ground conditions are identified at detailed design stage making this option unachievable. The second option would involve open cut of the access track off the A63 and then HDD under the rest of the access track at the start of the SAC/SSSI boundary and into the field to the north outside of the SAC/SSSI boundary. The third option would utilise careful excavation along the track and potentially a small loss of verge habitat north of the

existing track when entering the field (beyond that required for site access) within the SAC/SSSI boundary. See **Chapter 2: The Scheme, ES Volume 1 [EN010143/APP/6.1]** for further details.

3.2.4 There are 13 non-statutory sites designated for nature conservation identified within 2 km of the Order limits (Local Wildlife Site (LWSs), Sites of Importance for Nature Conservation (SINCs) and Candidate and Historic LWSs). Two of these sites, namely Tottering Lane, Gribthorpe LWS and Wressle Verge LWS lie within the Order limits and will be impacted by cabling works, new accesses and associated visibility splays.

Habitats

3.2.5 There are no areas of ancient woodland within or up to 2 km from the Order limits.

3.2.6 **Table 3-1** presents details of notable habitats that are within, or adjacent to, the Order limits.

Table 3-1. Notable habitats within, or adjacent to, the Order limits

Habitat type	Location	Status
Woodland – semi-natural and plantation (broadleaved and mixed)	Small areas of woodland, including Priority woodland are present within and adjacent to the Order limits	Habitat of Principal Importance (HaPI) - Lowland Mixed Deciduous Woodland and Wet Woodland; and Local Biodiversity Action Plan (LBAP) habitat
Veteran and ancient trees	Within and adjacent to the Order limits	HaPI
Coastal and floodplain grazing marsh	Inside the Grid Connection Corridor	HaPI
Running water	The Rivers Derwent and Ouse are within the Grid Connection Corridor. The River Foulness is located adjacent to the Order limits	Main rivers are a HaPI. The section of the River Derwent which lies with the Grid Connection Corridor is designated as a SAC/SSSI.
Hedgerows	Species-rich and species poor hedgerows within the Order limits	HaPI and LBAP habitat
Lowland fen	Inside the Grid Connection corridor, next to the River Derwent	HaPI
Mudflat	Along the banks of the River Ouse, inside the Grid Connection corridor	HaPI

Orchard	Adjacent to the Grid Connection Corridor, to the north-west of the A63	HaPI
Cultivated / disturbed land – arable	Several fields have relatively wide margins consisting of a strip of semi-improved grassland	Cereal (arable) field margins are a HaPI and LBAP

Species

3.2.7 With reference to **Appendices 8-2 to 8-9**, **ES Volume 2 [EN010143/APP/6.2]**, surveys of protected and notable flora and fauna within the Order limits (and appropriate survey areas) recorded:

a. A breeding bird assemblage of 49 species across the Order limits, including specially protected species such as barn owl (*Tyto alba*), quail (*Coturnix coturnix*) and hobby (*Falco Subbuteo*) and notable ground nesting species such as skylark (*Alauda arvensis*) and lapwing (*Vanellus vanellus*);

b. A population of 72 wintering bird species, including species associated with the Lower Derwent SPA and Humber Estuary SPA, namely golden plover (*Pluvialis apricaria*) and pink footed goose (*Anser brachyrhynchus*);

c. Foraging and commuting activity from at least six bat species across the Order limits;

d. Otter (*Lutra lutra*) using the River Derwent, River Ouse and one drain within the Grid Connection Corridor;

e. At least four separate badger (*Meles meles*) social groups (clans) present within or in the vicinity of the Order limits; and

f. The regionally notable leech *Dina lineata* and the notable beetle *Agabus melanarius,* each recorded in a single waterbody (different waterbodies) that were targeted for survey.

3.2.8 Incidental records of the following notable species were also made within or in the vicinity of the Order limits during the Phase 1 habitat survey and other ecological field surveys:

a. Grass snake *(Natrix helvetica)*;

b. Brown hare *(Lepus europaeus)*; and

c. Small heath butterfly *(Coenonympha pamphilus)*.

3.2.9 Invasive non-native species (INNS) were also recorded where observed during the ecological surveys. Himalayan balsam (*Impatiens glandulifera*) has been recorded within the Order limits and is mainly associated with ditches. Additionally, Crassula (*Crassula helmsii*) was recorded in the Grid Connection Corridor, in an area of woodland near to Drax Power Station. Evidence of American Mink (*Neovison vison*) was also recorded, including a sighting of an individual American mink along the River Foulness, east of the Order limits.

3.2.10 The Scheme is applying for a great crested newt (*Triturus cristatus*) (GCN) District Level Licence (DLL), negating the requirement to undertake full GCN presence/likely absence and population size surveys on all relevant waterbodies within a suitable zone of influence of the Scheme. The Scheme has obtained an Impact Assessment and Conservation Payment Certificate (IACPC) from Natural England, which has been submitted as part of the DCO application as **Appendix 8-10: Great Crested Newt District Level Licensing Impact Assessment and Conservation Payment Certificate, ES Volume 2 [EN010143/APP/6.2]**. The DLL is applied for once a DCO is granted.

4. Landscape and Ecology Strategy

4.1 Landscape Strategy

4.1.1 Good design has been a key consideration from the outset. The Environmental Impact Assessment (EIA) has informed the iterative design process, guided by design principles developed specifically to address the opportunities and constraints presented by the Scheme. These principles have been developed in response to policy requirements, published landscape character assessment guidance and fieldwork analysis.

4.1.2 With reference to the **Framework Landscape Masterplan** (Appendix A), the following design mitigation has been embedded in the Scheme to minimise effects on the environment, including landscape character, visual amenity, biodiversity, and heritage assets.

4.1.3 In developing the landscape design strategy, particular consideration was given to:

a. The recommendations contained within relevant landscape guidelines, including Natural England Statements of Environmental Opportunity (SEO) outlined in the profiles for NCA 39 (Ref. 42); and

b. Guidance contained within the Landscape Institute's Infrastructure Technical Guidance Note (TGN) 04/20 (Ref. 36).

4.1.4 The overall objective of the landscape design is to integrate the Scheme into its landscape setting and avoid or minimise adverse landscape and visual effects as far as practicable. The design achieves this objective whilst maximising opportunities to deliver net gains in biodiversity. Accordingly, the landscape design aims to achieve the following:

a. To integrate the Scheme into the existing landscape pattern as far as practicable by utilising and following existing features, including vegetation, where practicable;

b. To replace habitat lost as a result of construction of the Scheme and enhance habitats within the Solar PV Areas through the creation of hedgerow, woodland, scrub and grassland; and

c. To filter and screen more prominent components of the Scheme in views from sensitive receptors.

4.1.5 Details of the landscape measures embedded into the Scheme design, including a summary of their environmental functions and objectives, is

presented in **Chapter 2: The Scheme** and **Chapter 3: Alternatives and Design Evolution, ES Volume 1 [EN010143/APP/6.1]**.

Overview Landscape Design Principles

4.1.6 This section describes the landscape design principles which underpin the landscape design strategy and explains how they have been applied to the design of the Scheme.

Careful Siting in the Landscape

4.1.7 Offsets from properties were included in the initial design following a review of the existing views experienced by residents in proximity to the Solar PV Areas. The form and extent of these offsets has been adjusted through design development and consultations with residents who responded on matters relating to the existing character of views from residential properties.

4.1.8 With reference to the **Framework Landscape Masterplan** (Appendix A) and the **Indicative Site Layout Figure 2-3, ES Volume 3 [EN010143/APP/6.3]** the Scheme design has been carefully developed where the Scheme components will appear in views experienced by residents so as to avoid or minimise adverse effects as set out as below. Field numbering referenced below is illustrated on the Indicative Site Layout Plan **Figure 2-3, ES Volume 3 [EN010143/APP/6.3]**.

4.1.9 Some areas where the effects for visual receptors have been reduced through the landscape design principles are outlined (but not limited to) the areas below.

Residential Receptors

4.1.10 Visual effects for residential receptors have been reduced by:

a. Hedgerow enhancement where existing hedgerows are gappy and allow for open views across Solar PV Areas;

b. New native hedgerows with trees on boundaries where there are no boundary features;

c. Solar PV Areas set back from public highways by a minimum of 5 m;

d. Solar PV Panels within Solar PV Area 1b set back from the road behind an area of scrub with trees and a wide margin (approximately 100 m width) of species-rich grassland, which screens views for road users and retains longer views on the approach to Gribthorpe whilst also providing habitat for skylarks;

e. Solar PV panels within the south-western part of Solar PV Area 1a set back from properties behind an area of species-rich grassland and hedgerow with trees (approximately 100 m long) which screens views from the properties at Crossroad Cottages at the junction with Willitoft Road and Wood Lane; and

f. Solar PV Panels within Solar PV Area 2e set back from properties at the south of Spaldington by a wide margin of species-rich grassland, orchard tree planting and linear woodland planting (approximately 150 m) which screens views from the properties.

Recreational Receptors

4.1.11 Visual effects for recreational receptors using PRoW have been reduced by:

a. Buffers to PRoW of a minimum of 20 m either side of the centre of the PRoW where solar infrastructure lies to both sides (creating a 40 m wide corridor between the fence lines), or 15 m if solar infrastructure is to one side only;

b. Buffers to be planted with species-rich grassland or flower-rich grassland (area 2f) and clumps of low-growing native woodland edge to break up channelled views created by the proposed Solar PV fencing;

c. Hedgerow enhancement where existing hedgerows are gappy and allow for open views across Solar PV Areas; and

d. New native hedgerows with trees created along former field boundaries, for example, PRoW FOGGF13 (also the Howden 20 Route) and BUBWF10.

4.1.12 Sections have been produced to illustrate how the landscape mitigation buffers to PRoW and local roads have been utilised to minimise adverse visual impacts and are presented on **Indicative Landscape Sections** (Appendix B).

Conserving Existing Vegetation Patterns

4.1.13 The layout of the Scheme has been designed to minimise the loss of, and avoid significant impacts on existing landscape features, where practicable.

4.1.14 The layout of the Scheme will use existing farm tracks and field openings as the preferred routes for construction access, minimising loss of hedgerows, where practicable.

4.1.15 The Grid Connection Cable and Interconnecting Cable Corridors have been designed to minimise disturbance of existing vegetation and where selective vegetation removal is required, replacement planting will be reinstated, where practicable.

4.1.16 The proposed planting design responds to the varied character of the landscape within the Site and seeks to allow key views to remain open, where practicable.

Creating New Green Infrastructure

4.1.17 New green infrastructure elements will be created and enhancement of corridors throughout the Solar PV Site, to increase habitat connectivity, enhance landscape condition and improve visual amenity within an agricultural landscape which is sometimes degraded across the Order limits. This includes provision of semi-improved and species-rich grassland beneath the solar panel areas and within the wider Solar PV Site, to increase biodiversity relative to the current monocultures, including biomass crops.

4.1.18 The proposed mitigation will increase the overall woodland cover across the Scheme and connectivity of woodland habitats by linking existing areas of woodland with new areas of planting. New woodland will provide a robust boundary to screen the Solar PV Areas from Willitoft.

4.1.19 Grassland habitats will be created to provide a corridor connecting Willitoft and Gribthorpe whilst allowing for separation between the Solar PV Areas on the approach to Gribthorpe.

4.1.20 Land adjacent to the River Foulness has been identified as a suitable area to deliver ecological mitigation and enhancement. A damp grassland habitat will be created adjacent to the River Foulness in Ecology Mitigation Area 1h. This habitat type will extend southwards to join with a similar area of habitat in the east of Solar PV Area 1e (**Figure 2-3, ES Volume 3 [EN010143/APP/6.3]**). The habitat type will therefore extend along the eastern extents of the Solar PV Site along the flood zone. The remaining land within Ecology Mitigation Area 1h and the land in Ecology Mitigation Area 1g will remain in arable rotation.

4.1.21 Hedgerows generally will be repaired and enhanced across the Scheme with additional tree planting.

4.2 Ecology Strategy

Impact Avoidance

4.2.1 The Scheme has been designed to avoid the temporary or permanent loss of notable habitats (see **Table 3-1**), as far as is practicable and will be constructed predominantly within arable habitats.

4.2.2 The impact avoidance measures outlined below will be implemented, as relevant and appropriate, prior to and during the construction phase of the Scheme, the purpose being to minimise the impact of works on landscape and biodiversity features and to achieve legislative compliance.

4.2.3 Standard environmental best practice and mitigation will be implemented to ensure construction and operation of the Scheme complies with legislation relating to protected species. It will also ensure the Scheme does not compromise the local conservation status of ecological receptors present within or in the vicinity of the Order limits.

4.2.4 The impact avoidance approach allows for the majority of trees and hedgerows to remain unchanged to ensure that the connectivity of the existing green infrastructure network is maintained.

4.2.5 Commitments embedded within the Scheme design that will contribute to the avoidance of and/ or reduction of potential effects on biodiversity include:

a. Creating undeveloped buffers throughout the Site from existing boundary features:

   i. 15 m from woodlands (with few exceptions for some cabling);

   ii. 10 m from hedgerows increasing to 15 m where there are hedgerow trees;

   iii. 15 m from individual trees; and

   iv. A minimum of 10 m from watercourses (bank top) and ponds (with few exceptions), to protect riparian habitats and to mitigate for potential hazards such as chemical and soils spills into watercourses/waterbodies. This buffer is extended to at least 30 m for the River Derwent, River Ouse and Drain DE53.

b. Ensuring that existing woodland, treelines and the majority of hedgerows are unaffected and will be protected during construction of the Scheme; and

c. Avoiding the majority of existing grassland and watercourse habitats.

4.2.6 The following provisions in respect of construction methodology are set out in the **Framework CEMP [EN010143/APP/7.7]**:

a. Designing the Scheme to comply with industry good practice and environmental protection legislation during both construction and operation e.g. prevention of surface and ground water pollution, fugitive dust management, noise prevention or amelioration;

b. The perimeter security fence will be implemented early in the construction phase to prevent construction activity in proximity to existing retained vegetation (such as watercourses, woodland hedgerows and other priority habitats). The fence design will include gaps to allow mammals that may use retained habitats, including badger, brown hare and hedgehog, to pass underneath at strategic locations. Any temporary fencing present during construction and permanent perimeter fencing will also allow continued movement of otter along watercourses where they have been found to be present. Where required by arboricultural surveys, specific tree protection measures will be implemented;

c. During construction, works will be restricted to daylight hours wherever practicable to remove the need for artificial lighting, with focussed task specific lighting provided where this is not practicable, for example HDD drilling operations. Within construction compounds and at welfare areas motion detection security lighting will be used to avoid permanent lighting. A sensitive lighting scheme will be developed, ensuring inward distribution of light and avoiding light spill on to sensitive ecological features (e.g. watercourses, woodlands and hedgerows) during the construction phase, conforming to best practice guidelines;

d. The ecological measures within the CEMP will be implemented by the appointed construction contractor and overseen by an ECoW, where required;

e. A Biosecurity Management Plan be developed which sets out procedures to ensure any imported building/landscaping materials are free from invasive non-native species (e.g. Wildlife and Countryside Act (1981) Schedule 9 species, Ref. 8);

f. No works to be undertaken within 10 m from the bank tops of watercourses (increased to 30 m for the River Derwent, River Ouse and watercourse DE53), where crossings are not required, which will mitigate for potential hazards such as chemical and soils spills into watercourses;

g. Preparing mitigation strategies for protected species and, where required, applying for species licences from Natural England;

h. Careful consideration of access points and tracks to limit the loss of vegetation and the number of field boundary crossings. Where access and crossings are necessary, they have been carefully aligned to pass

through the field access points and hedgerows where it would have the minimal impact on mature trees, specifically veteran trees;

i. Undertaking vegetation clearance in advance of construction and at an appropriate time of year so as to avoid incidental injuring or killing of breeding birds, brown hare and reptiles. Checks will be undertaken by an ornithologist prior to vegetation clearance where this is not possible, with appropriate measures put in place to protect any active nests found until the young have fledged;

j. Establishing reasonable avoidance measures, including buffers of 30 m around any identified active badger setts;

k. Post-construction, restoring habitats where viable which were removed to facilitate the construction of the Scheme;

l. Works to any buildings used by barn owl will be suitably timed to avoid direct impacts to barn owl (injury/killing) and will be carried out only following inspection by a suitably licenced person and if absence is confirmed. Barn owl boxes will be installed in suitable locations to provide suitable alternative roost/ nesting sites;

m. Establishment of compounds, in particular within the Solar PV Area 1a, at an appropriate time of year so as to avoid disturbance of breeding birds.

4.2.7 The Grid Connection Corridor crossing of the River Derwent SAC/ SSSI (once crossing the River Derwent, and once potentially crossing a corner of the designated site within terrestrial habitat should the alternative preferred option not be possible – refer to section 3.2.3), River Ouse, DE53 and the Interconnecting Cable crossing of Featherbed Drain will be undertaken using HDD methods to lay cabling, therefore avoiding impacts to the in-channel and associated riparian habitats.

4.2.8 All cables will be installed a minimum of 1.5m below the bed of watercourses (excluding the River Ouse and River Derwent). Cables will be installed by HDD a minimum of 5m below the bed of the River Ouse and River Derwent. For the open-cut watercourse crossing for cable installation that will require open cut installation techniques, these will be subject to further refinement of the design post-consent and the number of crossings will be minimised where practicable. For these crossings the water flow would be maintained by damming and over pumping. As these watercourses are generally ephemeral ditches, works carried out in the drier months would reduce the risk of pollution propagating downstream, although this cannot be guaranteed.

4.2.9 Where small watercourses/ditches (not Main Rivers) are crossed for access (either temporarily during construction or permanently during operation), new crossings will be clear span and wide enough to avoid the loss of in-channel and riparian habitats. Tracks will be permeable, and localised Sustainable Drainage System (SuDS), such as swales and infiltration trenches, will be used to control runoff if required. No new culverts will be created as part of the Scheme. Where upgrades are required to existing culverts, they will be extended by a maximum of 2 m and length-for-length equivalent watercourse enhancements would be required.

