East Pye Solar

Shadow Habitats Regulations Assessment

Revision 1

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1 Introduction

1.1 Overview

1.1.1 This report presents the results of a shadow Habitats Regulations Assessment ('sHRA') for East Pye Solar (hereafter referred to as the 'Scheme').

1.1.2 The sHRA is intended to provide the information necessary for the Secretary of State (SoS) (advised by the Planning Inspectorate) to make their assessment of the Scheme as the Competent Authority.

1.2 Order Limits

1.2.1 The Order Limits cover 1,212.3 hectares ('ha') of land located within the administrative areas of South Norfolk Council (SNC) and Norfolk County Council (NCC). The Order Limits are shown on **Location Plan [EN0110014/APP/2.1]**.

1.2.2 The Order Limits for the Scheme constitute the maximum area of land potentially required for the construction, operation (and maintenance) and decommissioning of the Scheme.

1.3 The Scheme

1.3.1 The Scheme comprises the construction, operation and maintenance, and decommissioning of a Solar photovoltaic (PV) electricity generating station with a total capacity exceeding 100 megawatts (MW) and associated development including a Battery Energy Storage System (BESS), up to three 132kV Project Substations and up to three 400kV Project Substations, Grid Connection Infrastructure and a new National Grid Substation. A description of the Scheme can be found in **Environmental Statement (ES) Volume 1, Chapter 4 – The Scheme [EN0110014/APP/6.1.4]**.

1.3.2 The Scheme would be located within the Order Limits (shown on the **Location Plan [EN0110014/APP/2.1]** and **Works Plan [EN0110014/APP/2.3]** submitted as part of the DCO Application and secured by Article 3 of the **draft DCO [EN0110014/APP/3.1]**). This provides the parameters which have been used to determine impacts to European Sites or their qualifying features, both on and off site.

1.3.3 The Order Limits contain all elements of the Scheme comprising the Solar PV Arrays, 132kV and 400kV Project Substations, the National Grid Substation, the BESS, Grid Connection Infrastructure, interconnecting cables within the Cable Route Corridor (CRC), Mitigation and Enhancement Areas and Highway Works.

1.3.4 The construction of the Scheme is anticipated to commence in 2028 for a period of approximately 24 months. On this basis, it is expected that the Scheme could be completed by 2030 and energised in 2031.

1.4 Legislative Context

1.4.1 The 'Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 1)' (hereafter referred to as 'the Habitats Regulations') transposed certain aspects of 'the Habitats Directive' (Council Directive 92/43/EEC) (Ref 2) and 'the Wild Birds Directive' (Ref 3) (Directive 2009/147/EC) (together known as the 'Nature Directives') (including various amendments) into domestic law.

1.4.2 To make such legislation operable following the UK departure from the European Union (i.e., from 1 January 2021), changes were made to the Conservation of Habitats and Species Regulations 2017 (as amended) by the 'Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019' (Ref 4). Most of these changes relate to the transfer of functions from the European Commission to the relevant domestic authorities, with all other processes and terms remaining unchanged, such that the strict protection afforded to sites, habitats and species, including wild birds, continues through the Habitats Regulations (as amended).

1.4.3 Of relevance to HRA, the Habitats Regulations 2017 (as amended), with changes made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, provides for the designation and protection of important ecological sites already designated under the Nature Directives, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA) and any further sites designated under these Regulations (together forming a new 'National Site Network' in the UK), as well as Ramsar sites (which, per the National Planning Policy Framework and The Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 5) should be protected in the same way as SAC and SPA).

1.4.4 Where a project is likely to have a significant effect on European Sites, there is also a requirement (in accordance with Regulations 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), for the Competent Authority to make an 'Appropriate Assessment' of the implications of that project on a European Site in view of that European Site's Conservation Objectives, i.e., to undertake a HRA. The Competent Authority must for the purposes of the assessment consult the appropriate nature conservation body.

1.4.5 The HRA process involves the completion of an initial 'Screening' stage, followed by an 'Appropriate Assessment' if the project is considered likely to have a significant impact on a European Site. In the light of the conclusions of the assessment, the Competent Authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site.

1.4.6 In line with Regulation 64 of the Conservation of Habitats and Species Regulations 2017 (as amended), if the Competent Authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest, it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site.

