HELIOS RENEWABLE ENERGY PROJECT

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Environmental Statement Appendix 8.9: Information to inform HRA

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Helios Renewable Energy Project

On behalf of Enso Green Holdings D Limited

Appendix 8.9: Information to Inform a Habitats Regulations Assessment

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V1	02/05/2024	Draft Issue	Dr C. Bonnington Principal Ecologist *BSc MSc DPhil FBNA FLS MRSB MCIEEM*	H. Fearn Director *MSc MCIEEM*

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1 INTRODUCTION

1.1.1 This Appendix accompanies **Chapter 8: Biodiversity** of the Environmental Statement (ES) for the proposed development of a renewable energy generating project; consisting of ground-mounted solar photovoltaic arrays, together with on-site energy storage, associated infrastructure and grid connection (the 'Proposed Development'), on land to the south-west of the village of Camblesforth and to the north of the village of Hirst Courtney in North Yorkshire (the 'Site'); see **Figure 1.1**.

2 LEGISLATIVE BACKGROUND

2.1.1 Council Directives 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") and 2009/147/EC on the conservation of wild birds ("the Birds Directive") provide for the designation of sites for the protection of certain species and habitats. The sites designated under these Directives are collectively termed European sites and form part of a network of protected sites across Europe, known as the Natura 2000 network. In the UK the Habitats Regulations transpose these Directives into national law.

2.1.2 The Conservation of Habitats and Species Regulations 2017 are one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive and certain elements of the Wild Birds Directive. Following the changes made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, SACs and Special Protection Areas (SPAs) in the UK no longer form part of the EU's Natura 2000 ecological network. The 2019 Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs and SPAs, new SACs and SPAs designated under these Regulations.

2.1.3 Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new national site network.

2.1.4 The UK Government is also a signatory to the Convention on Wetlands of International Importance 1972 ("the Ramsar Convention"). The Ramsar Convention provides for the listing of wetlands of international importance.

2.1.5 The Overarching National Policy Statement ('NPS') for Energy (EN-1)[1] states that:

> *'As a matter of policy, the following should be given the same protection as sites covered by the Habitats Regulations and an HRA will also be required:*
>
> *(a) potential Special Protection Areas and possible Special Areas of Conservation;*
>
> *(b) listed or proposed Ramsar sites; and,*
>
> *(c) sites identified, or required, as compensatory measures for adverse effects on any of the other sites covered by this paragraph.'*

2.1.6 For the purposes of this Appendix, in line with the Habitats Regulations and relevant Government policy, the term "European sites" and new national site network includes Special Areas of Conservation ("SAC"), candidate SACs ("cSAC"), possible SACs ("pSAC"), Special Protection Areas ("SPA"), potential SPAs ("pSPA"), Sites of Community Importance ("SCI"), listed and proposed Ramsar

[1] Department for Energy Security & Net Zero (2023). *Overarching National Policy Statement for Energy (EN-1).* https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf (accessed 20/06/2024)

Sites and sites identified or required as compensatory measures for adverse effects on any of these sites.

2.1.7 Amongst other things, the Habitats Regulations define the process for the assessment of the implications of plans or projects on European sites. This process is termed the Habitats Regulations Assessment (HRA).

2.1.8 HRA can involve up to four stages, as detailed in Box 1.

Box 1 Stages of Habitats Regulations Assessment

Stage 1 – Screening:

This stage identifies the likely impacts upon a European Site of a project or Plan, either alone or 'in combination' with other projects or plans, and considers whether these impacts are likely to be significant.

Stage 2 – Appropriate Assessment:

Where there are likely significant impacts, this stage considers the impacts of the Plan or project on the integrity of the relevant European Sites, either alone or 'in combination' with other projects or plans, with respect to the sites' structure and function and their conservation objectives. Where there are adverse impacts, it also includes an assessment of the potential mitigation for those impacts.

Stage 3 – Assessment of Alternative Solutions:

Where adverse impacts [on the integrity of the site] are predicted, this stage examines [whether or not there are] alternative ways of achieving the objectives of the project or Plan that avoid adverse impacts on the integrity of European Sites.

Stage 4 – Assessment Where No Alternative Solutions Exist and Where Adverse Impacts Remain:

This stage assesses compensatory measures where it is deemed that the project or Plan should proceed for imperative reasons of overriding public interest (IROPI).

2.1.9 Stages 1 and 2 are covered by Regulation 63 of the Habitat Regulations 2017, and Stages 3 and 4 are covered by Regulations 64, 68 and 84 of the Habitat Regulations 2017.

2.1.10 With respect to Stage 2, the integrity of a European Site relates to the site's conservation objectives and has been defined in guidance as "the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated"[2]. An adverse effect on integrity, therefore, is likely to be one which prevents the site from making the same contribution to favourable conservation status for the relevant feature as it did at the time of designation. The HRA screening process uses the threshold of LSE to determine whether effects on European sites should be the subject of further assessment. The Habitats Regulations do not define the term LSE. However, in the Waddenzee case (Case C127/02)[3], the European Court of Justice found that an LSE should be presumed and an AA carried out if it cannot be excluded on the basis of objective information that the plan or project will not have significant effects on the conservation objectives of the site concerned,

[2] Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, at section 4.6.3 (Updated Version, November 2018)

[3] Judgment of the Court (Grand Chamber) of 7 September 2004. Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij. Reference for a preliminary ruling: Raad van State - Netherlands. Case C-127/02

whether alone or in combination with any other project. The Advocate General's opinion of the Sweetman case (Case C-258/11)[4] further clarifies the position by noting that for a conclusion of an LSE to be made "there is no need to establish such an effect...it is merely necessary to determine that there may be such an effect" (original emphasis).