4.2.10 Where the Grid Connection Corridor crosses the A63 and through the edge of the River Derwent SAC/SSSI, the Applicant has committed to prioritising options of cable installation using HDD which would avoid passing through the River Derwent SAC/ SSSI (routeing north of the SAC/SSSI and an HDD across the A63) unless unforeseen and engineering constraints/ground conditions are identified at detailed design stage making this option unachievable. The second option would involve open cut of the access track off the A63 and then HDD under the rest of the access track at the start of the SAC boundary and into the field to the north outside of the SAC boundary. The third preferred option would utilise careful excavation along the track and potentially a small loss of verge habitat north of the existing track when entering the field (beyond that required for site access) within the SAC/SSSI boundary.

4.2.11 Vehicular access during construction along the existing track through the very edge of the River Derwent SAC would be managed. Along with safeguarding the health and safety of road users this would also avoid the requirement for road widening / highway improvements at the junction with the A63 or for vehicles to progress along the track. The traffic management would also prevent trespass of vehicles onto the verge. The access would require the construction of a temporary bell mouth in the grassland verge habitat to the north of the existing access track when entering the field. A separate habitat restoration plan for the area impacted by vegetation removal is not anticipated to be necessary as it has been established that whilst the track and the verge habitat constitute site fabric, they are not functionally linked to qualifying habitat and species in the River Derwent SAC or of special interest/features for the SSSI. The affected verge lies to the north of the access track and adjacent to the field, and does not include the verge or bankside habitat of the ditch that lies to the south of the access track. The grassland verge will be reinstated post construction and will be reseeded appropriately and managed in line with the measures set out in 6.1.40 to 6.1.48 of this document.

4.2.12 No works would be required south of the existing track and therefore the banks of the watercourse will not be impacted. It is possible that a tree along the bank of the watercourse may need to be removed for safety reasons, due to poor health of the tree. However, any tree that needs to be removed will be cut above ground level, maintaining the bank.

4.2.13 Tottering Lane, Gribthorpe LWS and Wressle Verge LWS will be crossed by the interconnecting cable, and new and modified access tracks will be created across the verges and hedgerows along Wressle Verge LWS and Tottering, Gribthorpe Lane LWS (as this option avoids additional hedgerow loss elsewhere and loss of a veteran tree).

4.2.14 To limit disturbance to habitat inside these LWSs during construction, the working area for the cable installation across the verges will be kept to a minimum of 5 m width inside the LWSs and no spoil/materials/vehicles will be stored within the LWS. Once the cables have been installed, the removed turfs and soil from the LWS (stored separately to that of adjacent fields) will be backfilled and replaced promptly, retaining the original top soil and seed bank. The adjacent hedgerows will be tunnelled underneath using an auger in order to retain the hedgerows and avoid additional effects on the verges, however this will not be long enough to tunnel under the hedge and verge. Appropriate measures (e.g. fencing and signage) will prevent encroachment

into the LWSs, outside of the required working areas. As well as being crossed by cabling, vegetation clearance will be required for provision of the new and modified existing access tracks across the LWSs. Two new access tracks into the fields along Tottering Lane will be required, as well as upgrading two existing accesses, one across Tottering Lane, Gribthorpe LWS, one across Wressle Verge LWS. A further modified access to the north of Wressle Verge LWS lies outside the LWS including the proposed visibility splay. Both a permanent bell mouth and visibility splay will be required for each, however the replacement of the hedgerows and retention of the verge turfs for use along the inside of the bell mouths, has been included within the landscape design.

4.2.15 Management of the grass verges where they fall within the required visibility splays may discourage species richness (e.g. if regular mowing is required to keep the height of the grassland to a certain height), depending on the requirements of the council highways team in line with their requirements in relation to highways safety. It is anticipated that the grassland towards the rear of these verges could be cut less frequently and/or to a higher height than the grassland at the front, to encourage species diversity. Grassland at the front of the visibility splays is likely to be kept shorter for safety reasons (subject to detailed design). Some of these access points are already in existence and the associated visibility splays are currently managed in this way, with the LWSs remaining designated for their species rich verges.

4.2.16 One approximately 10 m section of hedgerow along the northern visibility splay for a new access on Tottering Lane will require removal, however this will be replaced within the field behind (outside of where it would affect visibility) and the verge will become wider at this point.

4.2.17 Where temporary habitat loss is unavoidable, reinstatement will be undertaken after construction where practicable. Large areas of grassland creation are included within the landscape design throughout the Solar PV areas, both around the panels and in the field margins of each field. These can be managed towards LWS criteria.

4.2.18 Sustainable management of soil resources which are disturbed by the Scheme (and their associated seedbanks) and support the habitats within the Site will be undertaken, based upon standard industry good practice measures such as those in Defra's Code of Practice, ensuring that stored soils retain their quality and function. Additionally, soils of different types or supporting different habitats will be stored separately and replaced in the area they were taken from so that the incorporated seedbank is not lost. These measures will be set out in a Soil Management Plan (SMP). A **Framework SMP [EN010143/APP/7.10]** is included as part of the DCO Application.

4.2.19 A **Framework Surface Water Drainage Strategy** (**Appendix 9-4, ES Volume 2 [EN010143/APP/6.2]**) has been developed to manage surface water runoff and will reduce the likelihood and severity of potential pollution incidents and flooding affecting watercourses and the local ditch network to reduce or eliminate adverse effects for aquatic and riparian species and habitats.

Updated Surveys

4.2.20 A walkover of the Site will be undertaken in advance of works by a sufficiently qualified ecologist (SQE), to reconfirm the ecological baseline conditions and to identify any new ecological risks in relation to the Detailed Design. The walkover will be completed sufficiently far in advance of construction to allow for the completion of any additional, seasonally constrained surveys (e.g. surveys in support of any requirements for protected species licences) that may be required, including to take account of and influence the detailed design. These surveys will also be undertaken in advance of the final LEMP and the final LEMP will be developed in line with the findings of these surveys.

4.2.21 Immediately prior to site clearance works commencing and the start of construction, further walkover surveys will be undertaken by a SQE, landscape architect, and arboriculturist to confirm that the risks associated with the Scheme remain as assessed within **Chapter 8: Ecology and Chapter 10: Landscape and Visual Amenity, ES Volume 1 [EN010143/APP/6.1] and Appendix 10-5: Arboricultural Impact Assessment and Tree Protection Report, ES Volume 2 [EN010143/APP/6.2]**. These will also confirm that the correct impact avoidance measures (such as tree protection fencing, protected species buffers (e.g. 30 m from active badger setts)) are being implemented.

4.2.22 Should any new constraints be identified during these updated surveys, these will be captured in the final LEMP. Any additional impact avoidance or mitigation requirements will be identified in consultation with the Applicant and the relevant statutory consultees. Implementation of these measures is proposed to be secured through this Framework LEMP, which is secured as a requirement of the DCO.

4.2.23 Any additional surveys that are identified as a result of the walkover will be instructed as necessary by the ecologist or landscape architect, based on professional judgement and the findings of the walkover, or identified as appropriate by the Applicant or their contractor(s). These may be required, for example, based on the construction programme, working requirements or following identification of specific issues and constraints not covered by previous advice.

Protected Species Licenses

4.2.24 Any necessary protected species licences will be applied for and obtained prior to undertaking any works that might result in offences under the relevant legislation.

Ecological Clerk of Works (ECoW)

4.2.25 The scope of the ECoW would be advised by the ecologist and landscape architect based on relevant environmental commitments, the findings of the pre-commencement walkovers, protected species licensing requirements and with reference to the relevant project programmes.

4.2.26 Relevant site staff would receive toolbox talks as necessary from the ECoW on the relevant ecological risks present, legal requirements, and the working requirements necessary to comply with legislation, and the final approved landscaping and biodiversity management and enhancement measures.

Toolbox talks would be repeated as necessary over the duration of the works.

4.2.27 For a full list of avoidance and mitigation measures with regards to protected species, refer to the **Framework CEMP [EN010143/APP/7.7]**.

Tree Works

4.2.28 The Scheme design minimises the need for the removal of mature trees across the Order limits. Some removal and pruning of mature trees will be required to facilitate vehicle access during construction (and operation), and for cabling works.

4.2.29 Where works in close proximity to retained trees cannot be practicably avoided, these works would be undertaken in accordance with current best practice at the time of the works. In November 2023, current best practice is defined in:

a. British Standard (BS) 5837: 2012 Trees in relation to design, demolition and construction – Recommendations;

b. National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees; and

c. British Standard (BS) 3998: 2010 Treeworks – Recommendations.

4.2.30 All necessary protective fencing would be installed prior to the commencement of any site clearance or construction works. This would be set out in an Arboricultural Method Statement, the CEMP and a final Tree Protection Plan prepared pre-construction, pursuant to the DCO.

4.2.31 Where part of a group of trees is to be removed the final extent of tree loss will be determined on site by an arboriculturist who will assess the stability and suitability of retained trees.

4.2.32 Targeted preliminary bat roost appraisals of trees within the Site identified 46 trees with moderate or high bat roost suitability and 140 trees with low bat roost suitability.

4.2.33 Trees with moderate and high bat roost suitability have and will continue to be avoided through design, with the exception of one at this stage (T872/T619[1] on Pear Tree Ave). This is a horse chestnut (*Aesculus hippocastanum*) of moderate suitability. It is currently showing as potentially lost due to close proximity to a bellmouth, however this will be addressed during detailed design to adjust the taper of the access bellmouth in order to retain the tree. Where the removal/reduction of trees with low bat roost suitability is unavoidable, these trees will be soft/section felled in accordance with the **Framework CEMP [EN010143/APP/7.7]** and a Method Statement, under an ecological watching brief.

4.2.34 Pre-construction bat roost appraisal surveys will be undertaken to support the baseline survey findings where tree removal or reduction/pruning cannot be avoided. The purpose of the pre-construction surveys is to ensure mitigation during the construction phase is based on the latest protected

[1] T872 refers to the tree number allocated within **Appendix 10-5: Arboricultural Impact Assessment and Tree Protection Report, ES Volume 2 [EN010143/APP/6.2]** and T619 refers to the tree number allocated in **Appendix 8-7: Bat Survey Report, ES Volume 2 [EN010143/APP/6.2]**.

species information. Should additional trees with moderate or high bat roost suitability be identified for removal or reduction, further surveys (i.e. dusk emergence survey and/ or tree climb and inspection) will be undertaken as necessary, which may identify the requirement for additional mitigation and/or a Natural England mitigation licence, where impacts to roosting bats cannot be avoided. Where further surveys are necessary, and for the subsequent requirements and mitigation re loss of or disturbance to trees, the relevant guidance at the time would need to be followed which may differ from that in place when previous surveys were conducted.

Hedgerow Works

4.2.35 The layout of the Scheme has been designed to minimise the loss of, and avoid significant impacts on, existing landscape features. Where impacts to hedgerows are anticipated, to enable construction access, where practicable these existing areas of hedgerow will be coppiced rather than removed to facilitate works, such as for construction access visibility splays. Where this is not practicable, any impacted area of hedgerow will be replanted where feasible upon completion of construction. This will also apply to cabling works which require temporary hedgerow removal.

Precautionary Working Methods

4.2.36 Precautionary working methods would be adopted to minimise potential adverse effects on protected/notable species prior to and during construction. Precautionary working method statements would be produced as necessary to specify working requirements and other necessary impact avoidance measures. These measures would be controlled and implemented through the detailed CEMP(s) produced pre-construction, pursuant to the DCO.

Animal Welfare Requirements

4.2.37 Construction excavations have the potential to trap wildlife, such as badger and otter, and result in offences under animal welfare legislation. Implementation of measures to avoid animals being injured or killed within construction working areas, through excluding them from such areas and preventing them from falling into and becoming trapped in excavations. If excavations are required to be left open overnight (which will be avoided where practicable), ramps will be provided to allow animals a means of escape.

5. Management Prescriptions

Introduction

This section describes how existing and proposed habitats illustrated on the **Framework Landscape Masterplan** (Appendix A) will be protected or implemented during construction, maintained during the first five years following implementation of each planting phase and managed in the long-term until decommissioning of the Scheme.

Existing Vegetation

5.1.1 Existing landscape elements comprise the following elements:

a. Woodland;

b. Individual trees (including hedgerow trees); and

c. Hedgerow.

5.1.2 Existing woodland and trees will be managed to facilitate longevity, increased species diversity, enhanced habitat value and greater resilience to climate change. This will include gapping up existing woodland and hedgerows where appropriate to increase the species and age diversity and include resilient species.

5.1.3 Existing woodland and hedgerows (including important hedgerows) will be managed to protect historic boundaries, enhance biodiversity benefits and ecosystem services, whilst also increasing the level of screening from visual receptors. This will include gapping-up and thickening with a wider range of native species where required, and planting of additional native hedgerow trees with locally appropriate species. Management will include altering cutting regimes to benefit cover, shelter, food sources and breeding birds.

5.1.4 The working widths of the Grid Connection Cable and the Interconnecting Cable routes and any associated temporary accesses, construction compounds (where they occur outside of the Solar PV Site), and at open cut watercourse crossings will be reinstated as soon as practicable following completion of construction activities, with the land being returned to its previous use and condition.

5.1.5 Accesses into the Site (bellmouths) installed during the construction phase (either new accesses or modified/extended existing accesses) will remain in place throughout the operational phase.

Proposed Vegetation

5.1.6 The proposed landscape types illustrated on the **Framework Landscape Masterplan** (Appendix A) are:

a. Hedgerow enhancement;

b. Native hedgerow with trees;

c. Native woodland;

d. Native woodland edge;

e. Native scrub with trees;

f. Native traditional orchard;

g. Semi-improved grassland to Solar PV Areas;

h. Species-rich grassland outside Solar PV Areas;

i. Species-rich wet grassland to ecological enhancement areas; and

j. Flower-rich grassland.

5.1.7 New woodland and shelter belts will be planted, in some cases as mitigation to help screen sensitive receptors and soften views, but also to provide increased structure, ecological connectivity, and interest within the

landscape. Species will be appropriate to the particular requirements of the geographical area, but also take account of climate change and potential pest and pathogen threats. Where practicable, woodland will include varied heights, spacing and species mix to maximise habitat diversity.

5.1.8 Scrub, woodland edge, and associated mosaic habitats will be created, some of which may be allowed to develop through natural regeneration. Such habitats are of value to breeding birds and other wildlife and can make substantial contributions to BNG.

5.1.9 New native species rich hedgerows with hedgerow trees will be planted where historic field boundaries have already been lost through the amalgamation of fields, to provide mitigation, reinforce landscape pattern, ecological connectivity, and interest within the landscape. Additional trees will be planted to replace potential tree loss due to ash dieback using locally appropriate and resilient species.

5.1.10 A new native traditional orchard will be planted as mitigation to help screen solar panel areas from sensitive residential receptors on the edge of Spaldington, whilst providing a new landscape feature and additional habitat for mammals and birds.

5.1.11 The Scheme will adhere to the principles of the UK Forestry Standard (Ref. 45) for any new woodland planting and management.

Grasslands

Semi-improved Grassland to Solar PV Areas

5.1.12 New grassland seeding under the solar PV panel areas will be implemented, providing an extensive habitat. These would be classed as ‘modified’ or ‘semi-improved’ grassland, reflecting the required management and level of shading provided by the panels. Such grassland is not regarded as a priority habitat but includes hybrid white clover to fix free nitrogen for companion grasses and would be suitable for grazing whilst offering a greater species diversity than existing improved grassland or arable crops.

Species-rich Grassland Outside Solar PV Areas

5.1.13 New grassland outside the fence line of the Solar PV Areas will be created along hedge margins, under power lines and between solar panel areas. This will likely be classed as ‘species-rich grassland’, with moderate to high species diversity. This is traditionally created through the use of proprietary seed mixes, with around 20% / 80% native wildflower / grass content, and up to around twenty species of the former.

5.1.14 New species-rich margins will be created along new access roads and grassland verges will be reinstated where the construction works will temporarily impact Local Wildlife Sites (LWS) at Wressle Verge LWS and Tottering Lane, Gribthorpe LWS.

Species-rich Grassland to Ecological Enhancement Areas and Ecology Mitigation Area

5.1.15 Larger areas of ecological enhancement and mitigation will be created outside panel/infrastructure areas and will be seeded with species-rich grassland mixes. Areas will include mixes suitable for skylark habitat, golden plover and other ground nesting birds and is anticipated that mixes similar to

that described above will be used, alongside supplementary yellow rattle to reduce grass competitiveness.

5.1.16 Areas of open, low-cut grassland with limited cover will be required for ground nesting birds. A balance will therefore be required between the provision of long grass, hedgerows and woodland; and more expansive grassland.

5.1.17 Habitat enhancement will be delivered through the creation of water meadow habitat along the river floodplain within the area of habitat enhancement east of Solar PV 1e, and the eastern part of the Ecology Mitigation Area to provide habitat for invertebrates, mammals and birds, and suitable for being managed by grazing in the long term if practicable.

5.1.18 A locally appropriate flower-rich grassland mix will be used, with pollen and nectar-rich flowers for pollinators, beneficial insects that will also be attractive to farmland birds. The flower-rich grassland mix will also provide an aesthetically pleasing display along PRoW and for sensitive residential receptors. The mix will include wildflower species such as crimson clover (*Trifolium incarnatum*), red clover (*Trifolium pratense*), birds-foot trefoil (*Lotus corniculatus*), and yarrow (*Achillea millefolium*).

Aquatic and Riparian Habitats

5.1.19 A pre-works condition survey will be carried out to inform reinstatement of the channel at open cut watercourse crossings. Reinstatement will return in-stream vegetation from its temporary locations, and the banks of the watercourse replanted and reseeded. The area of bank reinstatement will be covered with hessian to encourage plant establishment and reduce the risk of soil erosion. The hessian will naturally degrade in-situ as the vegetation grows back.

5.1.20 Length-for-length equivalent watercourse enhancements are required for each new culvert extension, and to ensure compliance against WFD objectives. The requirements will be detailed in a WFD Mitigation and Enhancement Strategy to be produced post DCO consent. In order to improve the condition of these targeted watercourses within the Site as discussed in the **BNG Assessment Report [EN010143/APP/7.11]**, proposed enhancements include the following where appropriate;

a. Fencing off the riparian zone to reduce bank top managed ground cover and allow the riparian zone to re-naturalise;

b. Removing bank face reinforcement to allow natural bank habitats to establish and allow natural bank erosion processes; and

c. Removing vegetation that is shading the ditch and removing filamentous algae and/or duckweed.

Other Habitat Provisions

5.1.21 A range of artificial bird and bat boxes will be installed in existing woodland and trees, and retained/modified buildings, to increase the availability of nesting and roosting features and enhance their value as habitat for these species.