1.5 Planning Context

1.5.1 The Scheme is classed as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008 (Ref 6) and as such, requires a Development Consent Order (DCO) to proceed. In addition to the HRA, the DCO Application is underpinned by an Environmental Impact Assessment (EIA) which is set out in the ES and includes an assessment on biodiversity in **ES Volume 1, Chapter 8 - Ecology and Biodiversity [EN0110014/APP/6.1.8]**, associated figures **[EN0110014/APP/6.2.8.1 – 6.2.8.6]** and appendices **[EN0110014/APP/6.3.8.1 – 6.3.8.10]**. EIA is a separate and standalone requirement from the HRA.

National Planning Policy

1.5.2 NPS EN-1 (Ref 5) states that:

'4.2.32 Where, following Appropriate Assessment, CNP Infrastructure has residual adverse impacts on the integrity of sites forming part of the UK national site network, either alone or in combination with other plans or projects, the Secretary of State will consider making a derogation under the Habitats Regulations'.

1.5.3 Crucially for an HRA derogation, the SoS will consider the particular circumstances of any plan or project, but starting from the position that energy security and decarbonising the power sector to combat climate change:

'4.2.34 Requires a significant number of deliverable locations for CNP Infrastructure and for each location to maximise its capacity. This NPS imposes no limit on the number of CNP infrastructure projects that may be consented. Therefore, the fact that there are other potential plans or projects deliverable in different locations to meet the need for CNP Infrastructure is unlikely to be treated as an alternative solution. Further, the existence of another way of developing the proposed plan or project which results in a

significantly lower generation capacity is unlikely to meet the objectives and therefore be treated as an alternative solution; and

Are capable of amounting to imperative reasons of overriding public interest (IROPI) for HRAs, and, for MCZ assessments, the benefit to the public is capable of outweighing the risk of environmental damage, for CNP Infrastructure'.

1.5.4 NPS EN-1 (Ref 5) goes on to state that:

'4.2.35 For HRAs, where an applicant has shown there are no deliverable alternative solutions, and that there are IROPI, compensatory measures must be secured by the Secretary of State as the competent authority, to offset the adverse effects to site integrity as part of a derogation.'

1.5.5 NPS EN-1 (Ref 5) states that the applicant must provide all the information necessary to inform the SoS to consider the plan or project i.e. an 'Applicant Assessment'. The Applicant Assessment for the Habitat Regulations sets out how the applicant should seek the advice of the Statutory Nature Conservation Body (SNCB) and provide the SoS with information they may require making this assessment.

1.5.6 NPS EN-1 (Ref 5) also sets out the sites which are protected by international conventions and which an HRA will be required, in addition to SAC and SPA but also:

'(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'.

1.5.7 Further in paragraph 5.4.51 of NPS EN-1 (Ref 5) the SoS decision making, with regards to Habitats Regulations states that:

'The Secretary of State must consider whether the project is likely to have a significant effect on a protected site which is part of the National Site Network (a habitat site), a protected marine site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects.'

1.5.8 NPS EN-3 (Ref 7) provides an approach for the SoS to assess potential biodiversity impacts for Critical National Priority ('CNP') Infrastructure solar photovoltaic projects in paragraphs 2.10.67 to 2.10.84.

1.6 Purpose of HRA

1.6.1 As outlined previously, in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), it is the duty of the Competent Authority, in this case the SoS, to determine whether the Scheme will have a likely significant effect on a European Site (whether alone or 'in-combination' with other plans or projects), in view of that European Site's 'Conservation Objectives', i.e., to undertake a HRA.

1.6.2 'Conservation Objectives' provide a framework which should inform any HRA (which may include an Appropriate Assessment) that a Competent Authority may be required to make under the legislation. In addition, they can be used to inform any measure necessary to conserve or restore the European Site and/or to prevent the deterioration or significant disturbance of its qualifying features.

1.6.3 This sHRA is intended to provide the information necessary for the SoS State (advised by the Planning Inspectorate) to make their assessment of the Scheme as the Competent Authority.

2 Methods

2.1 Overview

2.1.1 This document has been prepared based on the methodology set out by UK Government Guidance on Habitats Regulations for NSIPs (Ref 8). These guidelines outline three stages to the HRA process:

1. Screening – to check if the proposal is likely to have a significant effect on the site's conservation objectives. If not, you do not need to go through the appropriate assessment or derogation stages.

2. Appropriate Assessment – to assess the likely significant effects of the proposal on the qualifying features of the European sites, in view of the site's conservation objectives and identify ways to avoid or minimise any effects.

3. Derogation – to consider if proposals that would have an adverse effect on the integrity of a European site qualify for an exemption.