2.1.11 For the reasons highlighted above the assessment process follows the precautionary principle throughout and the word 'likely' is regarded as a description of a risk (or possibility) rather than in a legal sense an expression of probability.

2.1.12 Screening can be used to screen-out European sites and elements of works from further assessment, if it is possible to determine that significant effects are unlikely (e.g., if sites or interest features are clearly not vulnerable (exposed and / or sensitive) to the outcomes of the proposal due to the absence of any reasonable impact pathways).

2.1.13 The screening process has two potential conclusions, namely that the proposed development, alone or in combination with other developments, could result in:

- No LSE on any of the qualifying features of the site; or,
- LSE identified, or cannot be ruled out, on one or more of the qualifying features of the site.

2.1.14 Only the second of these outcomes will trigger an AA. If one or more LSE are identified, or cannot be ruled out, it is then necessary to proceed to Stage 2 and produce an AA.

2.1.15 On 12 April 2018, the Court of Justice of the European Union (CJEU) issued a judgment on Case C323/17 (People over Wind, Peter Sweetman v Coillte Teoranta)[5] which stated (at paragraph 41):

"Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site."

2.1.16 This means that any mitigation relating to protected sites under the Habitat Regulations 2017 Regulation 63 (1) will no longer be considered at the screening stage but taken forward and considered at the AA stage to inform a decision on whether no adverse effects on site integrity can be demonstrated.

2.1.17 The assessment provided within this Information to Inform a Habitats Regulations Assessment report takes into account the CJEU ruling on 'People over Wind' and the precautionary principle has been applied as per the Waddenzee case.

[4] Judgment of the Court (Third Chamber), 11 April 2013 Peter Sweetman and Others v An Bord Pleanála. Request for a preliminary ruling from the Supreme Court (Ireland) Case C-258/11

[5] Judgment of the Court (Seventh Chamber) of 12 April 2018 People Over Wind and Peter Sweetman v Coillte Teoranta Request for a preliminary ruling from the High Court (Ireland) Case C-323/17

3 INFORMATION TO INFORM THE ASSESSMENT

3.1 Site Description

3.1.1 The Site as illustrated by the red-line application boundary shown on **Figure 8.8** of the Environmental Statement (ES) comprises predominantly multiple fields containing agricultural land, located at the approximate central grid reference SE 6323 2629.

3.1.2 The Site predominantly comprises arable fields marked by a series of wet and dry ditches, species-poor hedgerows, roads, woodlands, and trees. In the wider context, the Site is surrounded by further extensive areas of farmland and areas of woodland. The most north-eastern fields within the Site (Field 374: **Figures 8.8**) are separated from the Drax Power Station by New Road. The south-western field (Field 239: **Figures 8.8**) is approximately 4.2km south-west of the Drax Power Station, at its closest point.

3.1.3 Baseline ecology and ornithology survey information is presented in detail within **Chapter 8: Biodiversity** of the ES and accompanying Appendices.

3.2 Statutory Designated Wildlife Sites of European Importance

3.2.1 The Proposed Development is not located within any European site but there are nine statutory designated wildlife sites of European importance within 10km of the Site. A statutory designated site plan is provided in **Appendix 8.1; Figure 8.1** of the ES.

3.2.2 **Table 3.1** below identifies relevant European sites and outlines their qualifying features.

Table 3.1: Qualifying features - European sites.

Designation	Approximate Distance from the Site	Qualifying Features
River Derwent SAC	2.22km north-east	Qualifying species: • Bullhead *Cottus gobio*; • River lamprey *Lampetra fluviatilis*; • Otter *Lutra lutra*; and, • Sea lamprey *Petromyzon marinus*. Qualifying habitats consist of: • Water courses of plain to montane levels with *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation (rivers with floating vegetation often dominated by water-crowfoot).
Lower Derwent Valley SAC	6.47km north-east	Qualifying species: • Otter. Qualifying Habitats: • Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*); and, • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alder woodland on floodplains).
Lower Derwent Valley SPA	6.47km north-east	The site is designated for the following ornithological qualifying features: • Bewick's swan *Cygnus columbianus* (non-breeding); • Eurasian wigeon *Anas penelope* (non-breeding);

Table 3.1: Qualifying features - European sites.

Designation	Approximate Distance from the Site	Qualifying Features
		• Eurasian teal *Anas crecca* (non-breeding); • Northern shoveler *Anas clypeata* (breeding); • European golden plover *Pluvialis apricaria* (non-breeding); • Ruff *Philomachus pugnax* (non-breeding); and, • Waterbird assemblage (pochard *Aythya ferina*, ruff, shoveler, teal, whimbrel *Numenius phaeopus*, wigeon, gadwall *Anas strepera*, greylag goose *Anser anser*, pintail *Anas acuta*, whooper swan *Cygnus cygnus*, golden plover and lapwing *Vanellus vanellus*; See **Natural England document Annex B1**, in **Appendix 8.2** for further details).
Lower Derwent Valley Ramsar Site	6.55km north-east	Designated under Ramsar criterion 1, 2, 4, 5 and 6. Qualifying species listed as part of qualification under Ramsar Criterion 5 and 6 include: *Ramsar criterion 4* A staging post for passage birds in spring. Of particular note are the nationally important numbers of ruff and whimbrel. *Ramsar criterion 5* Wintering bird assemblages of international importance (peak counts in winter: 31,942 waterfowl (5-year peak mean 1998/99-2002/2003)). *Ramsar criterion 6* Wintering species occurring at levels of international importance: • Eurasian wigeon; and, • Eurasian teal. Qualifying Habitats: • Species-rich alluvial flood meadow; the river and flood meadows play a substantial role in the hydrological and ecological functioning of the Humber Basin. Qualifying Non-Avian species/assemblages: • Wetland invertebrates.
Humber Estuary SAC	6.64km east	Qualifying species: • Sea lamprey; • River lamprey; and • Grey seal Halichoerus grypus. Qualifying Habitats: • Subtidal sandbanks; • Estuaries; • Intertidal mudflats and sandflats; • Coastal lagoons; • Glasswort and other annuals colonising mud and sand; • Atlantic salt meadows (Glauco-Puccinellietalia maritimae); • Embryonic shifting dunes; • Shifting dunes with marram; • Dune grassland; and,

Table 3.1: Qualifying features - European sites.