5.1.22 Habitat piles and hibernacula will be created in suitable areas using natural materials generated during clearance of the site, such as logs, turf, and

grass strimmings. These would provide refuge and hibernation opportunities for amphibians and reptiles, as well as dead wood habitat for invertebrates, which would in turn benefit fauna such as bats and birds.

Recreational Routes

5.1.23 Permissive Paths (including sections allowing travel on horses) will provide amenity value for walkers, cyclists and horse riders. New Permissive Paths will connect to and link existing PRoW to provide a new circular route and will be planted with either a species-rich or flower-rich grassland seed mix.

6. Management, Maintenance and Monitoring of Landscape and Biodiversity

6.1 Habitats

Introduction

6.1.1 This section describes how existing and proposed habitats will be protected or implemented during construction, maintained during the first five years following implementation, and managed in the long term up until and including decommissioning of the Scheme.

6.1.2 As the design progresses, further details will be provided, particularly in relation to plant species selection, specification of seed mixes, management prescriptions and timescales; and site-specific mitigation and enhancement elements.

6.1.3 Implementation and monitoring works will be supervised by the ECoW.

Existing Retained Trees and Shrubs

6.1.4 During construction the retained hedgerows, woodland and trees will be protected in accordance with a final Tree Protection Plan and Arboricultural Method Statement. The measures to be employed will include the use of clearly defined stand-offs (secured with temporary protective fencing), managing the structure and integrity of the retained vegetation and the soil upon which it relies, and undertaking any pruning outside of the bird breeding season.

6.1.5 Retained trees will be periodically inspected by an arboriculturist during construction. Where excavation works are within the Root Protection Area (RPA) of retained trees, works will be undertaken under a watching brief by an arboriculturist to ensure agreed methodologies are fully implemented, to record any root pruning and to recommend further arboricultural remedial works where required.

6.1.6 With reasonable prior notice the Applicant will enable access through the Order limits to existing woodland located adjacent to the Order limits, for woodland management to be carried out.

Implementation of Native Planting (Generally)

6.1.7 Opportunities for planting of more mature stock, for example, ready hedges and larger specimen trees will be explored with landowners, ensuring that

this is targeted to mitigate effects on the most sensitive receptors at the earliest opportunity, such as during the construction period.

6.1.8 Planting will take place in the first available planting season following consent being granted, ideally during November and December for bare root stock, to reduce losses incurred during recent dry springs.

6.1.9 Plants will be inspected at the nursery and on delivery, prior to planting. Plants will be protected from strimming damage and animals through guards, preferably biodegradable; although consideration will be given to avoiding excessive use of guards. Trees will be staked in line with industry standard specifications.

Soil Analysis

6.1.10 Soil sampling has been undertaken within areas identified for proposed for areas for habitat enhancement and mitigation as detailed in **Appendix 15-5: Soil Health Analysis Data, ES Volume 2** [**EN010143/APP/6.2**]. The soil analysis recorded:

a. Soil pH – this influences nutrient interactions, root development and microbial population dynamics;

b. Available phosphorus – major impact on root development, root exudate formation and plant-microbe interactions. Essential for biological nitrogen fixation;

c. Available potassium – related to nitrogen uptake, carbohydrate formation and bulk plant development. Low potassium status during times of stress can have a major impact on the composition and amount of exudate production. This can therefore impact on microbial activity around the root system;

d. Available magnesium – central to nitrogen and potassium uptake, photosynthesis and can influence the composition of root exudate production;

e. Soil particle size distribution – relative percentage of sand, silt and clay, soil textural classification is central to RB209 fertiliser recommendations and soil erosion risk assessment. Soil texture influences nutrient and moisture retention, microbial population dynamics and carbon sequestration;

f. Soil organic matter – an essential component of stable soil aggregates, influencing nutrient and water retention, soil structure and plant-microbe interactions; and

g. Respiration rate – carbon dioxide evolution is directly related to soil respiration, a general measure of biological activity, indicating microbial biomass, carbon sequestration and nitrogen mineralization rates.

6.1.11 The results of these tests have been used to identify suitable species mixes for the proposed habitats.

Native Hedgerow Planting with Trees and Hedgerow Enhancement

Function

6.1.12 New hedgerows with trees will be established to supplement the existing hedgerows with trees. Hedgerows with trees provide both a valuable habitat, forming important wildlife corridors, and a visual screening function. Hedgerow height is important to screen views, and the hedgerows will be maintained to a height between 2.5 m and 3.5 m and 'infilled' where there are gaps in existing hedgerows.

6.1.13 Hedgerow replacement and enhancement is proposed where existing hedges are defunct and/or have been removed (including to facilitate wider bellmouths for access), and to retain historic boundaries through increased species and age diversity.

Implementation

6.1.14 The locations of new hedgerows with trees and hedgerow enhancement is shown on the **Framework Landscape Masterplan** (Appendix A).

6.1.15 Hedge trenches shall be dug 450 mm wide by 450 mm deep, the base of which shall be broken up prior to returning backfill mixture. All stock to be supplied bare root if in season and container grown if planted out of season. A specification for hedgerows will be developed based on the indicative species, sizes and percentages presented in **Table 6-1**.

6.1.16 Individual trees shall be set in pits 900 mm diameter by 900 mm depth. The base of the tree pit will be broken up to a depth of 200 mm and backfilled with topsoil consolidated in layers to allow the tree to be placed at the correct depth. Each tree shall be planted to the nursery line and secured with stakes and ties, including irrigation pipe. A specification for hedgerow trees will be developed based on the indicative species, sizes and percentages presented in **Table 6-2**.

6.1.17 The ideal planting season is November to March in soil that is not frozen or waterlogged. New planting will be adequately protected from mammalian pests.

Table 6-1. Indicative mix for native hedgerows

Botanical Name	Common Name	% Mix	Density	Specification
Prunus spinosa	Blackthorn	25%	5 per linear meter	Bare Root (BR) whips, selected to 900mm, except Ilex 9cm pot (30-40cm). Planted in a double staggered row at 5No. plants per linear metre/
Corylus avellana	Hazel	30%		
Crataegus monogyna	Hawthorn	20%		
Rosa canina	Dog Rose	2.5%		
Ilex aquifolium	Holly	15%		

Viburnum opulus	Guelder Rose	7.5%	

Table 6-2. Indicative species for hedgerow trees

Botanical Name	Common Name	Girth (cm)	Specification
Acer Campestre	Field Maple	14–16 cm	Extra Heavy Standard
Tilia cordata	Small-leaved Lime	14–16 cm	Extra Heavy Standard
Populus nigra subsp. betulifolia	Black Poplar	14–16 cm	Extra Heavy Standard
Quercus robur	English Oak	14–16 cm	Extra Heavy Standard

Establishment Maintenance

6.1.18 A detailed plan for the establishment and management of new hedgerows with trees will be developed for the five year establishment maintenance period.

6.1.19 The aim of establishment maintenance will be to support the early stages of growth to encourage thick, bushy growth and good form. This is based on the following principles and outline prescriptions:

a. Maintain a 0.5 metre weed free strip either side of hedgerow through chemical and mechanical control.

b. First cut in spring to 45–60 cm above ground level taking care to exclude hedgerow trees.

c. Water new plants to minimise failures in periods of drought.

d. Remove litter, rubbish, and debris from planted areas throughout the year.

e. Re-firm soil around roots to ensure plants are supported and upright in spring each year.

f. Inspect and adjust stakes, guards, and ties in spring and autumn.

g. Check and record failed or defective plants in September annually.

h. Replace failed or defective plants with matching species of the same size during the next planting season after failure.

i. ECoW to undertake a quarterly check of plants to record their growth and condition.

Long-Term Management

6.1.20 The long-term management of new hedgerows with trees will focus on the following interventions:

a. Hedgerows will be managed and maintained at a height of between 2.5 m and 3.5 m (allowing for individual trees within the hedgerow to establish and reach maturity).

b. Cutting will be carried out at the end of the winter in February, thereby retaining berries through the winter months for wildlife and avoiding the bird breeding season.

c. Overgrowing or overhanging branches will be removed from any pathways to keep them unobstructed.

d. Dead, over-mature or dying hedgerow trees will be subject to removal where they are considered dangerous on health and safety grounds, and in accordance with any protected species constraints.

e. Monitoring will be undertaken to detect any significant changes in hedgerow and tree health and condition. Maintenance and condition checks will be made every three years.

Native Woodland Planting and Shrub Planting with Trees and Woodland Edge Planting

Function

6.1.21 Tree and shrub belts are proposed in areas to provide a more substantial visual screen than a hedgerow with specimen trees. Proposed woodland and tree planting will increase tree cover and provide ecological value and habitat connectivity. Trees will be managed as appropriate to achieve the growth potential for the species concerned.

Implementation

6.1.22 The locations of proposed woodland, woodland edge and shrubs with individual trees are illustrated on the **Framework Landscape Masterplan** (Appendix A).

6.1.23 Individual trees shall be set in pits 900 mm diameter by 900 mm depth. The base of the tree pit will be broken up to a depth of 200 mm and backfilled with topsoil consolidated in layers in layers to allow the tree to be placed at the correct depth. Each tree shall be planted to the nursery line and secured with stakes and ties, including irrigation pipe. Indicative species, sizes and percentages presented in **Table 6-3**.

Table 6-3. Indicative species for individual trees within shrub areas

Botanical Name	Common Name	Girth (cm)	Specification
Acer Campestre	Field Maple	14–16 cm	Extra Heavy Standard
Betula pendula	Silver Birch	12–14 cm	Heavy Standard
Carpinus betulus	Hornbeam	14–16 cm	Extra Heavy Standard
Tilia cordata	Small-leaved Lime	14–16 cm	Extra Heavy Standard
Quercus robur	English Oak	14–16 cm	Extra Heavy Standard

6.1.24 Woodland, woodland edge and native shrub mix areas will be pit planted in cultivated ground to accommodate the full depth of roots, level and firm soil. Woodland and shrub plants will be planted in single species groups of 5no. minimum and protected against mammalian pests. Indicative species, sizes and percentages for woodland edge areas are presented in **Table 6-4**. Should any native bluebells be noted on Site, relocation to created woodlands could be considered.

Table 6-4. Indicative mix for woodland edge areas and native shrub mix

Botanical Name	Common Name	Density	Specification	% Mix
Acer campestre	Field Maple	2 Ctr	BR whips selected to 900mm	35%
Corylus avellana	Hazel	2 Ctr	BR whips selected to 900mm	25%
Crataegus monogyna	Hawthorn	2 Ctr	BR whips selected to 900mm	20%
Sambucus nigra	Elder	2 Ctr	BR whips selected to 900mm	10%
Ilex aquifolium	Ivy	2 Ctr	2lt pot 40–60cm	7.5%
Rosa canina	Dog Rose	2 Ctr	BR whips selected to 400–600mm	2.5%

6.1.25 Indicative species, sizes and percentages for woodland areas are presented in **Table 6-5**.

Table 6-5. Indicative mix for woodland areas

Botanical Name	Common Name	Density	Specification	% Mix
Quercus robur	English Oak	3 Ctr	BR whips selected to 900 mm	7.5%
Carpinus betulus	Hornbeam	3 Ctr	BR whips selected to 900 mm	2.5%
Acer campestre	Field Maple	3 Ctr	BR whips selected to 900 mm	10%
Prunus avium	Wild Cherry	3 Ctr	BR whips selected to 900 mm	10%
Corylus avellana	Hazel	3 Ctr	BR whips selected to 900 mm	20%
Crataegus monogyna	Hawthorn	3 Ctr	BR whips selected to 900 mm	20%
Malus sylvestris	Crab Apple	3 Ctr	BR whips selected to 900 mm	10%
Sambucus nigra	Elder	3 Ctr	BR whips selected to 900 mm	10%
Ilex aquifolium	Holly	3 Ctr	2lt pot 40–60 cm	5%
Lonicera periclymenum	Honeysuckle	3 Ctr	2lt pot 40–60 cm	2.5%
Rubus fruticosus	Bramble	3 Ctr	BR whips selected to 600–800 mm	2.5%

Establishment Maintenance

6.1.26 A detailed plan for the establishment and management of new trees and shrubs will be developed for the five year establishment maintenance period.

6.1.27 The aim of establishment maintenance will be to support the early stages of growth to encourage busy growth and the canopy to close, reducing future management requirements to address competition from weeds. The trees and shrubs will be maintained in line with the recommendations of a ECoW.

6.1.28 Establishment maintenance will be based on the following principles and outline prescriptions:

a. Maintain a 1 m weed-free circle around trees and shrubs through mechanical control;

b. Water new plants to minimise failures in periods of drought;

c. Remove litter, rubbish, and debris from planted areas throughout the year;

d. Re-firm soil around roots to ensure plants are supported and upright in Spring;

e. Inspect and adjust guards, ties and stakes in Spring and Autumn and after strong wind events;

f. Check and record failed or defective plants in September annually;

g. Replace failed or defective plants with matching species of the same size during the next planting season after failure; and

h. Undertake quarterly check of plants to record their growth and condition.

Long-Term Management

6.1.29 The long-term management of new tree and shrub belts will focus on the following interventions within the Order limits:

a. All woodland, woodland buffer and native tree belt planting plots will undergo an annual condition assessment and an appropriate programme of works developed to address changes in condition and site requirements;

b. From year 5 onwards, guards, ties and stakes will be removed from plants;

c. Between years 7 and 10, planted areas will be reviewed and thinned out as necessary to remove any poor or weak specimens, which will facilitate other specimens to flourish and provide space for trees and shrubs to further establish;

d. The understorey of woodland, woodland buffers and native tree belts will be coppiced in stages to minimise disturbance to wildlife, as required, as part of good woodland management;

e. Management of bramble will be carried out to prevent encroachment into adjacent areas; and

f. Arisings from thinning or other woodland management functions will be retained on site in the form of dedicated brash and wood piles or wind-rows, for the benefit for fungi, lichen, and invertebrates.

Native Traditional Orchard

Function

6.1.30 A new native traditional orchard will be created to screen solar panel areas from sensitive residential receptors on the edge of Spaldington, whilst providing a new landscape feature and additional mosaic habitat for mammals and birds.

6.1.31 The orchard will contain species-rich grassland and be bordered by existing hedgerow and new woodland planting.

Implementation

6.1.32 The location of the proposed traditional orchard is shown on the **Framework Landscape Masterplan** (Appendix A).

6.1.33 Trees with local provenance will be selected on vigorous rootstock and include top fruit species such as apple, pear, crab apple, plum, and nut species such as cobnut (hazelnuts). Trees will be selected as a mixture of half standard (120cm clear stem) or full standard trees (between 160 and 180cm clear stem).

6.1.34 Orchard trees shall be set in pits 900 mm diameter by 900 mm depth. The base of the tree pit will be broken up to a depth of 200 mm and backfilled with topsoil consolidated in layers to allow the tree to be placed at the correct depth. Each full standard tree shall be planted a minimum of 7 m spacings and secured with stakes and ties, including irrigation pipe. Half standard trees will be planted in blocks at no less than 5 m spacings.

6.1.35 An informal orchard layout with trees planted in groups rather than lines will be planted, with a mix of species variety and sizes.

Establishment Maintenance

6.1.36 A detailed plan for the establishment and management of new trees and shrubs will be developed for the establishment maintenance period.

6.1.37 The aim of establishment maintenance will be to support the early stages of growth to encourage busy growth and the canopy to close, reducing future management requirements to address competition from weeds. The trees and shrubs will be maintained in line with the recommendations of a ECoW.

6.1.38 Establishment maintenance will be based on the following principles and outline prescriptions:

a. Maintain a 1 metre weed-free circle around trees through mechanical control;

b. Water new plants to minimise failures in periods of drought;

c. Remove litter, rubbish, and debris from planted areas throughout the year;

d. Re-firm soil around roots to ensure plants are supported and upright in Spring;

e. Inspect and adjust guards, ties and stakes in Spring and Autumn and after strong wind events;

f. Check and record failed or defective plants in September annually;

g. Replace failed or defective plants with matching species of the same size during the next planting season after failure; and

h. Undertake quarterly check of plants to record their growth and condition.

Long-Term Management

6.1.39 The long-term management of orchards will focus on the following interventions within the Order limits:

a. Traditional orchard planting plots will undergo an annual condition assessment and an appropriate programme of works developed to address changes in condition and site requirements;

b. From year 5 onwards, guards, ties and stakes will be removed from plants; and

c. Orchards will be underplanted with species-rich grass seed mix suitable for optional grazing if practicable.

Grassland (Generally)

Function

6.1.40 A mosaic of grassland types varying in species richness will be established across the Site. Broadly the grassland mosaic will comprise:

a. Semi-improved grassland of moderate species richness under PV solar panels and within the fence and solar panel areas;

b. Species rich grassland in areas of outside the Solar PV Areas, within ecological enhancement areas, PRoW buffers, and Local Wildlife Sites; and

c. Flower-rich grassland for pollinators and over wintering birds.

6.1.41 Where practicable, seed will be obtained from a local source for the purpose of maintaining continuity with local species-rich grasslands.

6.1.42 Receiving soils will be prepared to reduce nutrients where practicable. This could include incorporating a substrate to reduce nutrient levels or removing topsoil to expose the sub-soil. Herbicide use can be beneficial but the risks of using across a large area, or close to a sensitive receptor will need to be considered.

6.1.43 Once the nutrient level is reduced, all clods will be broken up and alien material (such as plastics and metals) above 50 mm in size will be removed. The top 50 mm of the soil will then be raked to prepare a fine tilth for the seedbed. The raking will occur immediately before sowing.

6.1.44 Seeding will be completed in either autumn or spring and only once the receiving soils have been tilled and adequately prepared.

Establishment Maintenance of Grassland Areas

6.1.45 A detailed plan for the establishment and management of grassland areas will be developed for the five year establishment maintenance period.