2.2 Zone of Influence

2.2.1 There is no clear guidance on which European Sites should be taken into consideration in the HRA for a plan or project. Where a European Site includes mobile species as qualifying interests, it is necessary to consider potential likely significant effects (LSEs) that could occur in areas used by these species outside the boundary of the European Site. As such, areas of land outside a European Site, which contribute to the status of its qualifying interests and Conservation Objectives may also require consideration. This is described as the 'Zone of Influence' (ZoI).

2.2.2 The ZoI was established as 10km from the Order Limits which is deemed to be sufficient in the context of potential impacts from the Scheme, when considering the potential impact pathways and sensitivity of European Site designated features. A desk-based study was carried out to identify the presence of European Sites within this the ZoI and is included in **ES Volume 1, Chapter 8 - Ecology and Biodiversity [EN0110014/APP/6.1.8]**.

2.3 HRA Stages

Stage 1: Screening

2.3.1 The Screening Stage involves the identification of the European Sites, (including Ramsar Sites) (Ref 9), which could potentially be affected by the Scheme and their determining interests; and whether the Scheme could result in an LSE, either alone or in combination with other plans and projects.

2.3.2 HRA case law (the "Dilly Lane" case, 2008 (Ref 10)) determined that mitigation measures that were 'incorporated into the project' or which 'formed part of the project' could be taken into account at the screening 'likely significant effect' test stage of HRA (as long as they were effective). The ruling judge accepted that certain facets of a project, which are intended to avoid or reduce negative impacts on a European site (i.e. mitigation), can still be regarded as 'incorporated into the project' if they are promoted that way by the developer.

2.3.3 However, another ruling (Court of Justice of the European Union ("CJEU") People Over Wind and Sweetman v Coillte Teoranta (C-323/17)) (Ref 11) concluded that mitigation measures intended to avoid or reduce impacts on a European Site could not be regarded as part of the 'Project' and thus should not be taken into account at the Screening Stage of HRA when judging whether likely significant effects on the integrity of a European Site could occur.

2.3.4 It is considered reasonable, in the light of the second ruling, that any measures inherently part of the Scheme (described as 'embedded mitigation' in this report) which are not specifically incorporated into the scheme for ecological reasons, but reduce ecological effects, can be considered at the HRA screening stage. If there is reliance on mitigation measures as part of the Scheme, that would not have been put in place without the presence of a European Site, an Appropriate Assessment is required. This also aligns with the ruling of the 2023 C-721/21 Eco Advocacy CLG v An Bord Pleanála case that clarified that standard design features (e.g. standard drainage measures) not specifically aimed at reducing impacts on a protected site can be considered during HRA Screening.

Stage 2: Appropriate Assessment

2.3.5 In the event that LSEs are identified at the Screening Stage, on the basis of objective information, or uncertainty remains, the Competent Authority should proceed to the next stage of assessment. During Stage 2 (Appropriate Assessment) an assessment of whether there will be an adverse effect on the integrity (Ref 12) of the European Site concerned, and the consideration of measures to address this effect, is required. The Precautionary Principle should be applied, with the focus being on objectively demonstrating, with supporting evidence, that there will be no adverse effects on the integrity of the European Site. Where this is not possible, adverse effects must be assumed.

2.3.6 The 'Precautionary Principle' (Ref 13) provides that where the threat of serious or irreversible environmental damage exists, a lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

2.3.7 Only where appropriate measures can be put in place and the Competent Authority considers that the likely significant effects of the Scheme, alone or in combination with other projects or plans, will not adversely affect the integrity of the European Site, can consent be granted.

2.3.8 Where it is not possible to identify suitable measures to address the identified effects (such that there remains the potential for a likely significant effect to adversely effect on the integrity of the European Site), or uncertainty remains, consideration of Stage 3 – Derogation.

Stage 3: Derogation

2.3.9 Derogation exemptions are assessed against three legal tests, as follows:

1. There are no feasible alternative solutions that would be less damaging or avoid damage to the site.

2. The proposal needs to be carried out for imperative reasons of overriding public interest.

3. The necessary compensatory measures can be secured.

2.4 HRA Approach and Rationale

2.4.1 In section 3 of this sHRA, the relevant European Sites are identified, their features of interest documented, along with potential pressures or threats, and their Conservation Objectives. This provides a baseline from which to consider potential impacts and impact pathways.

2.4.2 Section 4 presents the Stage 1 Screening Assessment which assesses the threats or pressures to the Europeans Sites where, and on the basis of objective information, an assessment of whether there will be LSE to the European Site.