Designation	Approximate Distance from the Site	Qualifying Features
		• Dunes with sea-buckthorn
Humber Estuary SPA	6.64km east	The site is designated for the following ornithological qualifying features: • Great bittern *Botaurus stellaris* (non-breeding and breeding); • Common shelduck *Tadorna tadorna* (non-breeding); • Eurasian marsh harrier *Circus aeruginosus* (breeding); • Hen harrier *Circus cyaneus* (non-breeding); • Pied avocet *Recurvirostra avosetta* (non-breeding and breeding); • European golden plover (non-breeding); • Red knot *Calidris canutus* (non-breeding); • Dunlin *Calidris alpina* (non-breeding); • Ruff (non-breeding); • Black-tailed godwit *Limosa limosa* (non-breeding); • Bar-tailed godwit *Limosa lapponica* (non-breeding); • Common redshank *Tringa tetanus* (non-breeding); • Little tern *Sternula albifrons* (breeding); and, • Waterbird assemblage (avocet, bar-tailed godwit, bittern, black-tailed godwit, brent goose *Branta bernicla*, curlew *Numenius arquata*, dunlin, golden plover, goldeneye *Bucephala clangula*, greenshank *Tringa nebularia*, grey plover *Pluvialis squatarola*, knot, lapwing, mallard *Anas platyrhynchos*, oystercatcher *Haematopus ostralegus*, pochard, redshank, ringed plover *Charadrius hiaticula*, ruff, sanderling *Calidris alba*, scaup *Aythya marila*, shelduck, teal, turnstone *Arenaria interpres*, whimbrel and wigeon; see **Natural England Document Annex B** in **Appendix 8.2** for further details).
Humber Estuary Ramsar Site	6.64km east	Designated under Ramsar criterion 1, 3, 5, 6 and 8. Qualifying species listed as part of qualification under Ramsar Criterion 5 and 6 include: Ramsar criterion 5 Wintering bird assemblages of international importance (peak counts in winter: 153,934 waterfowl (5-year peak mean 1996/97-2000/2001)). Ramsar criterion 6 Species with peak counts in spring/autumn occurring at levels of international importance: • European golden plover; • Red knot; • Dunlin; • Black-tailed godwit; and, • Common redshank. Species with peak counts in winter occurring at levels of international importance: • Common shelduck; • European golden plover; • Red knot; • Dunlin;

Table 3.1: Qualifying features - European sites.

Designation	Approximate Distance from the Site	Qualifying Features
		• Black-tailed godwit; and, • Bar-tailed godwit. Qualifying Habitats: • A near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/ saline lagoons. Qualifying non-avian species/assemblages: • Grey seal; • Natterjack toad Epidalea calamita; • River lamprey; and, • Sea lamprey.
Skipwith Common SAC	8.5km north	Qualifying features: • Northern Atlantic wet heaths with *Erica tetralix*; Wet heathland with cross-leaved heath; and, • European dry heaths.
Thorne & Hatfield Moors SPA	9.09km south	Qualifying species: • European nightjar *Caprimulgus europaeus* (Breeding).

4 STAGE 1: SCREENING FOR LSE

4.1.1 Stage 1: Screening for LSE is undertaken to ascertain whether any proposals, or components of proposals, do not require consideration under AA (Stage 2: Shadow AA). For the ecological component of the HRA process, Screening considers three important aspects of the proposal and the qualifying features of the site:

- Connectivity between the proposal and the site;
- Route to impact between the proposal and the site; and
- Numbers of qualifying features available for impact (trivial or non-trivial).

4.1.2 If it can be clearly demonstrated that effects are de minimis; e.g., there is no connectivity, no route to impact or trivial number of qualifying features would be impacted, it can be concluded that there is no LSE on the site. If, however, there is any doubt that no LSE can be concluded in Stage 1, the process moves on to Stage 2 (AA).

4.1.3 Firstly, any European site with potential connectivity to the Proposed Development are identified, as those designated sites without potential connectivity will have no route to impact and no adverse effect.

4.1 Identification of Designated Sites

4.1.1 The European sites considered for assessment in the case of the Proposed Development have been identified through desk study (see Section 8.4 of **Chapter 8: Biodiversity**).

4.1.2 Effects on most European designated sites (as listed in **Table 3.1**) are scoped out of assessment owing to the considerable spatial separation between these designated sites and the Site and lack of pathways of connectivity (for example, the Site is not in the same river catchment and/ or the qualifying features are static or their range restricted, or the habitat preferences of the qualifying species is specific) such as habitats, otter, wetland invertebrates, natterjack toad and aquatic mammals.

4.1.3 Following scoping responses provided by Natural England (see Table 8.5 in **Chapter 8: Biodiversity**), a Screening assessment is presented here to provide the competent authority with the information required to determine if the Proposed Development would have an LSE on the following European-designated sites, and subsequently if an AA is required:

- Lower Derwent Valley SPA and Ramsar Site; and,
- Humber Estuary SPA and Ramsar Site.