6.1.46 The aim of establishment maintenance will be to encourage development of a diverse sward of grasses and herbs. Establishment maintenance will be based on the following principles and outline prescriptions:

a. Immediately after sowing, the ground will be left undisturbed and un-watered to allow the grassland to establish naturally;

b. Mowing (where required) will be carried out in either August or September in the first year with subsequent cuts in March and September;

c. Visual inspections will be made during the growing season;

d. Control of undesirable species (e.g. arable weeds) and injurious weeds will be undertaken to prevent colonisation and domination of the grassland through the use of additional cuts during the growing season or if essential, a selective herbicide (where appropriate and managed in accordance with locality e.g. applying appropriate buffers to watercourses or grasslands managed for invertebrates);

e. Botanical surveys will be carried out in late spring to confirm that the establishment of the grassland mosaic has been successful in achieving their intended aims and objectives. Spot checks will be undertaken at locations within each grassland area by a suitably qualified ecologist during years 1, 3 and 5, the purpose being to record plant species, their distribution, and the overall condition of the grassland. Other relevant indicators relating to the sward that may require remedial action during the contract period or in the future will also be recorded; and

f. If remedial action is required, the ECoW will agree action with suitably qualified ecologist and areas identified will be re-seeded.

Long-Term Management of Grassland

6.1.47 The long-term management of grasslands within the Site will be undertaken to maintain a relatively stable grassland community in the long-term, and to avoid areas naturally progressing into tall, dense, grass-dominated areas to perform the function as described for each grassland type listed below.

6.1.48 Measures for the grassland mosaic will focus on a regime of:

a. Optional low intensity grazing of semi-improved grassland (in Solar PV Areas) to maintain vegetation under the panels, and in species-rich grassland areas where practicable;

b. Species-rich and flower-rich grassland (where un grazed) will receive one cut annually in September. Cuttings will be removed to appropriate storage areas on site;

c. Grassland to visibility splays will be maintained at the required height where necessary, with less frequent management to allow a taller and more diverse sward at the back of the verges behind the required visibility splays;

d. Visual inspections during the growing season. Where any areas not already subjected to removal of cuttings, are identified as having a decline in habitat condition or species diversity, a targeted cut and collect management regime will be implemented on a temporary basis;

e. Control of undesirable species (e.g. arable weeds) and injurious weeds to prevent colonisation and domination of the grassland using a selective herbicide (where appropriate and managed in accordance

with locality e.g. applying appropriate buffers to watercourses or grasslands managed for invertebrates);

f. Meadow margins adjacent to woodland and hedgerows may be left for a year or more between cuts to provide dense ground level cover for fauna, including amphibians, small mammals, and invertebrates;

g. For marginal areas (species-rich grassland), if ground nesting birds are absent, plots may be scarified or 50% cut between mid-June and mid-July, with arisings removed to appropriate storage areas on site; and

h. Conditions Assessments following Biodiversity Net Gain methodologies will be undertaken in years 2, 5, 10, 15, 20, 25 and 30. The results of these monitoring surveys will be used to adjust the management regime to maximise biodiversity and achieve the projected Biodiversity Net Gain unit values.

Semi-Improved Grassland

Function

6.1.49 Semi-improved grassland of moderate species richness will be created within fence line of Solar PV Areas to increase species biodiversity, and which is also suitable for grazing.

Implementation

6.1.50 The locations of the proposed semi-improved grassland areas is shown on the **Framework Landscape Masterplan** (Appendix A).

6.1.51 An indicative mix such as the mix outlined in **Table 6-6** will provide a self-sustaining, low maintenance mixture that brings environmental benefits and suitable for grazing, such as Aber Sustain by Germinal. However, this may be subject to change based on the needs of the site's biodiversity and prevailing soil types.

Table 6-6. Indicative mix for semi-improved grassland

Botanical Name	Common Name	% Mix
Trifolium repens	Aberlasting (small) White Clover	5%
Festuca rubra litoralis	Abercharm Slender Creeping Red Fescue	20%
Festuca ovina	Aberfleece Sheeps Fescue	45%
Agrostis capillaris	Aberroyal Browntop Bentgrass	10%
Lolium perenne	EG Resistus Perennial Ryegrass	20%

Long-Term Management

6.1.52 Within the first 12 months after sowing, the grass will be cut regularly to help the sown species to establish.

6.1.53 Once the areas are fully established, typically the second Spring after sowing, the area will need to be cut in the Spring (before April) to reduce the vigour of the grass.

6.1.54 Following this, and within subsequent years, areas will be managed through sheep grazing where practicable. Any areas un grazed will receive one

mechanical cut in late summer/ early autumn. Any management activities will be restricted for the full extent of the breeding season (typically March to August inclusive).

Species-Rich Grassland

Function

6.1.55 Species-rich grassland within field margins outside Solar PV fence line, PRoW buffers and ecological enhancement areas will be created to encourage development of a diverse sward of grasses and herbs for pollinators and birds including skylarks.

Implementation

6.1.56 The locations of the proposed species-rich grassland areas are shown on the **Framework Landscape Masterplan** (Appendix A).

6.1.57 An indicative mix such as the mix outlined in **Table 6-7** will provide a self-sustaining, low maintenance species-rich mixture that brings environmental benefits to pollinators and birds, whilst reinforcing positive landscape character features. However, this may be subject to change based on the needs of the site's biodiversity and prevailing soil types.

Table 6-7. Indicative mix for species-rich grassland

Botanical Name	Common Name	% Mix
Achillea Millefolium	Yarrow	2.4%
Centaurea nigra	Common knapweed	2.0%
Crucuata laevipes	Crosswort	0.3%
Daucus carota	Wild carrot	0.2%
Galium verum	Lady's bedstraw	1.6%
Geranium pratense	Meadow cranesbill	0.3%
Knautia arvensis	Field Scabious	0.4%
Lathyrus pratensis	Meadow vetchling	0.4%
Leucanthemum vulgare	Oxeye Daisy	1.5%
Lotus corniculatus	Birdsfoot trefoil	0.2%
Malva moschata	Musk Mallow	3.5%
Medicago lupulina	Black Medic	0.1%
Plantago lanceolata	Ribwort Plantain	3.5%
Ranunculus acris	Meadow buttercup	1.5%
Primula versis	Cowslip	0.2%
Rhinanthus minor	Yellow Rattle	7.5%
Rumex acetosa	Common Sorrel	0.35
Silene vulgaris	Bladder Campion	0.1%

Botanical Name	Common Name	% Mix
Agrostis capillaris	Common Bent	2.4%
Anthoxanthum odoratum	Sweet vernal-grass	2.0%
Briza media	Quaking grass	2.0%
Cynosurus cristatus	Crested Dogstail	62.4%
Festuca rubra	Red Fescue	10%
Trisetum flavescens	Yellow Oat-grass	1.2%

6.1.58 The following steps and working methods will be included in the specification:

a. Where practicable, seed will be obtained from a local source for the purpose of maintaining continuity with local species-rich grasslands;

b. Receiving soils will be prepared to reduce nutrients where practicable. This could include spraying with a herbicide (where appropriate and managed in accordance with locality) to remove existing material and incorporating a substrate to reduce nutrient levels or removing topsoil to expose the sub-soil;

c. Once the nutrient level is reduced, all clods will be broken up and alien material (such as plastics and metals) above 50 mm in size will be removed. The top 50 mm of the soil will then be raked to prepare a fine tilth for the seedbed. The raking will occur immediately before sowing;

d. Seeding will be completed in either autumn or spring and only once the receiving soils have been tilled and adequately prepared; and

e. Seeding and rolling will be carried out in dry weather and access will be prohibited to seeding areas until seed has germinated and a sward has established (see establishment maintenance section for grasslands generally).

Long-Term Management

6.1.59 Within the first 12 months after sowing, the species-rich grassland field margins, PRoW buffers and ecological enhancement areas will be cut to help the sown species to establish. The cuttings will be removed to appropriate storage areas on site.

6.1.60 Once the areas are fully established, typically the second Spring after sowing, the area will need to be cut in the Spring (before April) to reduce the vigour of the grass. Following this, areas will be cut towards the end of September, after the breeding season (typically March to August inclusive), allowing for potential of up to four broods of skylark or other ground nesting birds. Low intensity grazing (within fenced areas and where practicable) for early spring and late summer could also achieve the same conditions to the late cut.

Species-Rich Wet Grassland

Function

6.1.61 Species-rich wet grassland will be created within the ecological enhancement areas and Ecology Mitigation Area (golden plover mitigation) area to create a rich wildlife habitat and floodplain meadow adjacent to River Foulness.

Implementation

6.1.62 The location of the proposed species-rich wet grassland is shown on the **Framework Landscape Masterplan** (Appendix A) to the east of Area 1e (ecology enhancement), and to the east of 1h (golden plover mitigation within the Ecology Mitigation Area).

6.1.63 The indicative floodplain meadow grassland seed mix outlined in **Table 6-8** will provide a diverse selection of native wildflowers and grasses with the ability to withstand seasonal flooding, providing environmental benefits to pollinators, ground nesting birds, and migratory birds such as golden plover. Species mix may be subject to change based on the needs of the site's biodiversity and prevailing soil types.

6.1.64 Further detail of the Ecology Mitigation Areas is provided below.

Table 6-8. Indicative mix for species-rich wet grassland

Botanical Name	Common Name	% Mix
Achillea millefolium	Yarrow	3%
Centaurea nigra	Black knapweed	6%
Filipendula ulmaria	Meadowsweet	5%
Galium palustre	Marsh bedstraw	1%
Hypericum tetrapterum	Square stemmed St John's-wort	3%
Hypochaeris radicata	Common cat's-ear	3%
Lathyrus pratensis	Meadow vetchling	3%
Leontodon autumnalis	Autumn hawkbit	4%
Leucanthemum vulgare	Ox-eye daisy	7%
Lotus corniculatus	Common bird's-foot trefoil	5%
Lotus pendunculatus	Greater bird's-foot trefoil	4%
Lychnis flos-cuculi	Ragged robin	2%
Plantago lanceolata	Ribwort plantain	8%
Primula veris	Cowslip	2%
Prunella vulgaris	Selfheal	7%
Ranunculus acris	Meadow buttercup	8%
Rhinanthus minor	Yellow rattle	5%
Rumex acetosa	Common sorrel	4%

Botanical Name	Common Name	% Mix
Sanguisorba officianlis	Great burnet	4%
Silaum silaus	Pepper saxifrage	2%
Stachys officianlis	Betony	3%
Succisa pratensis	Devil's-bit scabious	3%
Trifolium pratense	Red clover	6%
Vicia cracca	Tufted vetch	2%
Agrostis stolonifera	Creeping bent	3%
Alopecurus geniculatus	Marsh foxtail	2%
Alopecurus pratensis	Meadow foxtail	3%
Anthoxanthum odoratum	Sweet vernal grass	4%
Cynosurus cristatus	Crested dog's-tail	35%
Deschampsia cespitosa	Tufted hair grass	3%
Festuca rubra ssp. rubra	Red fescue	45%
Holcus lanatus	Yorkshire fog	5%

Long-Term Management

6.1.65 Within the first 12 months after sowing, the plot will be cut regularly to help the sown species to establish.

6.1.66 Once the areas are fully established, typically the second Spring after sowing, the area will need to be cut in the Spring (before April) to reduce the vigour of the grass.

6.1.67 Following this, and within subsequent years, areas will receive one mechanical cut in late summer/ early autumn. Any management activities will be restricted for the full extent of the breeding season (typically March to August inclusive). Low intensity sheep grazing (within fenced areas and where practicable) in the autumn will provide optimum conditions, however, where this is not possible, a further cut late in the season will be carried out.

Flower-Rich Grassland

Function

6.1.68 Flower-rich grassland will be created within the margins of the Solar PV Area 2f for visual amenity benefits along the Howden 20 walking route whilst providing increased species diversity and nectar-rich wildflowers for pollinators, beneficial insects, and farmland birds.

Implementation

6.1.69 The location of the proposed semi-improved grassland areas is shown on **Framework Landscape Masterplan** (Appendix A).

6.1.70 The indicative mix, such as CSS1 Flower Rich Margin and Plots AB8 by Boston Seeds, may be subject to change based on the needs of the

biodiversity and prevailing soil types at specific locations. The indicative mix is outlined in **Table 6-9** below.

Table 6-9. Indicative mix for flower-rich meadow

Botanical Name	Common Name	% Mix
Festuca rubra	Strong Creeping Red Fescue	40%
Festuca rubra commutata	Chewings Fescue	25%
Festuca trachyphylla	Hard Fescue	15%
Poa pratensis	Smooth Stalk Meadow Grass	5%
Onobrychis viciifola	Sainfoin	3.75%
Vicia sativa	Common Vetch	3.75%
Trifolium incarnatum	Crimson Clover	3%
Trifolium pratense	Red Clover	2.5%
Lotus corniculatus	Birdsfoot Trefoil	0.5%
Plantago lanceolata	Ribwort Plantain	0.5%
Medicago sativa	Lucerne	0.25%
Trifolium hybridum	Alsike Clover	0.25%
Achillea Millefolium	Yarrow	0.25%
Trifolium repens	White Clover	0.25%

Long-Term Management

6.1.71 Within the first 12 months after sowing, the margin will be cut regularly to help the sown species to establish. Cuttings will be removed to appropriate storage areas on site.

6.1.72 Once the margins are fully established, typically the second Spring after sowing, the area will need to be cut in the Spring (before April) to reduce the vigour of the grass. Up to 90% of the area can then be cut and left at a height between 10–20 cm. The remaining 10% of the area will be left uncut.

Ecology Mitigation Area 1h (Species-Rich Wet Grassland and Creation of Blind Linear Foot Drains)

Function

6.1.73 A total of 28.75 ha of the species-rich wet grassland will be provided for golden plover in the Ecology Mitigation Area adjoining the River Foulness in area 1h, which could also benefit other bird species. The function of this habitat is to provide suitable foraging opportunities for golden plover throughout the late autumn, winter and early spring period (October to March), by providing conditions that will support high densities of invertebrates found in field vegetation and just below the soil surface, in particular earthworms, beetles and dipteran larvae especially tipulid larvae. This will be achieved through sowing of a suitable grassland seed mix, building up the soils organic content, through a combination in the cessation

of pesticide use and ploughing and disturbing of the soil, maintenance of the sward at a suitable height through the winter period and creation of a network of linear depressions to hold and collect any floodwater during the winter and into the spring, keeping the soil moist (but not saturated), channelling surface water so that the grassland isn't regularly inundated and keeping the availability of prey near to the soil surface.

Implementation

6.1.74 The implementation of the Ecology Mitigation Area in area 1h will be delivered through the following actions:

a. Reversion of existing arable farmland in 1h to permanent wet grassland through the application of a suitable seed mix. An indicative seed mix is provided in **Table 6-8**;

b. Creation of a network of linear depressions (blind linear foot drains) to provide areas to hold and collect standing water, particularly during winter flooding. The design of these will avoid extensive areas of grassland from being covered in standing water, whilst maximising the availability of wet edges (which are important foraging areas for waders and wildfowl). These features will also assist with retention and distribution of flood water during the winter months, keeping the soil moist, but not saturated; and

c. Implementation of a suitable grazing/mowing regime to maintain an optimal sward height and required levels of ground disturbance to promote soil invertebrate abundance. This will target having a short sward height (no higher than 10 cm during the winter period (October–March) to maximise foraging opportunities for golden plover.

6.1.75 Occasional naturally occurring flooding of the golden plover Mitigation Area from the River Foulness will help create suitably damp/wet conditions for golden plover, but this will be periodic, with water quickly draining back off into the River Foulness. Therefore, it is considered that additional habitat management is needed to provide assurance of effective mitigation. One of these measures will be the creation of a network of linear depressions (blind linear foot drains) which are a common habitat feature deployed to support diverse invertebrate assemblages and create suitable habitat conditions for waders. They are shallow depressions with gently sloping edges, designed to hold water seasonally and potentially remaining damp throughout the year.

6.1.76 Because golden plover will be most interested in edge habitat (i.e., the ecotonal boundary where the amount of water is sufficient to maintain dampness) rather than the deeper sections of scrapes, the Scheme will deliver a network of 'blind' linear foot drains across 15 ha of the Golden Plover Mitigation Zone, designed to maintain shallow water levels and maximise edge habitat. Foot drains would be created using excavators or rotary ditchers to widths of 1–2m and depths of 30 cm (i.e., not extending beyond the depth of topsoil), ensuring a gently sloping edge profile that provides ideal conditions for invertebrates and foraging waders. Any excavated topsoil would be redistributed on the surrounding land. There would be no outfalls and areas of downward sloping ground to the River Foulness in the eastern section of the Golden Plover Mitigation Zone would be avoided, to minimise any potential for surface runoff to the river.

6.1.77 Given that the soils within the Site are dominated by heavy clays, the foot drains would predominantly retain perched water and/or be fed by rainfall. To increase the likelihood that the linear drains reliably retain adequate volumes of water in winter, they could be focused along in-field ditch lines or in direct connection with water sources. The Golden Plover mitigation area is traversed by several water features, including the Seller Dike, FO41, FO42 and FO45. Despite the ephemeral nature of some of these, all are likely to hold water in winter. Connecting the network of drains with any of these watercourses would very likely increase its overall value to golden plover. Overall, delivering a network of linear foot drains in the Golden Plover mitigation area will increase the likelihood of creating ideal conditions for the invertebrate assemblages on which golden plover rely.

Establishment and Long-Term Management

6.1.78 The habitat for the Golden Plover mitigation area will be established prior to the commencement of construction works in the Solar PV Site. Construction works in the closest parts of the Solar PV Site (e.g., Solar PV Area 1e) will be undertaken first, to minimise any potential for disturbance in the Golden Plover Mitigation Area.

6.1.79 Field Stations will be located no closer than 150 m from the Ecology Mitigation Area.

6.1.80 Sward structure plays an important role in invertebrate abundance and availability, so the grass height will not exceed 10 cm during the period October to March. This will be achieved through mowing and/or grazing. The long-term objective is to increase the densities of soil invertebrates, which will be aiding by a cessation in ploughing, pesticide application and subsequent build-up of high organic content, which comes from undisturbed soils.

6.1.81 Within the first 12 months after sowing, the mitigation area will be cut regularly to help the sown species to establish. Cuttings will be removed to appropriate storage areas on site. During this period the sward will be maintained at a height of no more than 10 cm during the months of October to March.

6.1.82 Once the areas are fully established, typically the second Spring after sowing, the area will need to be cut in the Spring (before April) to reduce the vigour of the grass.

6.1.83 Following this, and within subsequent years areas will receive one mechanical cut in late summer/ early autumn. Any management activities will be restricted for the full extent of the breeding season (typically March to August inclusive). Low intensity cattle grazing (within fenced areas and where appropriate) in the autumn will provide optimum conditions, however, where this is not possible, a further cut late in the season will be carried out.