2.4.3 The approach for the in-combination assessment is such that where no impact pathways are identified and / or there is no appreciable effect (Ref 14) resulting from the Scheme, then there is no mechanism by which perceivable in-combination effects with other projects or plans could occur. Where impact pathways or appreciable effects are identified, the potential for LSE in-combination with other projects or plans is considered. Conclusions are then drawn as to whether LSE on the identified European Sites are anticipated.

2.4.4 Where LSEs on European Sites identified during Screening cannot be ruled out, either alone or ‘in-combination’, Stage 2 Appropriate Assessment outlines further detail relating to the specific nature of the impact, the mitigation to be implemented and the resultant effect on the integrity of the European Site, in light of that mitigation. Where there is potential for in combination effects, further detail is also provided.

2.4.5 Only where appropriate measures can be put in place and the Competent Authority considers that the likely significant effects of the Scheme will not adversely affect the integrity of the European Site, can consent be granted.

2.4.6 If Natural England (NE), as the statutory advisor on terrestrial nature conservation issues, advise the Competent Authority that the Scheme is likely to affect the integrity of one or more of the European Sites, the Scheme will then have to demonstrate that there are no viable alternatives, and that the Scheme is required for imperative reasons of overriding public interest (IROPI).

2.4.7 Appropriate compensation to address the 'loss', is needed for these latter stages, if consent is to be granted.

2.5 Evidence Gathering

2.5.1 Data to inform this sHRA was derived from desk-based study data and breeding bird survey results presented in **ES Volume 1, Chapter 8 - Ecology and Biodiversity [EN0110014/APP/6.1.8]**, as well as a review of the Joint Nature Conservation Committee (JNCC) website for both SACs (Ref 15) and SPAs (Ref 16) and Natura 2000 – Standard Data Forms and the Greater Norwich Local Plan. Further assessment of threats was derived from Site Improvement Plans (SIPS) (Ref 17) for each of the SAC's identified.

2.5.2 To assess the potential impacts on ecological receptors as a result of changes in other environmental factors, this sHRA is also informed by hydrological and air quality assessments. These assessments are provided in **ES Volume 1, Chapter 13 - Air Quality [EN0110014/APP/6.1.13]** and **ES Volume 1, Chapter 9 - Water Environment [EN0110014/APP/6.1.9]** and associated appendices.

2.6 Consultation

2.6.1 The response from NE to the statutory consultation for the Scheme (and Preliminary Environmental Information Report (PEIR)) on the 5 August 2025, stated the following in respect of the Habitats Regulations:

'Internationally designated sites

The internationally designated sites relevant to this application are:

- *Norfolk Valley Fens Special Area of Conservation (SAC)*
- *Broadland Ramsar*
- *Broadland Special Protection Area (SPA)*
- *The Broads SAC*

The application site is in close proximity to European designated sites (also commonly referred to as Natura 2000 sites) and therefore has the potential to affect their interest features. European sites are afforded protection under the Conservation of Habitats and Species Regulations 2017, as amended (the 'Habitats Regulations').

Paragraph 8.1.13 Chapter 8, Ecology and Biodiversity, Page 18 states that Likely Significant Effect (LSE), will be considered in a shadow Habitat Regulations Assessment (HRA) screening report, and if required a Shadow Appropriate Assessment report. This will be submitted as part of the DCO application. Natural England will provide comment on the HRA when it is available to review.

Norfolk Valley Fens SAC

Norfolk Valley Fens SAC is located 7.4km north-west. Flordon Common is a component site of the Norfolk Valley Fens SAC and is 2.4km north-west of sub-Site 4A. The feature may be sensitive to changes in water quality. In our previous response (our ref 499672, dated 10 February 2025), we advised that impacts on water quality will need to be assessed as the proposed development may be hydrologically connected to the SAC. 1.2.2 Table 8.4, Chapter 8, page 26 states that work is currently underway to establish hydrological linkage and detailed assessment of this will be included within the Environmental Statement (ES). Natural England advise that construction methods used in watercourse crossings are assessed for their impact on water quality.

The Cable Route Corridor (CRC) cables will be retained in-situ beneath the ground during the operational period and following the decommissioning period and disturbance is unlikely to occur. Natural England agrees that the assessment of impacts in relation to the CRC during these periods can be scoped out. (table 8.3, Chapter 8, page 22). Please refer to our more detailed comments on soil management during the decommissioning phase in paragraph 8.3.6 of this letter.