4.1.4 The listed qualifying features of these SPAs and Ramsar Sites are provided in **Table 3.1**.

4.1.5 Breeding qualifying species of the Lower Derwent Valley SPA (shoveler) and Humber Estuary SPA (bittern, marsh harrier, avocet and little tern) listed in **Table 3.1**, are scoped out of assessment given the lack of breeding records during the field surveys, lack of suitable habitat present onsite (and within 600m of the Site) and, given spatial separation between these SPAs and the Site the lack of potential for disturbance of breeding species within the SPA boundary (based on disturbance distances Goodship and Furness, 2022[6]).

4.1.6 Note, modest numbers of goldeneye (peak of two across the surveys) and pochard (peak of six across the surveys) were recorded in the 600m buffer around the Site, on the lake near field 339 (see **Appendix 8.2, Table 3.2 and Figure 8.12**). Although these are waterbird assemblage species of the Humber Estuary SPA (and only pochard for the Lower Derwent Valley SPA), they are diving ducks and as such the Site is unsuitable for these species. Likely effects on birds using the lake from the Proposed Development are considered in Section 5.

4.2 Natura 2000 Site Conservation Objectives

4.2.1 The conservation objectives for the Lower Derwent Valley SPA and Humber Estuary SPA are as follows:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of the qualifying features rely;

[6] Goodship, N.M. and Furness, R.W. (2022). (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

4.3 Non-Breeding Bird Surveys

Survey Method

4.3.1 Full survey methodology is included in **Appendix 8.2**.

4.3.2 Avian Ecology completed a season of wintering bird surveys between October 2021 and March 2022 and October 2022 and March 2023, with alterations to the Site between the survey years (as discussed in **Appendix 8.2**). Spring passage and autumn passage surveys were also undertaken respectively in April and May 2023, and September and October 2023. Nocturnal surveys were also carried out between, and including, January and March 2024. The focus of the surveys was to determine whether the Site is regularly used by species which are classified as a qualifying feature of the Humber Estuary SPA and Ramsar Site and Lower Derwent Valley SPA and Ramsar Site, for the purpose of this Appendix, termed 'Target Species'.

4.3.3 The Study Area comprised the Site and fields within a 600m buffer zone as shown in **Figure 8.8**[7]**.**

Results

4.3.4 A summary of the survey findings is presented in **Table 4.1** and are illustrated in Appendix 8.2; **Figures 8.9 – 8.17**.

4.3.5 Within **Table 4.1** Lower Derwent Valley SPA/ Ramsar Site is referred to as 'LDV' and the Humber Estuary SPA/ Ramsar Site is 'HE'. Target Species which are only a component of the waterbird assemblage and are not alone qualifying species are shaded in **Table 4.1**. 'FLL' is 'functionally linked land' in **Table 4.1** and is considered in Sections 4.3.9 to 4.3.20.

4.3.6 Only two Target Species which are alone qualifying species of the SPAs/ Ramsar Sites (golden plover which is a qualifying species of the Humber Estuary and Lower Derwent Valley SPAs; and shelduck, which is a qualifying species of the Humber Estuary SPA/ Ramsar Site) were recorded within the Site infrequently and in very low number. A further three species which are components of the waterbird assemblage (lapwing which is a listed species of the Humber Estuary SPA and Lower Derwent Valley SPA, and mallard and oystercatcher which are listed species of the Humber Estuary SPA waterbird assemblage) were recorded using the Site typically in very low numbers and sporadically.

4.3.7 Within the 600m buffer the lake (by field 339), approximately 200m from the Proposed Development at its closest point (grid connection) supported low-moderate numbers of Target Species, mainly comprising species which are only part of the SPA qualifying waterbird assemblage (including mallard and gadwall), but also wigeon and teal (alone qualifying species for the Lower Derwent Valley SPA, and assemblage only species for the Humber Estuary SPA).

4.3.8 Full details of the survey results are provided in **Appendix 8.2** of the ES.

[7] Although the nocturnal surveys were restricted to the Site (not including the 600m buffer).

Table 4.1: Target Species Peak Counts and Regularity during the Survey Period. Target Species which are only a component of the waterbird assemblage and are not alone qualifying species are shaded.

Species	Peak Count	FLL Threshold (2/3rds of Surveys Would Need to Reach This Bird Number)	Regularity of Use in Percentage (Number of Surveys when Species Recorded in Brackets)	Number of Surveys Where FLL Threshold was Exceeded.
The Site (Winter 2021/22 & 2022/23)				
Golden plover	2	31 (LDV) 208 (HE)	4.8% (1/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Lapwing	211	2,000 birds (LDV & HE)	92% (11/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Mallard	4	2,000 birds (HE)	41.7% (5/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
600m buffer (Winter 2021/22 & 2022/23)				
Gadwall	64	310 birds (based on GB population) (LDV)	100% (12/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Mallard	52	2,000 birds (HE)	92% (11/12 (2021/22)) & 41.7% (5/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Teal	21	73 (LDV) 2,000 birds (HE)	33% (4/12 (2021/22) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Wigeon	73	115 (LDV) 2,000 birds	50% (6/12 (2021/22) & 0% (2022/23)	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))