6.1.84 Habitat management will be required for the foot drains to prevent overgrowth and maintain open, muddy margins. Previous case studies have demonstrated that wader usage declines rapidly as muddy margins become inaccessible to due to vegetation growth. Foot drains and their margins can be adequately managed through low-intensity livestock grazing and/or annual mowing of margins.

6.1.85 The habitat for the Golden Plover mitigation area will be maintained throughout the lifetime of the Scheme until decommissioning of the Solar PV Site in accordance with requirement 18 of Schedule 2 of the draft DCO **[EN010143/APP/3.1]**.

Pink-footed Goose Mitigation Areas 1g and 1h – Low Intensity Arable Farmland

Function

6.1.86 To offset the loss of arable farmland which may, in any given year, support foraging opportunities for pink-footed goose, approximately 79.09 ha of land will remain in arable rotation with amendments to provide 15ha in any given year, specifically targeted at sensitive management for pink-footed goose. The objective of this land is to provide a regular foraging provision for pink-footed goose, which mirrors the provisions currently available, i.e., winter stubbles following cereal harvest. To increase the quality and availability of this provision, landowners will commit to maximising the duration in which winter stubbles are left in place, before soil preparation, e.g., ploughing, and sowing of the next crop.

Implementation

6.1.87 The Pink-footed Goose Mitigation Areas 1g and 1h and the land within these areas which will remain in arable rotation will be established prior to the commencement of construction works in the Solar PV Site. Construction works in the closest parts of the Solar PV Site (e.g., Solar PV Area 1b and 1e) will be undertaken first, to minimise any potential for disturbance in the Goose Mitigation Areas.

6.1.88 Field Stations will be located no closer than 150 m from the Ecology Mitigation Area.

6.1.89 In any given year, 15 ha of the arable land will be planted with the preferred crop types for pink-footed goose (e.g., spring-sown wheat or barley). Harvesting will be delayed as much as practicable into mid-autumn, i.e., mid-September, prior to pink-footed geese arriving back in early October, with the stubble being retained into late winter, i.e., February. Prolonged retention of winter stubble is widely accepted to increase availability of arable plant seeds and spilt grain, with beneficial impacts for farmland birds (including geese).

6.1.90 Arable land outside the 15 ha rotational zone will continue to be operated under the existing farming practices, with a variety of crops being sown and harvested according to schedules preferred by respective landowners. Crops will also include autumn/winter sown wheat (and other cereals), which will provide a suitable food resource from late winter, once stubble resources have become depleted. Notably, therefore, as highlighted by the current use of the Site by geese, the habitat beyond the rotationally managed 15 ha in the Goose Mitigation Zone will also be suitable for geese and provide additional benefit.

Long-Term Management

6.1.91 The long-term management of arable land for pink-footed goose will likely be undertaken on three-year rotational basis, including the periodic allowance for areas of fallow, to maintain soil health and fertility. The cropping regime

will be similar to that currently occurring, with cereals dominating the crop type, however, the management and timings of the cropping patterns will be undertaken as per the implementation description.

6.1.92 Management of activities on the goose mitigation area will be closely monitored to reduce disturbance to pink-footed goose when present in non-breeding season. This will include restrictions on shooting and vermin control, farming operations and bird scaring/deterrents.

6.1.93 The Pink-footed Goose Mitigation Areas and the land within these areas which will remain in arable rotation will be maintained throughout the lifetime of the Scheme until decommissioning of the Solar PV Site in accordance with requirement 18 of Schedule 2 of the draft DCO **[EN010143/APP/3.1]**.

6.1.94 A master spreadsheet would be prepared as part of the detailed LEMP specifying the future cropping rotations within the Goose Mitigation Zone. This spreadsheet would detail the type of crop planted, location and responsible landowner of the 15 ha of arable land that are under goose-friendly cropping every year in the rotation.

6.2 Provision of Habitat Boxes

Function

6.2.1 A range of artificial bird and bat boxes will be installed in existing woodland areas, on existing individual trees, on existing trees in hedgerows and on buildings at Johnson's Farm, to increase the availability of nesting and roosting features and enhance the value of the Site for these species' groups.

Implementation

6.2.2 A total of at least 30 bird nest boxes and 20 bat roost boxes of varying types to suit different species of birds and bats will be installed in locations to be determined by an ecologist at the time of installation.

6.2.3 This will include barn owl boxes and hobby baskets, in suitable trees near to where these species have been recorded.

6.2.4 Bird and bat boxes made from long lasting materials (such as Woodcrete) will be used, where available and would be expected to have a life expectancy of 20–25 years. A minimum of five tree mounted or tower mounted barn owl boxes will be provided within the Solar PV Site.

Long-Term Management

Bird Boxes

6.2.5 All wild birds, their active nests and eggs are protected under the Wildlife and Countryside Act (1981), as amended (Ref. 8). This makes it an offence to deliberately, or recklessly kill or injure any wild bird or damage or destroy any active nest or eggs of a wild bird.

6.2.6 Cleaning of bird boxes cannot be undertaken between the months of March and August inclusive, when birds may be using the boxes. Therefore, bird boxes will be cleaned annually, between October and February to prevent the build-up of nest parasites in the boxes whilst avoiding the risk of

disturbing birds using the boxes as a roost site during the cold winter months.

6.2.7 Barn owl boxes will be inspected annually between November and December by a suitably licensed ecologist. Where barn owls are absent any nesting material of other species (such as accumulations of sticks) will be removed where required, after ensuring the nest is empty. The opportunity to participate in a barn owl monitoring scheme will be investigated by the Applicant with a local barn owl conservation group.

Bat Boxes

6.2.8 Bat boxes will be inspected by an appropriately licensed bat surveyor for evidence of uptake as per the post-construction monitoring programme (see timing in Section 7), and any evidence of roosting bats will be recorded to assist with ongoing management of the trees on Site.

6.2.9 Where monitoring is not undertaken above, the condition of all wildlife boxes installed will be monitored annually during the operation of the Scheme and replacements will be made as necessary. Inspections can be timed to coincide with the required inspections of new tree and shrub plantings.

6.2.10 Bat boxes are, in most circumstances, unlikely to be used by hibernating bats during winter months (between November and February inclusive). Therefore, any maintenance that is required on bat boxes should be undertaken during these months, when any bird nests will be removed, after ensuring they are not in use. Self-cleaning boxes styles (entry points at the base so droppings fall out and do not accumulate inside) are preferrable to other types to reduce potential disturbance due to increase requirements for maintenance. All bats and their roosts are protected under the Wildlife and Countryside Act (1981), as amended (Ref. 8). Therefore, it is an offence to possess, control, transport, sell or exchange any live or dead bat. Therefore, if bats are inadvertently discovered during maintenance, the person undertaking the maintenance should leave the box undisturbed.

6.3 Creation of Habitat Piles

6.3.1 Habitat piles and hibernacula will be constructed throughout the Solar PV Site in suitable areas, such as close to existing ponds or the newly created grassland areas. Habitat piles will be created using natural materials, generated during clearance of the Site, such as logs, brash, turf and grass strimmings.

6.3.2 These will provide refuge and hibernation opportunities for reptiles and amphibians, as well as dead wood habitat for invertebrates, which will in turn benefit fauna such as bats and birds.

6.4 Protected Species

Habitat Creation

6.4.1 The habitat creation and management detailed in Sections 5 and 6, will be of benefit to a wide range of protected and notable species that have been identified as present or likely present within the Site. **Table 6-10** summarises the habitat creation and benefits to relevant protected and notable species.

Table 6-10. Summary of habitat creation and benefits to protected species

Habitat Creation/ Management Prescription	Species Benefits
Native planting, including of tree and shrub belts and hedgerows	Native planting will improve connectivity for a wide range of species across the Site, such as bats, creating green corridors and linking up areas of woodland. Native planting will be of an appropriate mix of fruit-bearing, native species that will provide food and shelter for a number of species such as wintering birds and badger.
Semi-improved grassland within Solar PV Areas	Creation of grassland habitats, sown with appropriate seed mixes will improve flora and increase terrestrial invertebrates which will be of benefit to a wide range of species, such as: • Reptiles and amphibians – providing permanent habitat for foraging, commuting and resting; • Breeding birds – providing increased opportunities for foraging and potentially nesting; • Wintering birds – providing increased opportunities for foraging; • Bats – linking up areas and providing green corridors with increased prey (terrestrial invertebrates), improving connectivity and foraging opportunities; and • Other mammals – providing permanent and largely undisturbed habitat for species such as brown hare.
Species-rich grassland in areas of set aside grassland, outside of panelled areas, and replacement planting to bellmouths, and flower-rich grassland	Areas of undeveloped land have been incorporated into the Scheme design which will be sown with floristically diverse seed mixes used to maximise both nesting habitat for ground-nesting birds such as Skylark, but also invertebrate prey for chicks (during the Skylark breeding season) as well as seeds for adults (in both winter and summer). Such areas will also be of benefit to reptiles, amphibians, badger, bats and other mammals. Management of these areas will primarily be for ground-nesting birds (such as Skylark and Lapwing) and will ensure that the sward does not exceed 60 cm and any management activities are restricted for the full extent of the breeding season (typically March to August inclusive), allowing for potential of up to four broods. In addition to these larger undeveloped areas, wide margins (c.15–25 m) have been left alongside numerous internal access tracks and replacement habitat to new access. A similar treatment to the larger undeveloped areas will be applied to these linear habitats, providing nesting opportunities and mosaics of bare ground and diversity grassland for foraging and territory defence. Wide grassland margins and undeveloped corners of fields, particularly along the periphery of the Site have been incorporated into the design to enhance foraging for Skylark nesting both onsite

Habitat Creation/ Management Prescription	Species Benefits
	and offsite and to allow for an element of displacement and absorption into neighbouring habitats. In habitat areas targeted for Skylark management, existing hedgerows, where practicable, will be maintained at their current height, to minimise further loss of 'openness' of these areas. The Scheme has also allowed for areas to be set aside for overwinter foraging resources. These seed rich areas will increase the chances of overwinter survival of adult and juvenile birds, improving potential recruitment of individuals into the local breeding population.
Provision of habitat boxes	Nesting and roosting opportunities for birds and bats, including specially protected species
Provision of habitat piles	Refuge and hibernation opportunities for reptiles and amphibians well as dead wood habitat for terrestrial invertebrates, which would in turn benefit fauna such as bats and birds
Provision of blind linear foot drains	Feeding opportunities for birds, including golden plover through maintaining shallow water levels and maximising edge habitat.

7. Pre and Post Construction Monitoring

7.1.1 Monitoring is required in order to determine that the functions documented within this Framework LEMP are being achieved and whether any remedial management action may be required. The baseline against which the effects of the actions resulting from the monitoring can be compared against comprises the pre-construction baseline data. This baseline data collected in 2022/2023 will require updating prior to construction, as by operation (from 2027 at the earliest) this data will be over four years old and out of date (Ref. 44). Updates would include a similar set of surveys undertaken at the baseline where relevant ecological receptors have been identified, including surveys of breeding and non-breeding birds, bats, riparian mammals and badgers.

7.1.2 A post-construction monitoring programme will be formalised, agreed and included within the detailed LEMP. Walkover surveys of the Site will be undertaken between April and June in years 2, 4, 6, 10 and then every 5 years post-construction until year 40. The surveys will involve inspection of the woodland, hedgerows, grassland, and wetland habitats to ensure that they are being managed accordingly. For failed or defective planting beyond the initial 5 year maintenance period, the mitigation or habitat function of the planting will be reviewed. Where the function of the planting cannot be achieved as a result of the failed or defective planting, then that planting will be replaced on a like for like basis.

7.1.3 Post-construction monitoring for flora, birds (breeding and non-breeding), riparian mammals, badgers and bats (bat box roosting and activity survey), will be undertaken in the respective seasons, in years 1, 3, 5,10 and 15 post-

construction and thereafter every ten years from years 20 to 40. For the purposes of BNG Condition Assessments, post-construction surveys will also be undertaken in years 2, 5, 10, 15, 20, 25 and 30. These surveys are likely to involve similar methods to those used to determine the ecological baseline of the Scheme.

7.1.4 Maintenance checks of wildlife boxes (bats and birds) will be made as per the prescription in paragraphs 6.2.5 to 6.2.10 to ensure that all boxes are still in position and secure. Some refitting of boxes, repairs and replacements are likely to be required over the life-time of the Scheme.

7.1.5 Monitoring of the effectiveness of the blind linear foot drains will be undertaken to ensure that the correct level of water is maintained, along with optimal vegetation levels at the edge habitats. Adjustments of depth and habitat management, such as grazing levels, would be undertaken as needed.

7.1.6 Monitoring of the botanical diversity of Wressle Verge LWS and Tottering Lane, Gribthorpe LWS will be undertaken to ensure that the visibility splay management is not limiting the diversity unnecessarily. Further discussions with the council highways team would be undertaken to establish any possible adjustments to improve botanical diversity if needed.

7.1.7 Results from the post-construction monitoring will feed into the management plan and, if required, management may be amended accordingly based on this monitoring.

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Abbreviations

Abbreviation/Term	Definition
AOD	Above Ordinance Datum
BNG	Biodiversity Net Gain
BR	Bare Root
BS	British Standard
CEMP	Construction Environmental Management Plan
DCO	Development Consent Order
DLL	District Level Licence
ECoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
ERY	East Riding of Yorkshire
ES	Environmental Statement
GCN	Great Crested Newt
HaPI	Habitats of Principal Importance
HDD	Horizontal Directional Drilling
INNS	Invasive non-native species
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LDR	Long Distance Route
LEMP	Landscape and Ecological Management Plan
LNR	Local Nature Reserve
LWS	Local Wildlife Site
NERC	Natural Environment and Rural Communities
NJUG	National Joint Utilities Group
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Projects
PPG	Planning Practice Guidance

Abbreviation/Term	Definition
PRoW	Public Right of Way
PV	Photovoltaic
RPA	Root Protection Area
RSPB	Royal Society for the Protection of Birds
SEO	Statements of Environmental Opportunity
SINC	Sites of Importance for Nature Conservation
SMP	Soils Management Plan
SPA	Special Protection Area
Special Areas of Conservation	SAC
SQE	Suitably Qualified Ecologist
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
TGN	Technical Guidance Note
WCA	Wildlife and Countryside Act

Glossary of Frequently Used Terms

Term	Definition
Design Principles	Guiding principles for the detailed design of the Scheme.
Ecology Mitigation Area	Area managed to provide good quality habitat for overwintering and migratory bird species, mitigating the loss of habitat elsewhere in the Site. Area sub-divided in Golden Plover Mitigation Zone and Goose Mitigation Zone.
Environmental Clerk of Works	Responsible for ensuring construction environmental mitigation measures are correctly implemented, monitored and maintained.
Green Infrastructure	Network of natural systems (including habitats) that provide multifunctional environmental benefits.
Grid Connection Corridor	Approximately 100 m wide corridor, which widens and narrows as required to accommodate the works required for the installation of the Grid Connection Cables.
Landscape and ecological buffer	Minimum offset of proposed infrastructure from landscape or ecological features.
Hedgerow Enhancement	Gapping up and thickening of existing hedgerows with new native hedgerow plants and native trees.

Appendix A – Framework Landscape Masterplan

ISO A1 594mm x 841mm

Revision: 1 Drawn: LP Checked: JW Approved: HS Date: 2024-06-18

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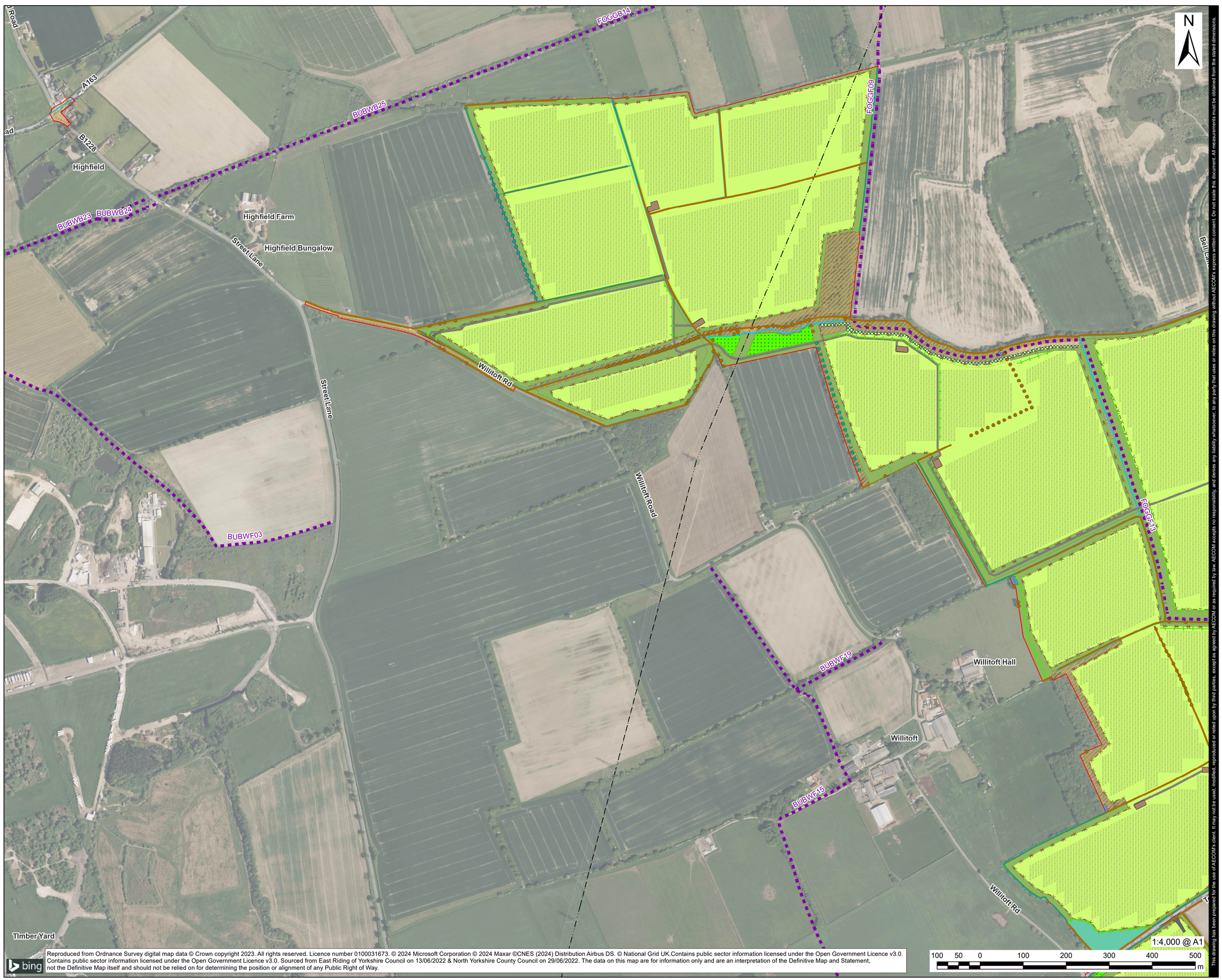