Broadland Ramsar, Broadland SPA and The Broads SAC

There are five parcels of land that are within 10km of the Broads SAC and Broadland Ramsar. There are also several water courses in close proximity of the site. Natural England previously advised (our ref 499672, dated 10 February 2025) that further assessment is required to determine if the 5 parcels are hydrologically linked to the SAC and Ramsar. Consideration should also be given to any possible effects of the cable works upon watercourses linked to the SAC and Ramsar (e.g. methodology used for watercourse crossings). Table 8.4 page 26 states that these sites will remain scoped in for hydrological impacts which Natural England supports.

Table 8.3 states that the CRC cables will remain in situ beneath the ground during the operational period and following the decommissioning period and therefore impact has been scoped out of further assessment. Natural

England agrees that impacts can be scoped out. Please refer to our more detailed comments on soil management during the decommissioning phase in paragraph 8.3.6 of this letter.

Avian impact has been scoped out of the construction, operational and decommissioning phases as qualifying mobile species populations SPA/Ramsar (namely Whooper swan and Bewick's swan), are considered highly unlikely to regularly utilise habitats within and surrounding the Sites, due to unsuitable topography, and separation distance. (table 8.3 page 22). There are expansive areas of low-lying floodplains associated with the Yare and Chet catchments within and immediately surrounding the SPA/Ramsar site. Natural England agrees the risk of impact is relatively low and can be screened out from further assessment. However, we advise that full justification and evidence for this conclusion is provided in the HRA.'

2.6.2 NE also advised that the Scheme's construction traffic flows should be screened against the 1,000 annual average daily traffic (AADT) or 200 Heavy Duty Vehicle (HDV) screening criteria for roads within 200m of a designated ecological site in accordance with 'Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations' (Ref 18).

3 Site Details

3.1 Overview

3.1.1 In this section the relevant European Sites are identified, their features of interest documented, along with potential pressures or threats, and their Conservation Objectives. This provides a baseline from which to consider potential impacts and impact pathways.

3.2 Zone of Influence

3.2.1 The ZoI has been identified as 10km for European Sites. The Sites considered are shown in **Figure 3.1** below and summarised in **Table 3.1** along with their Site Code obtained from the JNCC website for SACs (Ref 19) and SPAs (Ref 20), distance from the Scheme and reason for designation. Full details of their designation and any component Site of Special Scientific Interest ('SSSI') is also provided within **Appendix A.**

3.2.2 Where a European Site includes mobile species as qualifying interests, it is necessary to consider potential LSE that could occur in areas used by these species outside the boundary of the European Site, referred to as Functionally Linked Land (FLL). As such, areas of land outside a European Site, which contribute to the status of its qualifying interests and Conservation Objectives, may also require consideration.

Functionally Linked Land

3.2.3 In this report, FLL is used in the context of a published report submitted to NE (Ref 21):

'… the term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status.'