Species	Peak Count	FLL Threshold (2/3rds of Surveys Would Need to Reach This Bird Number)	Regularity of Use in Percentage (Number of Surveys when Species Recorded in Brackets)	Number of Surveys Where FLL Threshold was Exceeded.
		(HE)		
Oystercatcher	2	2,000 birds (HE)	8% (1/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Lapwing	28	2,000 birds (LDV & HE)	33% (4/12 (2021/22)) & 42% (5/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
The Site (Passage Spring 2023)				
Shelduck	2	65 (HE)	50% (2/4)	0% (0/4)
Oystercatcher	3	2,000 birds (HE)	75% (3/4)	0% (0/4)
Lapwing	5	2,000 birds (LDV & HE)	75% (3/4)	0% (0/4)
600m buffer (Passage Spring 2023)				
Shelduck	2	65 (HE)	25% (1/4)	0% (0/4)
Gadwall	6	310 birds (based on GB population) (LDV)	25% (1/4)	0% (0/4)
Mallard	16	2,000 birds (HE)	75% (3/4)	0% (0/4)
Oystercatcher	3	2,000 birds	50% (2/4)	0% (0/4)

Species	Peak Count	FLL Threshold (2/3rds of Surveys Would Need to Reach This Bird Number)	Regularity of Use in Percentage (Number of Surveys when Species Recorded in Brackets)	Number of Surveys Where FLL Threshold was Exceeded.
		(HE)		
Lapwing	2	2,000 birds (LDV & HE)	25% (1/4)	0% (0/4)
The Site (Passage Autumn 2023)				
Oystercatcher	4	2,000 birds (HE)	66% (2/3)	0% (0/3)
Lapwing	14	2,000 birds (LDV & HE)	100% (3/3)	0% (0/3)
600m Buffer (Passage Autumn 2023)				
Gadwall	52	310 birds (based on GB population) (LDV)	100% (3/3)	0% (0/3)
Mallard	15	2,000 birds (HE)	100% (3/3)	0% (0/3)
Wigeon	2	115 (LDV) 2,000 birds (HE)	33% (1/3)	0% (0/3)
Lapwing	14	2,000 birds (LDV & HE)	33% (1/3)	0% (0/3)
The Site (Nocturnal Bird Surveys 2024)				

Species	Peak Count	FLL Threshold (2/3rds of Surveys Would Need to Reach This Bird Number)	Regularity of Use in Percentage (Number of Surveys when Species Recorded in Brackets)	Number of Surveys Where FLL Threshold was Exceeded.
Mallard	6	2,000 birds (HE)	100% (3/3)	0% (0/3)
Lapwing	1	2,000 birds (LDV & HE)	100% (3/3)	0% (0/3)
600m buffer (Nocturnal Bird Surveys 2024				
Mallard	5	2,000 birds (HE)	33% (1/3)	0% (0/3)

Assessment of Potential Functional Linkage

4.3.9 Full details are provided in **Chapter 8: Biodiversity**, but also see **Table 4.1**.

4.3.10 In October 2021, Natural England (NE) published a report titled '*Identification of Functionally Linked Land supporting Special Protection Areas (SPAs) waterbirds in the North West of England (NECR361)*[8]. This report sets out criteria as to how functionally linked land (FLL) are defined in the region. Although the Site is not within the north-west region, the report is considered in this assessment, particularly given the lack of suitable alternative approaches.

4.3.11 In the NE report, FLL is defined as: **areas of land occurring within 20km of an SPA (and/or Ramsar Site), that are regularly used by significant numbers of qualifying bird species**.

4.3.12 For alone SPA/ Ramsar Site qualifying species a **significant** number of birds is defined as ≥1% of the SPA population taken from BTO WeBS reports[9], and associated results presented on the BTO WeBS website, or a species count exceeding 1,000 birds.

4.3.13 Following a consultation response received on 1st May 2024 Natural England has requested an alternative methodology which takes a more qualitative approach; however Natural England did not provide reference to a specific methodology or clear guidance. Given the late receipt of the response and that this postdates the Preliminary Environmental Information Report and subsequent Statutory

[8] Available at http://publications.naturalengland.org.uk/publication/6303434392469504 [accessed March 2024]

[9] Austin, G.E., Calbrade, N.A., Birtles, G.A., Peck, K., Shaw, J.M. Wotton, S.R., Balmer, D.E. and Frost, T.M. (2023.) Waterbirds in the UK 2021/22: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

Consultation period, the assessment has been undertaken in line with a methodology previously accepted by Natural England for other comparable planning applications. Extremely low numbers of target birds were recorded during extensive surveys and therefore an alternative assessment is not considered likely to have led to differing conclusions.

4.3.14 For species which are not alone qualifying features of the SPA/ Ramsar Site, but instead are only listed as a component part of the qualifying waterbird assemblage, a significant number of birds is defined as ≥1% of each and every listed species that make up the assemblage, or ≥1% of the national (GB) population (taken from Woodward *et al.* 2020[10]), or a species count exceeding 2,000 birds.

4.3.15 Regular usage was defined in the NE report as being used by significant numbers of birds for 7 or more years since 2010. Clearly this is not compatible with surveys for impact assessment purposes; however, the NE report further states that Stroud *et al.* (2001[11]) define 'regular' as when a threshold is met in two thirds of the season for which adequate data are available.

4.3.16 For the purposes of this Appendix, the above definition and parameters are referred as '**the FLL Criteria**'. However, as well as the thresholds to determine the FLL Criteria, information is also considered into Target Species usage across the survey period, even where the thresholds were not met to provide a full complete picture of the Site usage by Target Species.

4.3.17 During the surveys there was evidence that the Site was used by very low numbers of golden plover and shelduck (both alone SPA qualifying species; golden plover for both SPAs and shelduck for only Humber Estuary SPA) on only one occasion each across the entire survey period. Numbers for both species (peak of two) were well below the 1% of the SPA populations on that occasion and therefore no counts met the FLL Criteria.