AECOM

PROJECT

East Yorkshire Solar Farm

CLIENT

East Yorkshire Solar Farm Limited

CONSULTANT

AECOM Limited
Midpoint
Alencon Link
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LEGEND

- Order limits
- Land not included in the Order limits

Landscape Features

- Existing Individual Tree or Line of Trees
- Existing Hedgerow
- Retained Habitat
- Proposed Cable Corridor – Habitat to be Reinstated
- Low Intensity Arable
- Enhanced Line of Trees
- Proposed Enhanced Linear Features
- Proposed Hedgerow
- Proposed Hedgerow with Trees
- Proposed Ecological Enhancement Area
- Proposed Flower Rich Grassland
- Proposed Hardstanding
- Proposed Native Scrub with Trees Planting
- Proposed Native Woodland - Mixed
- Proposed Semi-Improved Grassland
- Proposed Species-Rich Grassland
- Proposed Species Rich Wet Grassland
- Proposed Traditional Orchard
- Proposed Woodland Edge Mixed
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- Culvert
- Existing Pond

Movement and Access

- Proposed Internal Access Track
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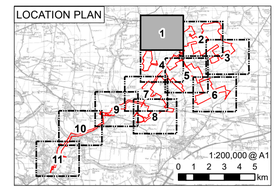
- Proposed Permissive Path (Allowing Travel on Horses)
- Existing Public Right of Way
- Hull to Selby Railway Line
- Overhead Electricity Line

LOCATION PLAN



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FIRST ISSUE	CA / JW	16/11/2023	0
REVISION DETAILS	BY / CHECK	DATE	REV

ISSUE PURPOSE

Examination

PROJECT NUMBER

60683115

PLAN TITLE

Landscape Masterplan
Sheet 1 of 11

REFERENCE NUMBER

60683115-7.14-1

LEGISLATION REFERENCE

APFP 2009 Regulation 5(2)(j)

ISO A1 594mm x 841mm

Revision: 1 Drawn: LP Checked: JW Approved: HS Date: 2024-06-18

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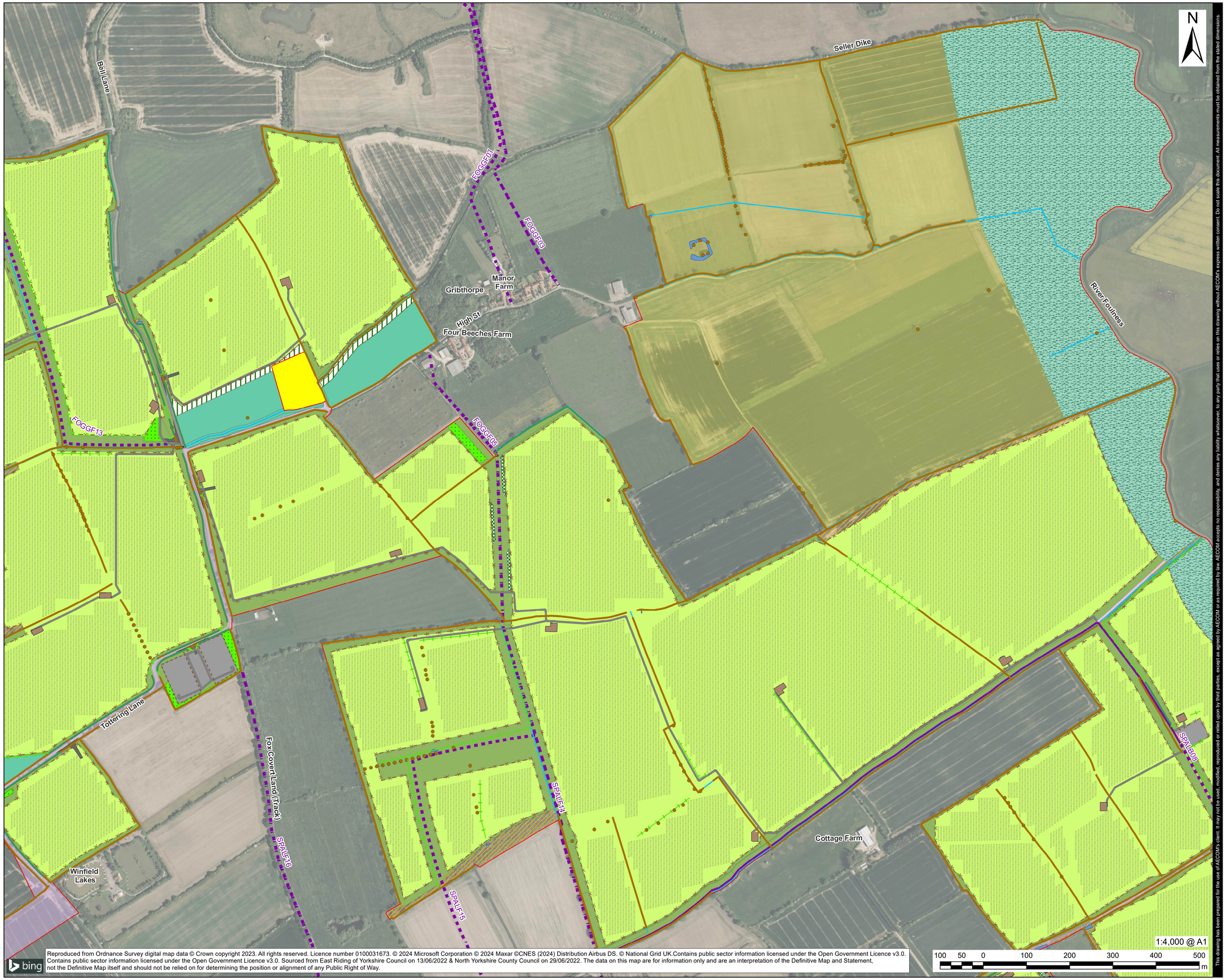

AECOM

PROJECT

East Yorkshire Solar Farm

CLIENT

East Yorkshire Solar Farm Limited

CONSULTANT

AECOM Limited
Midpoint
Alencon Link
Basingstoke, RG21 7PP
www.aecom.com

LEGEND

- Order limits
- Land not included in the Order limits

Landscape Features

- Existing Individual Tree or Line of Trees
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- Retained Habitat
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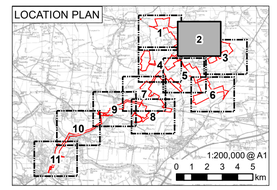

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ISSUE PURPOSE

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PROJECT NUMBER

60683115

PLAN TITLE

Landscape Masterplan
Sheet 2 of 11

REFERENCE NUMBER

60683115-7.14-1

LEGISLATION REFERENCE

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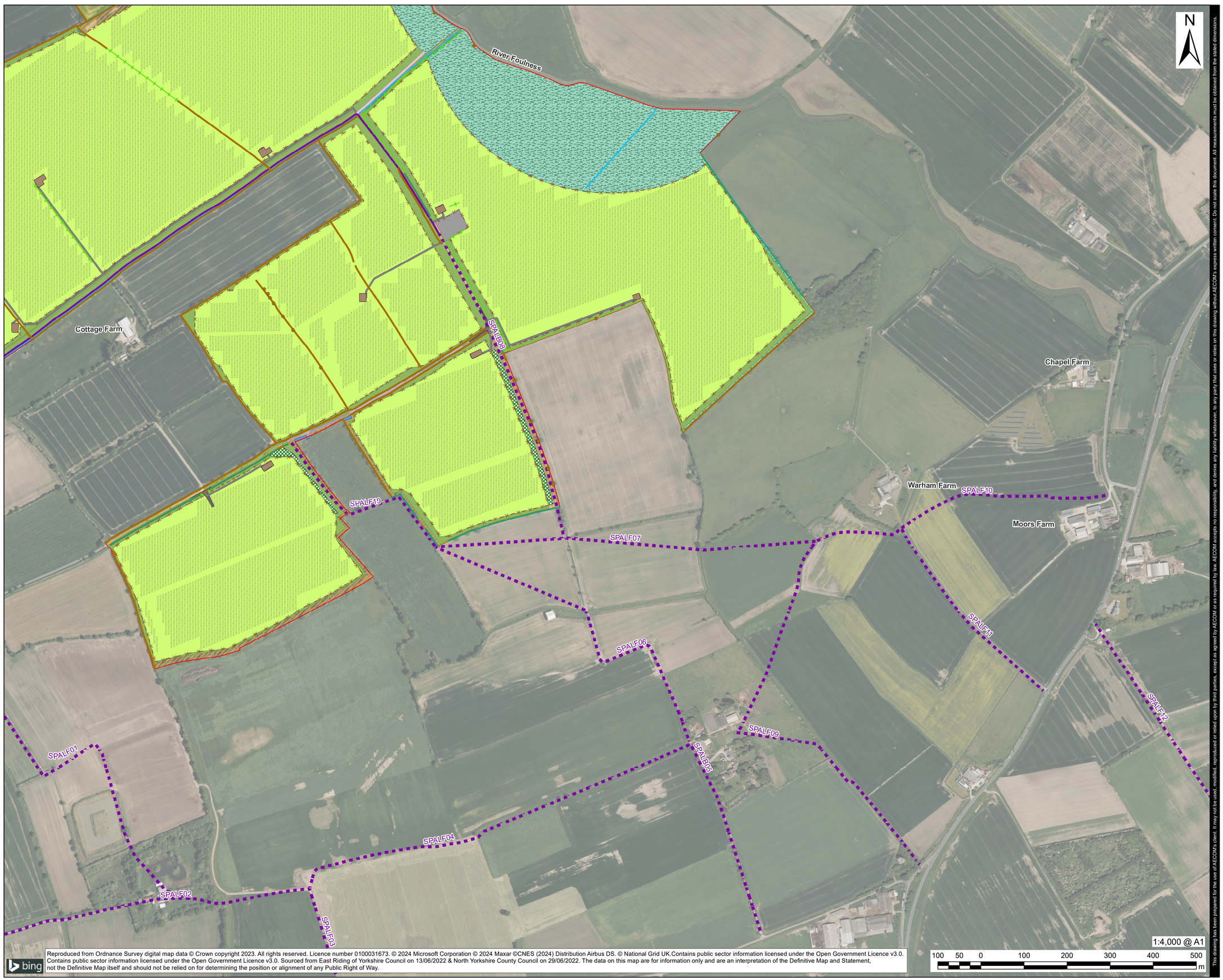

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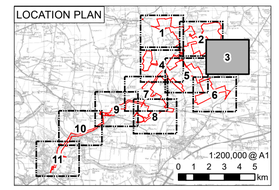

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ISSUE PURPOSE

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PLAN TITLE

Landscape Masterplan
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LEGISLATION REFERENCE

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ISO A1 594mm x 841mm

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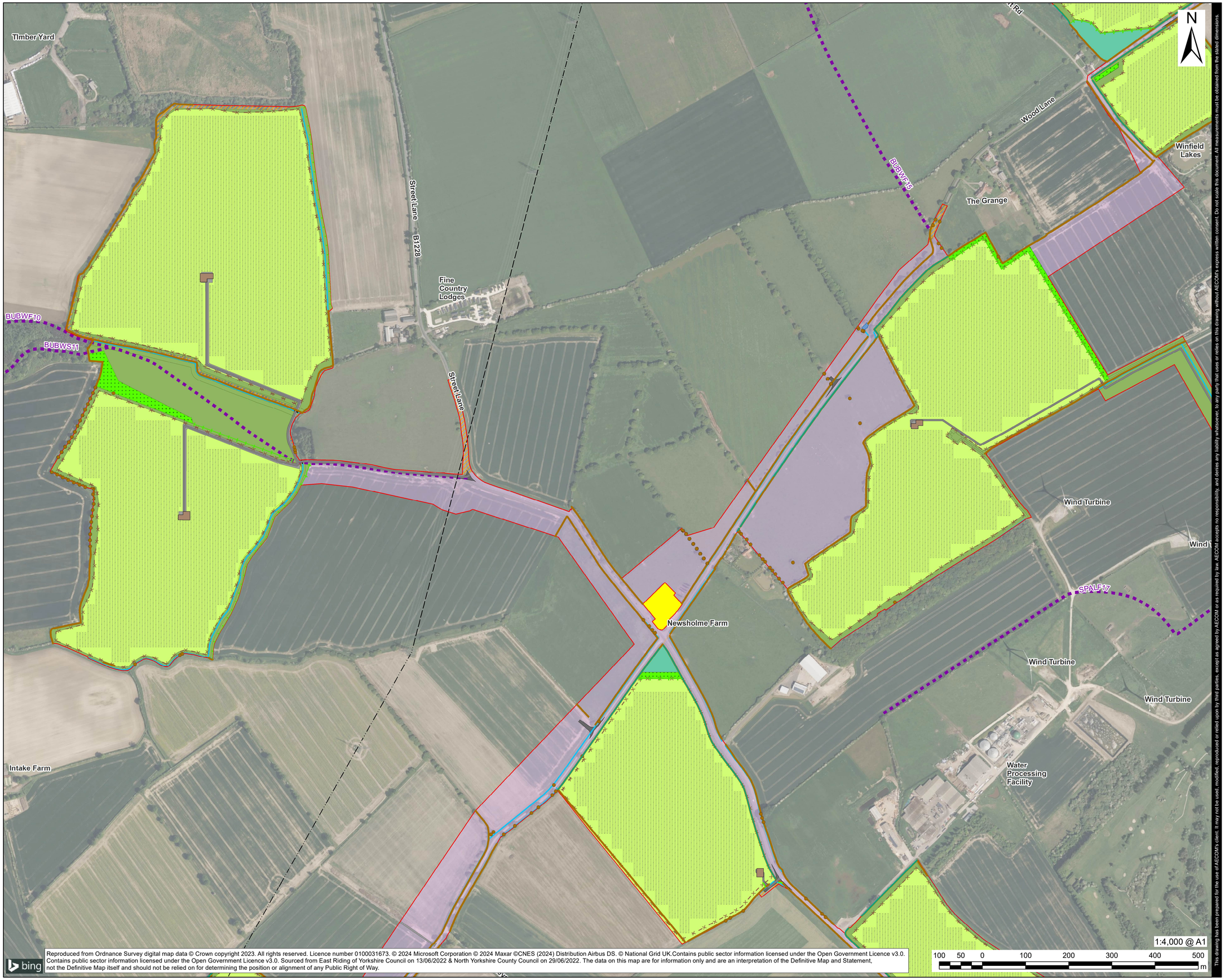

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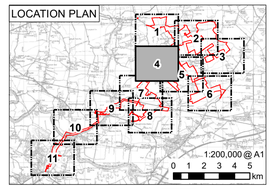

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ISSUE PURPOSE

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PROJECT NUMBER

60683115

PLAN TITLE

Landscape Masterplan
Sheet 4 of 11

REFERENCE NUMBER

60683115-7.14-1

LEGISLATION REFERENCE

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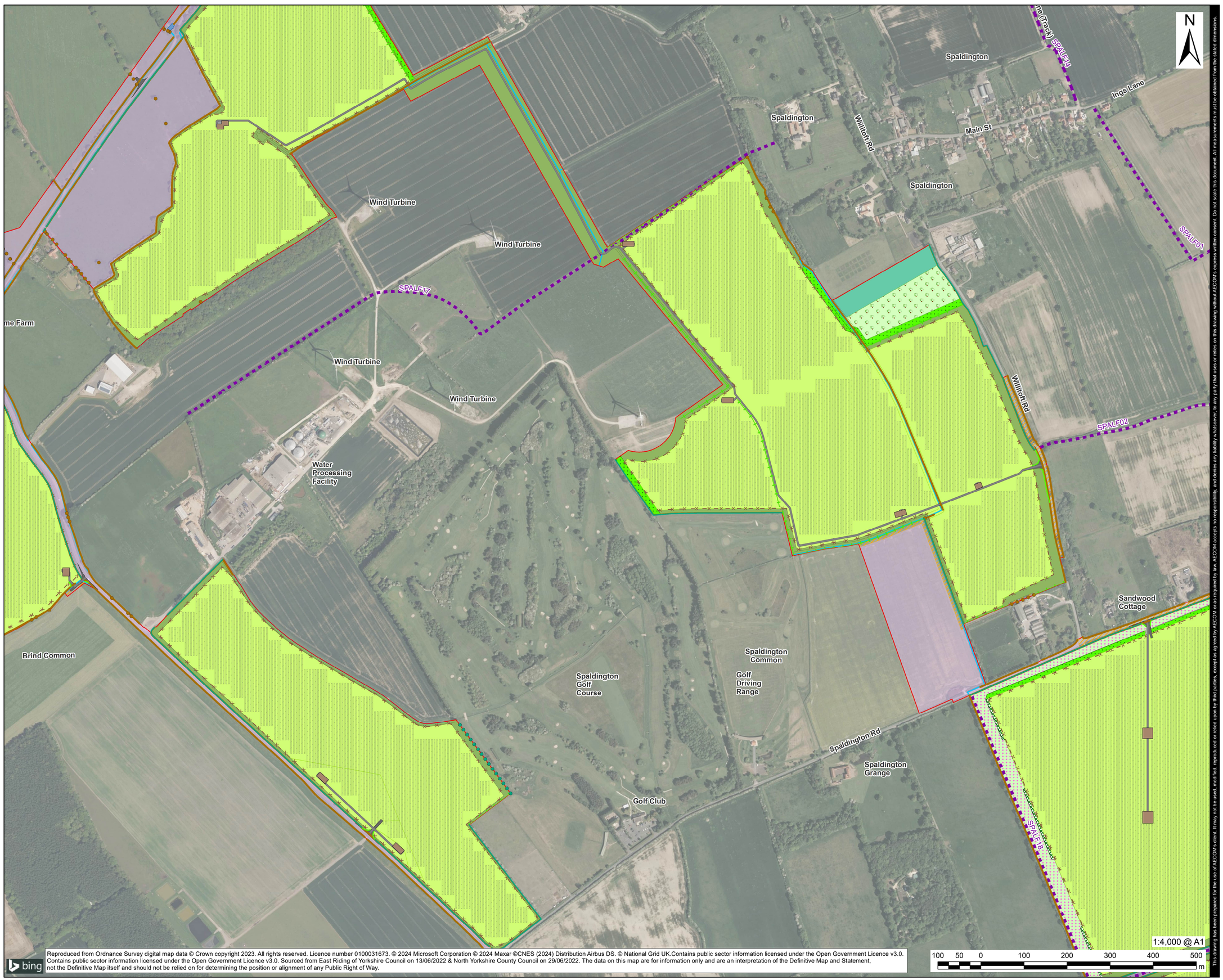

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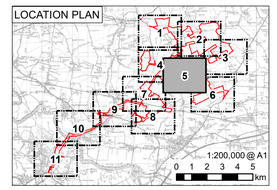

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60683115

PLAN TITLE

Landscape Masterplan
Sheet 5 of 11

REFERENCE NUMBER

60683115-7.14-1

LEGISLATION REFERENCE

APFP 2009 Regulation 5(2)(j)

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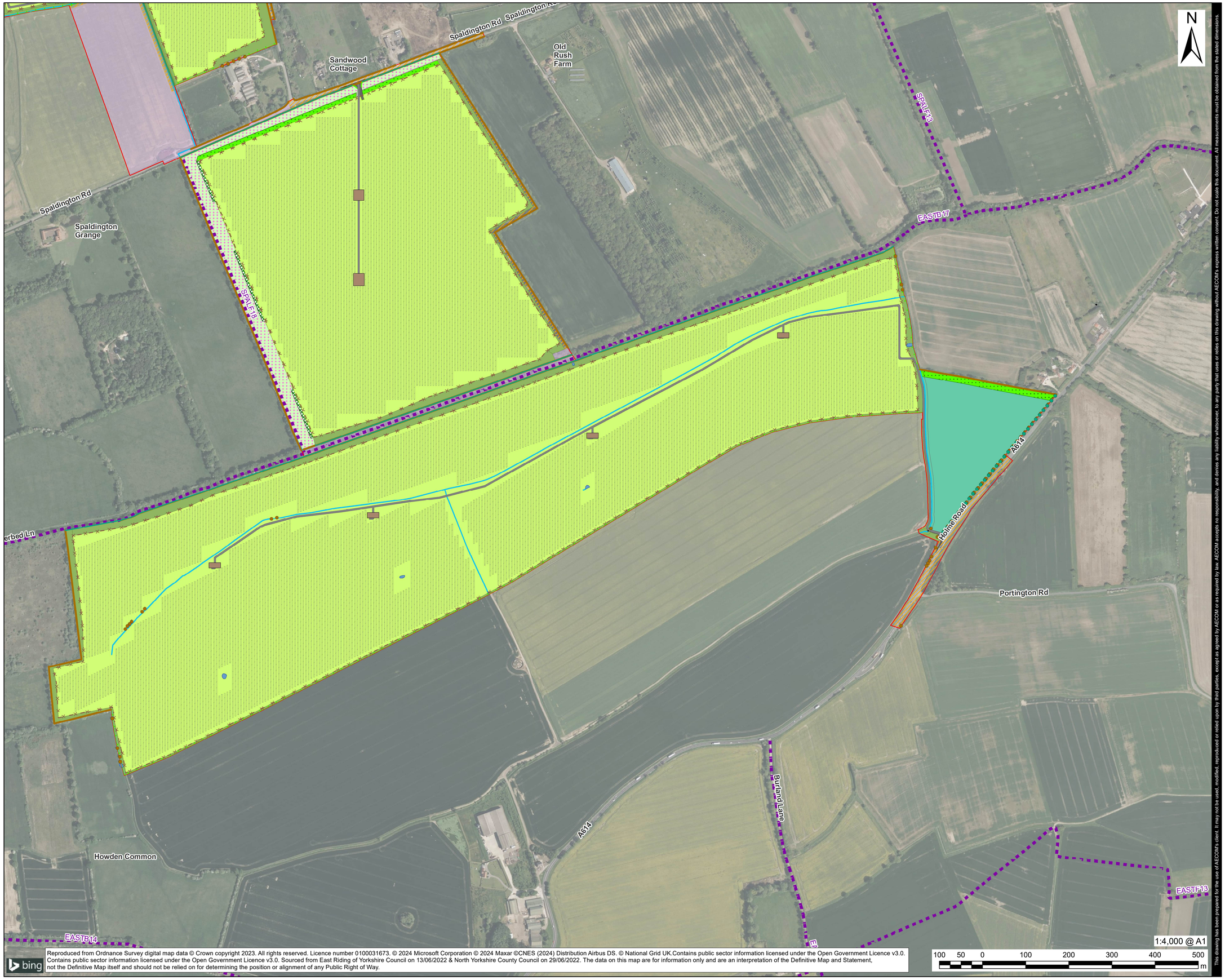

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CONSULTANT

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Alencon Link
Basingstoke, RG21 7PP
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LEGEND

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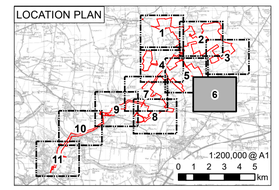

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ISSUE PURPOSE

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PROJECT NUMBER

60683115

PLAN TITLE

Landscape Masterplan
Sheet 6 of 11

REFERENCE NUMBER

60683115-7.14-1

LEGISLATION REFERENCE

APFP 2009 Regulation 5(2)(j)

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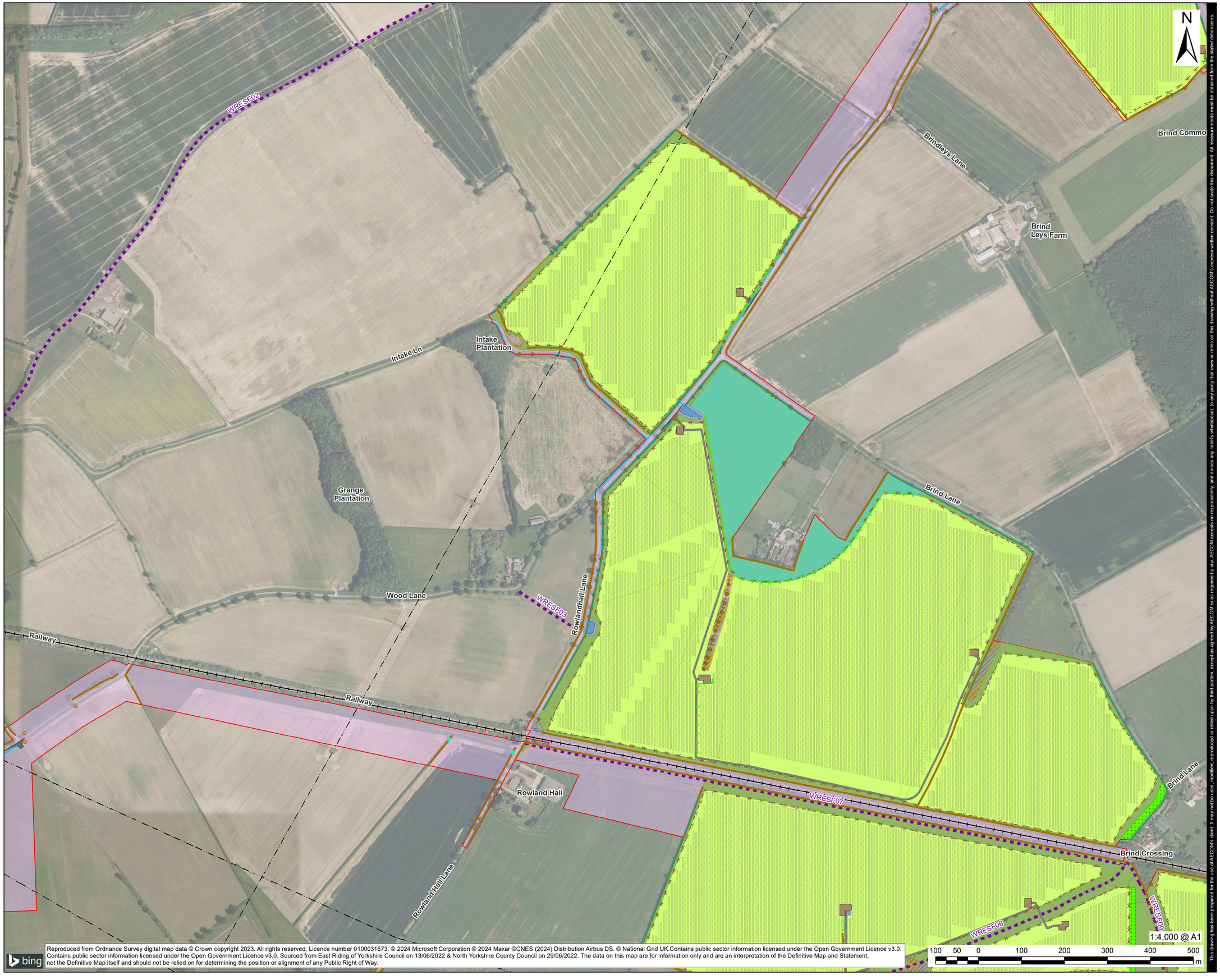

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PROJECT

East Yorkshire Solar Farm

CLIENT

East Yorkshire Solar Farm Limited

CONSULTANT

AECOM Limited
Midpoint
Alencon Link
Basingstoke, RG21 7PP
www.aecom.com

LEGEND

- Order limits
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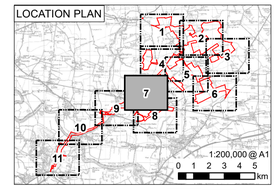

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PROJECT NUMBER

60683115

PLAN TITLE

Landscape Masterplan
Sheet 7 of 11

REFERENCE NUMBER

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LEGISLATION REFERENCE

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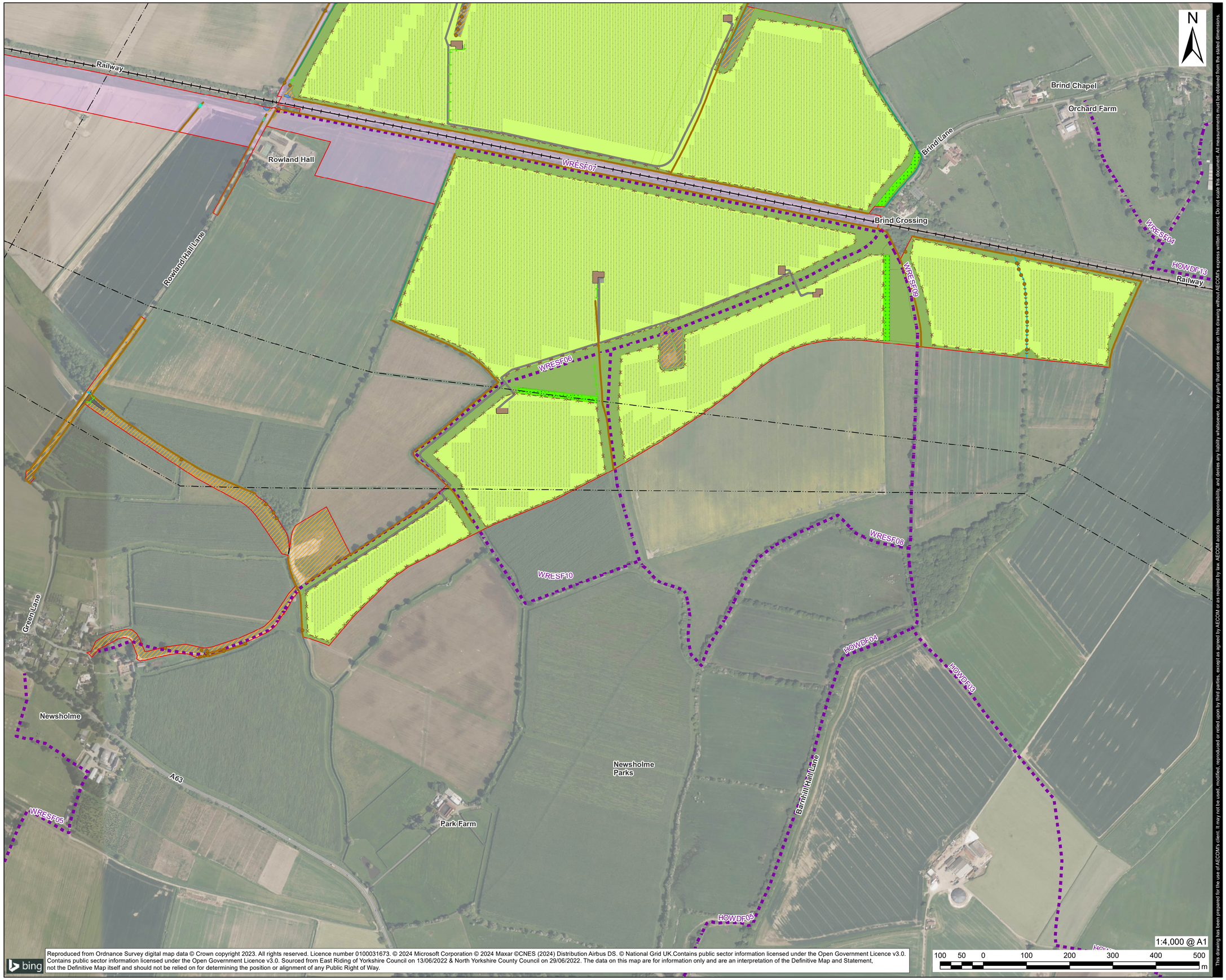

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PROJECT

East Yorkshire Solar Farm

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Basingstoke, RG21 7PP
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LEGEND

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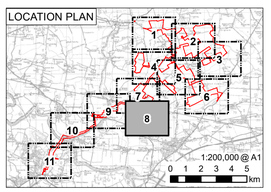

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PROJECT NUMBER

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PLAN TITLE

Landscape Masterplan
Sheet 8 of 11

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60683115-7.14-1

LEGISLATION REFERENCE

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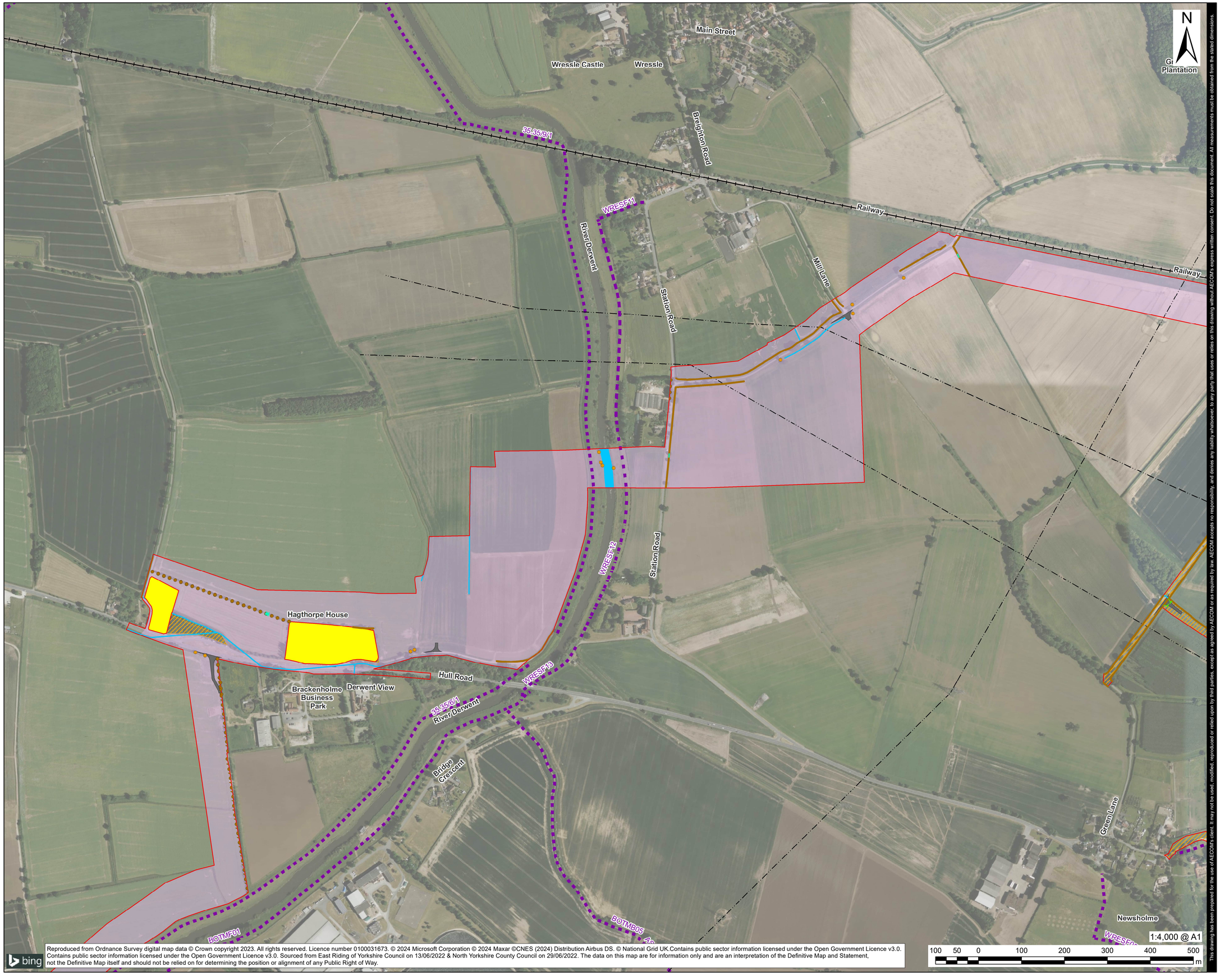

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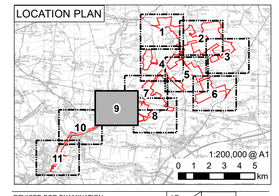