4.3.18 The Site was also used by typically low numbers of lapwing, mallard and oystercatcher, which are listed as part of the waterbird assemblage of the SPAs (both SPAs for lapwing, and Humber Estuary SPA for mallard and oystercatcher). Records of mallard and oystercatcher onsite were very low during the survey period (peak of only respectively six and four mallard and oystercatcher). Lapwing was recorded in greater numbers onsite and more frequently with a peak of 211 birds recorded. Field 25 onsite was the most regularly used part of the Site by lapwing. During the 2021/22 season over the 12 surveys the number of lapwings recorded onsite ranged from 0 to 211, with an average of 55 birds. During the passage periods (and nocturnal surveys) the number of lapwings recorded onsite was very low ≤14 birds, and during the 2022/23 season no lapwing were recorded onsite at all. As such, lapwing usage of the Site is sporadic and even in 2021/22 when they were regularly recorded (during 11 out of 12 surveys) the number was relatively low (average of 55 birds) and well below the thresholds that would indicate FLL. Numbers for all three species were well below the thresholds, and therefore the FLL Criteria was not met for any of the species.

4.3.19 Subsequently, no evidence of regular use of significant numbers (defined as >1% of the recent, 2021/22 5-year mean SPA population for alone qualifying species, and appropriate threshold for waterbird assemblage only species) within the Site was identified over the course of the survey period for any Humber Estuary and Lower Derwent Valley SPA/ Ramsar Site qualifying species. No species met the FLL Criteria on any survey of the Site.

4.3.20 The Wider Survey Area (600m buffer outside the Site) supported a modest range of SPA qualifying species in low-moderate numbers. The lake (near field 339) c. 200m from the Proposed Development at its closest point supported the main concentrations of Target Species, including alone qualifying

[10] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A and Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 113: 69-104.

[11] Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, P., McLean, I., Baker, H. & Whitehead, S. (eds). 2001. The UK SPA network: its scope and content. JNCC, Peterborough, p56.

SPA species such as wigeon and teal, and waterbird assemblage only SPA species (including mallard and gadwall). The counts (including the lake) were however well below the thresholds, and therefore the FLL Criteria was not met for any of the Target Species recorded in the 600m buffer around the Site.

4.3.21 Given the very sporadic and low usage of the fields onsite by bird species associated with the SPAs, survey results provide no evidence that any part of the Site is functionally linked to the Humber Estuary SPA and Ramsar Site, or the Lower Derwent Valley SPA and Ramsar Site.

5 POTENTIAL EFFECTS OF THE PROPOSED DEVELOPMENT

5.1.1 Potential effects are considered during the construction, operation and decommission phases of the Proposed Development. The potential effects listed above are most likely to occur during the construction and decommission phases. During operation of the Proposed Development, potential effects are envisaged to be minimal. Operational activities will be restricted to occasional maintenance which will not generate significant levels of noise, vibration or lighting that have the potential to cause disturbance. During the decommission phase increased noise and vibration levels are likely to occur during the dismantling of the solar panels and removal of equipment from the Site.

5.1.2 The potential effects of the Proposed Development could affect qualifying interests of European sites via;

- Habitat loss or change; and,
- Disturbance or displacement of qualifying bird features.

5.1.3 A separate letter response, prepared by Air Quality Consultant, concerning this issue (Air Quality Consultants Technical Note, 23rd February 2024) has been submitted to Natural England. The letter identifies there is no pathway for likely significant effects on internationally, or nationally protected sites; as such, an assessment of air quality has not been included in this document.

5.2 Habitat Loss or Change

5.2.1 The Proposed Development is not located directly within any European site, with the Humber Estuary SPA/ Ramsar Site and the Lower Derwent Valley SPA/ Ramsar Site c. 6.5km from the Site. There will be no direct effect on habitats within any European site and subsequently direct habitat loss is screened-out.

5.2.2 Some of the qualifying interests for which the statutory sites are designated for may rely on habitats outside of designated site boundaries. Critically, such habitats (also known as FLL) can play an essential role in maintaining SPA/ Ramsar Site bird populations, and proposals affecting these habitats and/or the birds /populations using them may therefore have the potential to affect the integrity of the European Site. It is considered that considering all SPA qualifying species in this assessment is highly precautionary given the foraging range for most of these Target Species are likely less than the distance between the SPAs/ Ramsar Sites and the Site (based on documented foraging ranges in SNH, 2016[12,13]).

5.2.3 Surveys over two and a half years have demonstrated that the Site is not functionally linked to the Humber Estuary SPA and Ramsar Site or the Lower Derwent Valley SPA and Ramsar Site, as demonstrated through the wintering, passage and nocturnal bird surveys. Therefore, indirect impacts

[12] SNH (2016). Assessing connectivity with Special Protection Areas (SPAs). Guidance. Version 3 – June 2016.
[13] And where appropriate, proxies, given only selected species are considered in the NatureScot guidance (SNH, 2016).

on these SPAs and Ramsar Sites by virtue of habitat loss or change within the Site affecting qualifying species, are assessed to be inconsequential.

5.2.4 Similarly, the land take and Proposed Development of the Site is considered to be inconsequential in the context of the Conservation Objectives of any of these European designated sites.

5.2.5 Consideration has been given to the potential for indirect habitat losses (and/or degradation) on immediate surrounding lands through impacts from contaminated water runoff and/or the escape of pollutants from the Site during both the construction and operational phase of the Proposed Development. In view of the nature of the Proposed Development, relatively short construction timescale (approximately 12 months) and the construction processes involved (restricted excavations for cabling and solar panel supports and erection of small operation control structures), discernible effects are considered highly unlikely, and inconsequential in the context of the European designated sites and qualifying interest features.

5.2.6 During the operational phase periodic cleaning of PV modules where required will be cleaned with a soft brush using soft, clean water with a recommended pressure less than 690kPa, which is typical of most municipal water systems. Solar PV modules are designed to withstand high snow loads; a brush will be used to gently remove snow. No chemicals are required, and such operational maintenance is considered negligible in the context of potential indirect effects on the designations.

5.2.7 Direct and indirect habitat effects upon qualifying features of European sites are subsequently screened out.

5.3 Disturbance or Displacement of Faunal Species

5.3.1 The Natural England Supplementary Conservation Advice for the Lower Derwent Valley SPA[14] states:

"The nature, scale, timing and duration of some human activities can result in bird disturbance (defined as any human-induced activity sufficient to disrupt normal behaviours and / or distribution of birds in the absence of the activity) at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Such disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.

Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures."

5.3.2 The Humber Estuary SPA Supplementary Conservation Advice[15] also considers disturbance and states:

"The Conservation Objective relating to the distribution of qualifying features (individual species or assemblages) may apply to most or all of the attributes listed in the SACOs and should be considered

[14] Natural England Supplementary Conservation Advice for the Lower Derwent Valley SPA. https://designatedsites.naturalengland.org.uk/Terrestrial/TerrestrialSiteDetail.aspx?SiteCode=UK9006092&SiteName=lower%20derwent%20valley&SiteNameDisplay=Lower%20Derwent%20Valley%20SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea= [Accessed May 2024].

[15] Natural England Supplementary Conservation Advice for the Humber Estuary SPA. https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9006111&SiteName=humber%20es&SiteNameDisplay=Humber+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=15 [Accessed May 2024].

against them. Ensuring integrity of attributes relating to supporting habitats and processes should allow birds to distribute themselves optimally within (and, sometimes, outside) the SPA boundary. This is perhaps particularly relevant for food availability; extent and distribution of supporting habitat; quality of supporting habitat; predation; and disturbance caused by human activity".

5.3.3 'Significant' disturbance is defined by AEWA (The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), 2016)[16]:

"Disturbance should be judged as significant if an action (alone or in combination with other effects) impacts on (water)birds in such a way as to be likely to cause impacts on populations of a species through either

- *changed local distribution on a continuing basis; and/or*
- *changed local abundance on a sustained basis; and/or*

the reduction of ability of any significant group of birds to survive, breed, or rear their young."

5.3.4 Subsequently any assessment of potential impacts arising from disturbance should be considered in the context of the AEWA definition above.

5.3.5 The Site is located approximately 6.5km from the Humber Estuary and Lower Derwent Valley SPAs and Ramsar Sites at its nearest point. There are no visual 'sightlines' between the Site and this designation that may cause visual disturbance effects on species associated with the designations during construction and operational periods.

5.3.6 The Site is also considered to be of sufficient distance that no noise and vibration impacts are predicted on the Humber Estuary and Lower Derwent Valley SPAs and Ramsar Sites. Along with spatial separation, between the Site and the SPAs and Ramsar Sites are major infrastructure, including Drax Power Station, the town of Goole (as well as a number of smaller settlements) and road network including the M62 (which passes on the land between the Humber Estuary SPA/ Ramsar Site and the Site), and A-roads which are between the Site and the Humber Estuary and Lower Derwent Valley SPAs and Ramsar Sites. The Site itself is already relatively disturbed by surrounding road traffic and farming activities, and operations at the Drax Power Station. These current activities associated with the Site (and adjacent habitats) are considered likely to be generating noise levels which will be greater than that generated during the Proposed Development.

5.3.7 As above, the qualifying features for the Nature 2000 sites may also rely on habitats outside of European site boundaries. It has been concluded that the Study Area is not functionally linked to Humber Estuary and Lower Derwent Valley SPAs and Ramsar Sites, as demonstrated through the wintering, passage and nocturnal bird surveys. The Site itself sporadically supported very low numbers of SPA qualifying species in numbers which are not indictive of FLL. Furthermore, the wider area (within 600m of the Site) similarly supported only a modest assemblage of SPA qualifying species. Only the lake (next to field 339, c. 200 m from the Proposed Development at its closest point, grid connection) supported SPA qualifying species to any degree of regularity, but even this waterbody did not support any SPA qualifying species in numbers indicative of FLL. As well as spatial separation (which will likely result in inconsequential disturbance to SPA qualifying species using the lake from the Proposed Development, based on documented disturbance distances from Goodship and Furness, 2022) there is also a road network (New Road) with associated road traffic disturbance, visual screening by field boundary features (hedgerows and treelines) and arable land between the Proposed Development and the lake. The Proposed Development at its closest point to the lake (c. 200m) is also adjacent to the Drax Power Station, so it is anticipated that any construction-related noise and

[16] https://www.unep-aewa.org/sites/default/files/basic_page_documents/agreement_text_english_final.pdf

vibration would generate inconsequential levels of disturbance to birds using the lake in comparison to existing, base-line, activities.

5.3.8 Therefore, indirect impacts on the Humber Estuary and Lower Derwent Valley SPAs and Ramsar Sites by virtue of displacement or disturbance to qualifying species potentially outside the confines of the European designated site boundaries, during construction, operation and decommission of the Proposed Development, are assessed to be inconsequential in the context of the Conservation Objectives of the Natura 2000 sites.