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PLAN TITLE

Landscape Masterplan
Sheet 9 of 11

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LEGISLATION REFERENCE

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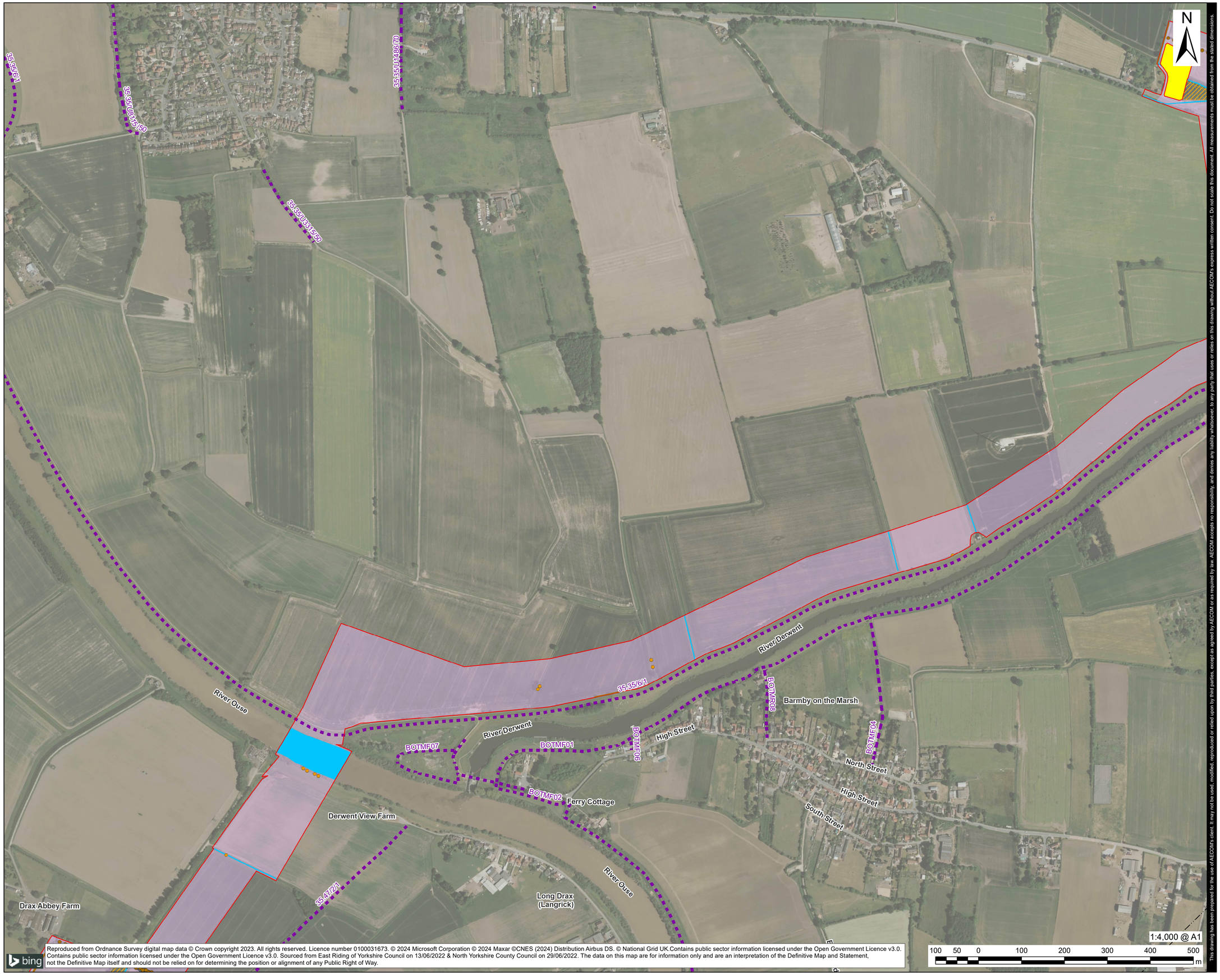

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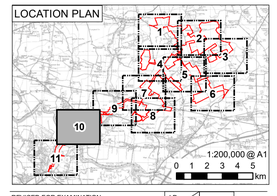
Movement and Access

- Proposed Internal Access Track
- Solar PV Site Perimeter Fencing
- Grid Connection Substation Fencing
- Proposed Permissive Path
- Proposed Permissive Path (Allowing Travel on Horses)
- Existing Public Right of Way
- Hull to Selby Railway Line
- Overhead Electricity Line

LOCATION PLAN



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REVISED FOR EXAMINATION	LP / JW	12/06/2024	0
FIRST ISSUE	CA / JW	16/11/2023	0

ISSUE PURPOSE

Examination

PROJECT NUMBER

60683115

PLAN TITLE

Landscape Masterplan
Sheet 10 of 11

REFERENCE NUMBER

60683115-7.14-1

LEGISLATION REFERENCE

APFP 2009 Regulation 5(2)(j)

ISO A1 594mm x 841mm

Revision: 1 Drawn: LP Checked: JW Approved: HS Date: 2024-06-18

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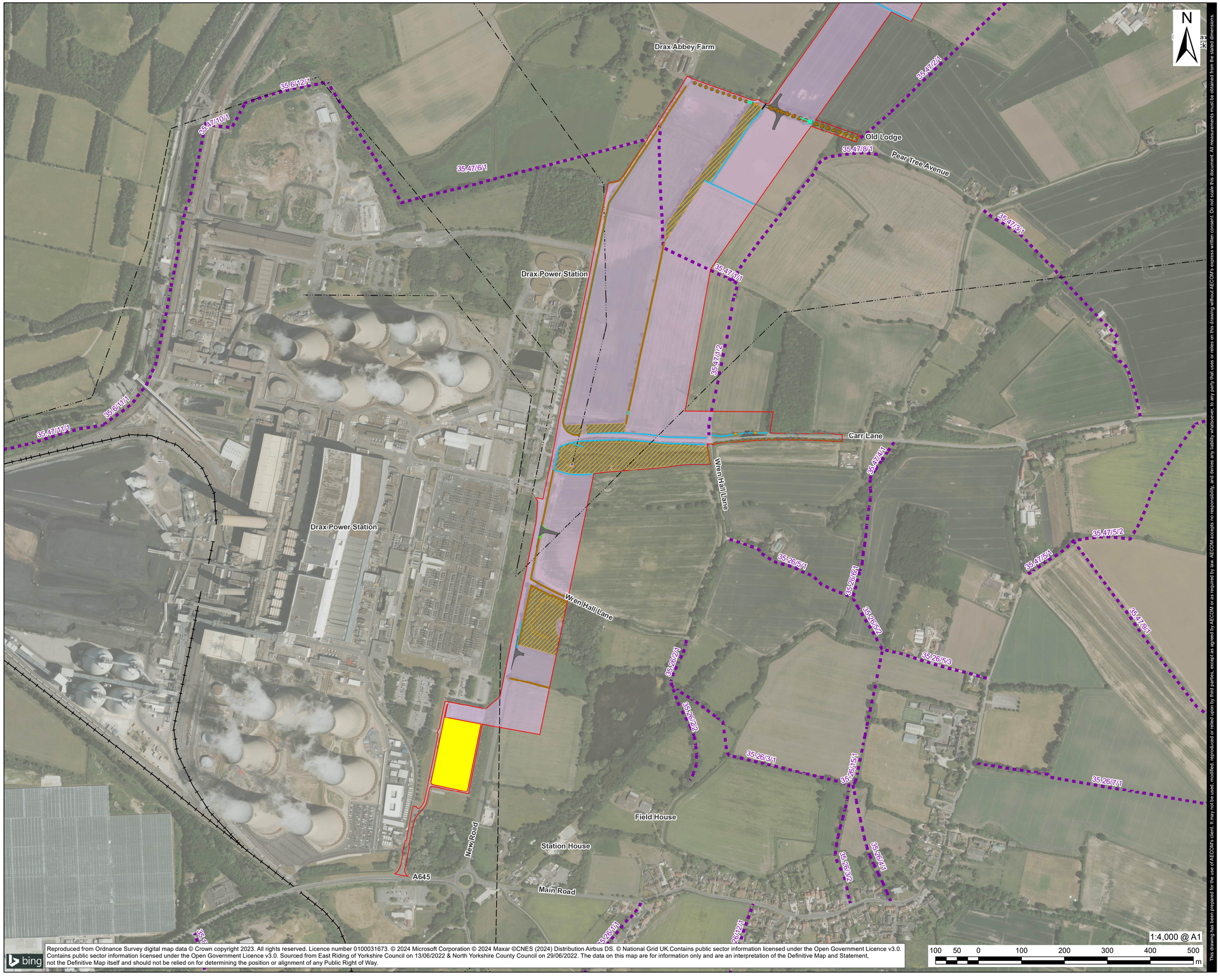

AECOM

PROJECT

East Yorkshire Solar Farm

CLIENT

East Yorkshire Solar Farm Limited

CONSULTANT

AECOM Limited
Midpoint
Alencon Link
Basingstoke, RG21 7PP
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LEGEND

- Order limits
- Land not included in the Order limits

Landscape Features

- Existing Individual Tree or Line of Trees
- Existing Hedgerow
- Resinstated Hedgerow
- Retained Habitat
- Proposed Cable Corridor – Habitat to be Reinstated
- Low Intensity Arable Farmland
- Enhanced Line of Trees
- Proposed Enhanced Linear Features
- Proposed Hedgerow
- Proposed Hedgerow with Trees
- Proposed Ecological Enhancement Area
- Proposed Flower Rich Grassland
- Proposed Hardstanding
- Proposed Native Scrub with Trees Planting
- Proposed Native Woodland - Mixed
- Proposed Semi-Improved Grassland
- Proposed Species-Rich Grassland
- Proposed Species Rich Wet Grassland
- Proposed Traditional Orchard
- Proposed Woodland Edge Mixed
- Solar PV Table
- Field Station
- Existing Watercourse
- Culvert
- Existing Pond

Movement and Access

- Proposed Internal Access Track
- Solar PV Site Perimeter Fencing
- Grid Connection Substation Fencing
- Proposed Permissive Path
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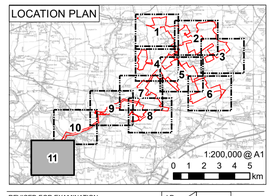
LOCATION PLAN



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Sheet 11 of 11

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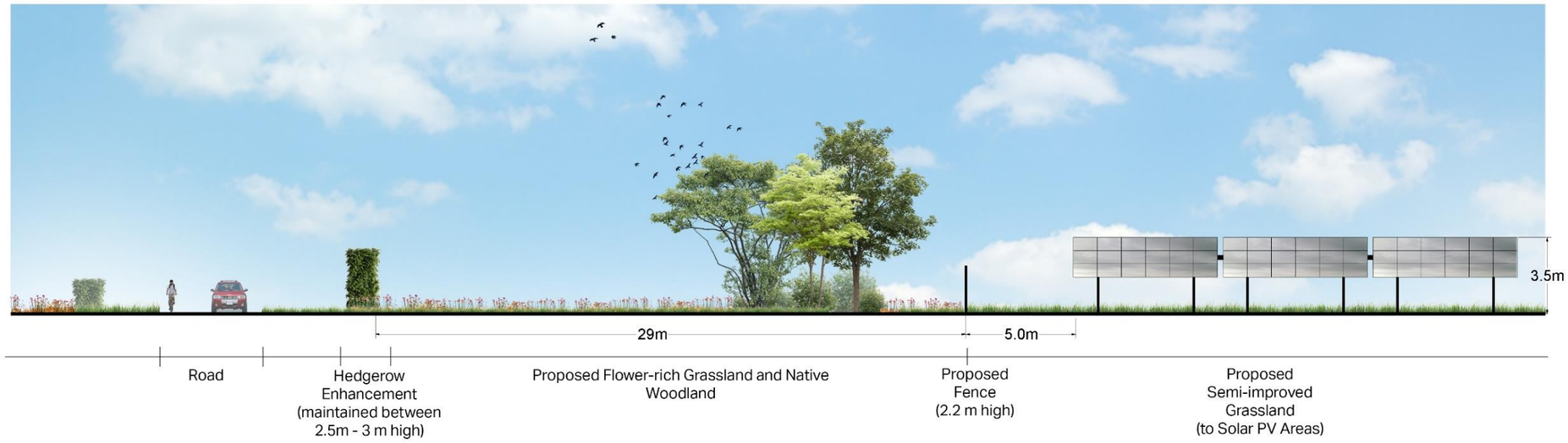
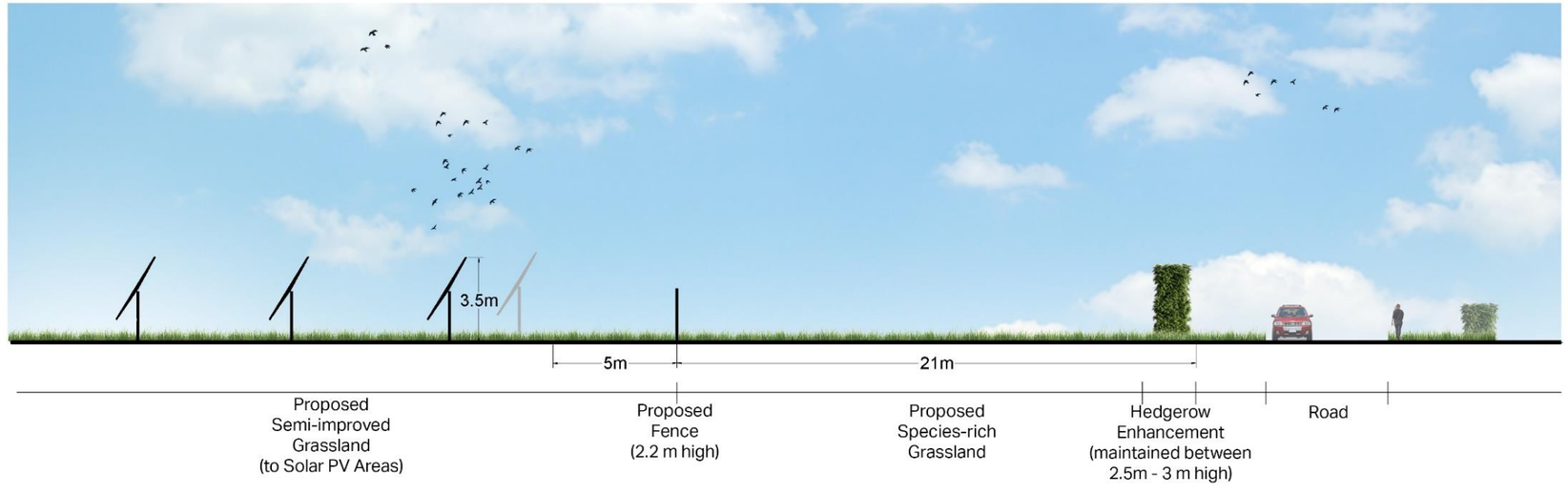
APFP 2009 Regulation 5(2)(j)

Appendix B – Indicative Landscape Sections

Section A - Indicative section illustrating the landscape mitigation buffer to the south of Spaldington Road



Section B - Indicative section illustrating the landscape mitigation buffer to the west of Willitoft Road



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ISO A3 297mm x 420mm

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FIGURE TITLE
Indicative Landscape Sections
Sheet 1 of 2

ISSUE PURPOSE
Framework Landscape and Ecological Management Plan (LEMP)

PROJECT NUMBER
60683115

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NOTES

PROJECT
EAST YORKSHIRE SOLAR FARM (EYSF)

CLIENT
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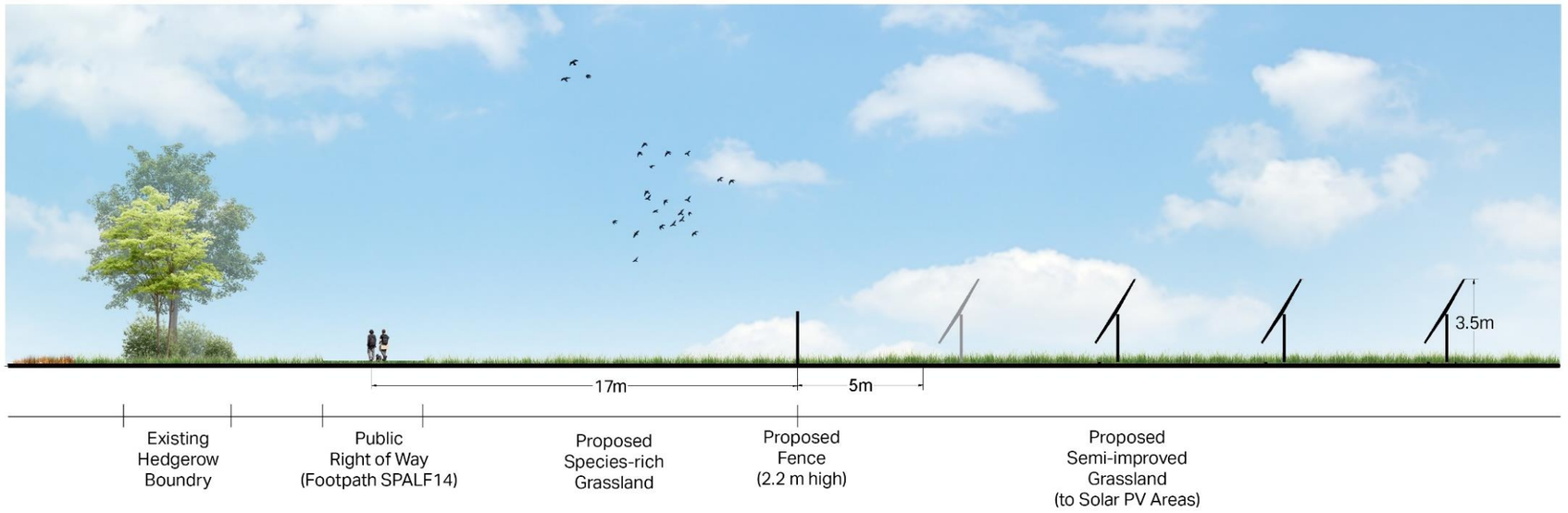
Section C - Indicative section illustrating the landscape mitigation buffer to the east of Footpath SPALF14 (to the north of Spaldington)



Section D - Indicative section illustrating landscape mitigation buffers to the east and west of Footpath FOGGF05 (to the south of Gribthorpe)

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FIGURE TITLE
Indicative Landscape Sections
Sheet 2 of 2

ISSUE PURPOSE
Framework Landscape and Ecological Management Plan (LEMP)

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