5.3.9 Disturbance and displacement effects upon the qualifying features of European sites are subsequently screened out.

5.4 In-Combination Effects

5.4.1 Non-breeding bird survey data, concerning SPA/ Ramsar Site qualifying species, for the following projects was reviewed:

- Land South of A645, Wade House Lane, Drax (ref: 2023/0128/EIA);
- East Yorkshire Solar Farm NSIP (PINS ref: EN010143);
- Drax Bioenergy with Carbon Capture and Storage Project NSIP (PINS Ref: EN010120);
- Land North and South of Camela Lane, Camblesforth (ref: 2021/0788/EIA);
- Land to the East of New Road, Drax (Ref: 2022/0711/EIA); and,
- Land near Osgodby Grange, South Duffield Road, Osgodby, Selby (ref: 2021/0978/FULM).

5.4.2 No SPA/ Ramsar Site qualifying bird species were recorded during surveys for the 'Land South of A465', 'Land North and South of Camela Lane' and 'Land near Osgodby Grange' projects.

5.4.3 **Table 5.1** provides the results of the cumulative assessment for non-breeding SPA/ Ramsar Site qualifying bird species. Note, given the surveys for the projects were undertaken at different times/ years it is considered highly likely that at least some of the birds recorded will be the same birds. The results, which combine the counts from all projects are thus considered precautionary. Note, also for the regularity score (in terms of number of surveys) in **Table 5.1**, only the survey visits for those projects where the SPA qualifying species was recorded was considered, to also ensure a precautionary approach. Peak counts are considered within **Table 5.1** for all Target Species as a precaution to identify any evidence of FLL. Peak counts (and frequency of records) of Target Species were typically low for all projects listed in **Table 5.1**.

5.4.4 There are some occasions where the species (such as golden plover) are included as an alone qualifying species and part of the assemblage for the Humber Estuary SPA. In this instance, the species is treated as an alone qualifying species to consider it with the highest regard.

5.4.5 The results from the field surveys from the 2021/22 are used in the cumulative assessment, to avoid over-complicating the assessment with inclusion also of the 2022/23 field survey results, given differing survey areas. Given no FLL thresholds were met during field surveys in 2021/22 and 2022/23 for any SPA qualifying species (see **Table 4.1**) this is considered appropriate.

Table 5.1. Cumulative assessment for non-breeding SPA/ Ramsar Site Qualifying Bird Species.

Designated Site	SPA / Ramsar Site Qualifying Species	Peak count as % of SPA 5-year mean					Regularity when FLL threshold met
		Proposed Development	'East Yorkshire Solar Farm'	'Drax Bioenergy'	'Land to the East of New Road'	Total %	
Alone SPA/ Ramsar Site Qualifying Species							
Humber Estuary SPA & Ramsar Site	Golden plover	0.01	0.17	0.26	0	0.44	0 out of 30 surveys
	Shelduck	0.03	0	0	0	0.03	0 out of 12 surveys
Lower Derwent Valley	Golden plover	0.06	1.15	1.76	0	2.97	2 out of 30 surveys (6.67%)
Waterbird Assemblage SPA/ Ramsar Site Qualifying Species							
Designated Site	**SPA / Ramsar Site Qualifying Species**	**Peak Counts**					**Threshold met (2,000 birds or ≥1 GB popn)**
		Proposed Development	**'East Yorkshire Solar Farm'**	**'Drax Bioenergy'**	**'Land to the East of New Road'**	**Total**	
Humber Estuary SPA & Ramsar Site	Lapwing	211	51	0	0	262	N
	Mallard	4	36	30	0	70	N
	Oyster-catcher	4	6	0	0	10	N

5.4.6 Note, wigeon and teal (both individually as qualifying species of the Lower Derwent Valley SPA/ Ramsar Site, and assemblage species for the Humber Estuary SPA/ Ramsar Site), curlew (assemblage species for the Humber Estuary SPA/ Ramsar Site), greylag goose (assemblage species for the Lower Derwent Valley SPA/ Ramsar Site) and redshank (alone qualifying species of Humber Estuary SPA/ Ramsar Site) were also recorded in typically small numbers during some of the other projects, but were not recorded using the Site during the field surveys. Of these, only wigeon (peak of 73) and teal

(peak of 21) were recorded during field surveys in the 600m buffer around the Site, but with no evidence of FLL with any of the SPAs/ Ramsar Sites was identified. Wigeon and teal were recorded using the lake by field 339 which is c. 200m from the Site at its closest point (grid connection). Goodship and Furness (2022) document a disturbance buffer of 200-500m for wigeon during the non-breeding season, with the higher range, for highly intrusive activities like boating disturbance. As well as the spatial separation, the lake is also buffered from the Site (and thus Proposed Development) by arable habitat including field boundaries (hedgerows and treelines), reducing visual disturbance to species like wigeon and teal using the lake. Furthermore, there is also road network (with associated traffic disturbance) and the Drax Power Station adjacent, which will likely result in higher noise levels than those generated by the Proposed Development (including during the construction and decommission phases).

5.4.7 For those SPA/ Ramsar Site qualifying species which used the Site, and were recorded at other projects (as summarised in **Table 5.1**) the FLL threshold was not met for any assemblage qualifying species when considered cumulatively with other projects, nor did any of the individual qualifying species (golden plover and shelduck) meet the threshold where FLL would be identified (>1% of SPA population and during 2/3 of the surveys) when considered cumulatively with other projects.

5.4.8 No LSEs are therefore predicted for the Proposed Development in-combination with any of the other projects listed in **Table 5.1**.

6 CONCLUSIONS

6.1.1 This Appendix has concluded that the Proposed Development is not considered to have LSEs on the following European sites or their mobile (bird) qualifying interests:

- Humber Estuary SPA and Ramsar Site; and,
- Lower Derwent Valley SPA and Ramsar Site.

6.1.2 This Appendix also concludes that no AA is required to be made under Regulation 63 of the Habitats Regulations 2017, before the Secretary of State decides to undertake, or give any consent, permission or other authorisation for this Proposed Development.