Figure 3.1: Statutory Designated Sites

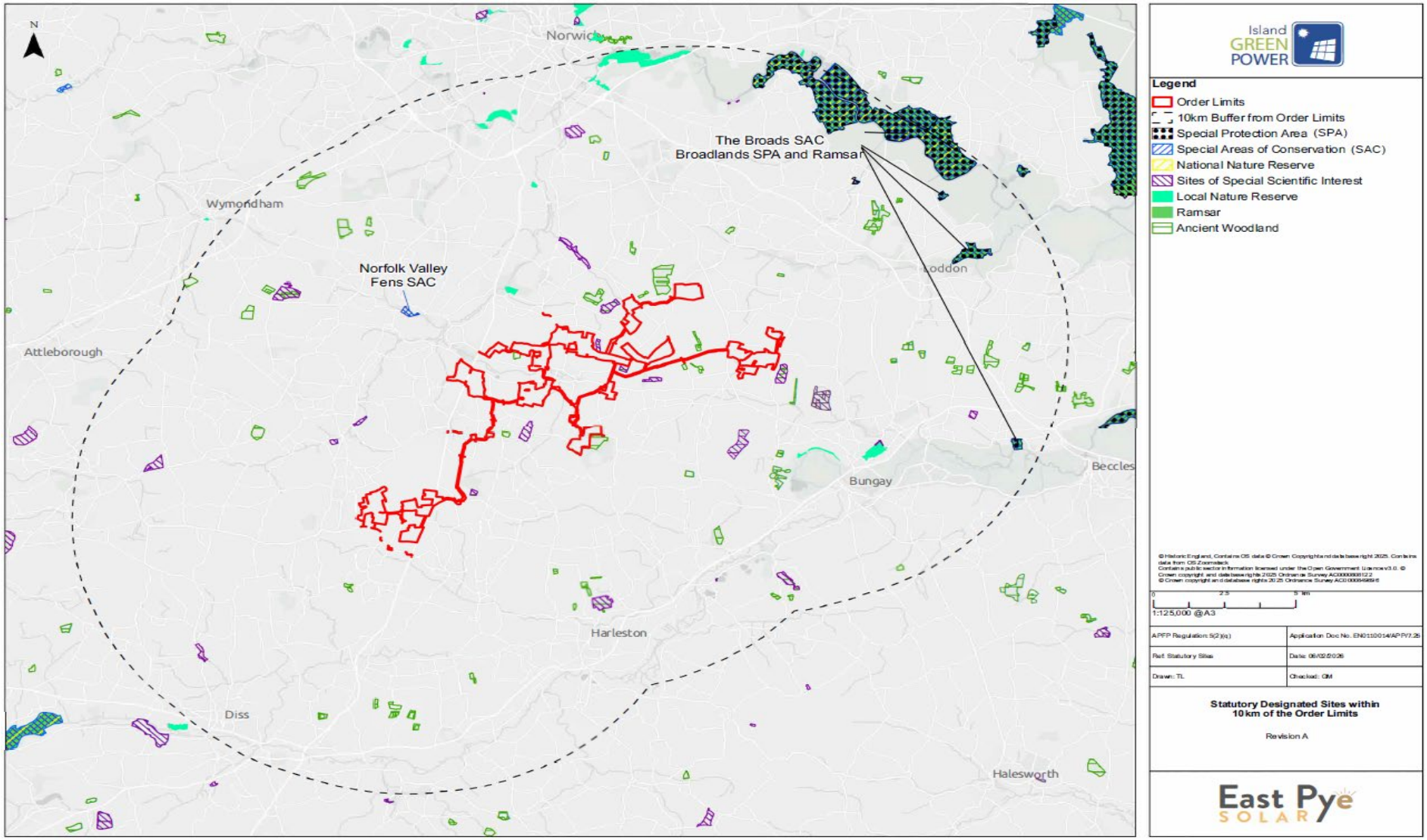

Table 3.1: European Designated Sites Present within 10km of the Order Limits

Site Name	JNCC Site Code	Approximate Distance and Direction from Closest Sub-Site	Approximate Distance and Direction from Closest CRC	Reason for Designation
Norfolk Valley Fens SAC	UK0012892	2.38km NW of sub-Site 4A	3.2km NW of CRC11	Designated for containing numerous Annex I habitats including calcareous fens and European dry heaths which support Annex II species Desmoulin's whorl-snail *Vertigo moulinsiana* and Narrow-mouthed whorl snail *Vertigo angustior.*
The Broads SAC	UK0013577	6.65km NE of sub-Site 10E	6.85km NE of CRC14	Designated for containing numerous Annex I habitats including calcareous fens and nutrient-rich lakes. These habitats support Annex II species including Desmoulin's whorl-snail, Little whirlpool ram's-horn snail *Anisus vorticulus* Fen orchid *Liparis loeselii* and Otter *Lutra lutra.*
Broadland SPA	UK9009253	6.65km NE of sub-Site 10E (Ref 22)	6.85km NE of CRC14	Designated for supporting nationally important numbers of Annex I species Bittern *Botaurus stellaris*, Bewick's swan *Cygnus columbianus bewickii*, Whooper swan *Cygnus cygnus cygnus*, Marsh Harrier *Circus aeruginosus*, Hen Harrier *Circus cyaneus* and Ruff *Philomachus pugnax*.
Broadland Ramsar	UK11010	6.65km NE of sub-Site 10E (Ref 23)	6.85km NE of CRC14	Designated for containing numerous Annex I habitats including calcareous fens. These habitats support Annex II species including Desmoulin's whorl-snail, Fen orchid and Otter. The site supports outstanding assemblages of rare plants and invertebrates including nine British Red Data Book plants and 136 British Red Data Book invertebrates.

Site Name	JNCC Site Code	Approximate Distance and Direction from Closest Sub-Site	Approximate Distance and Direction from Closest CRC	Reason for Designation
				The Ramsar also supports species/populations at levels of international importance, including Bewick's swan, Eurasian wigeon *Anas Penelope*, Gadwall *Anas strepera strepera* and Northern shoveler *Anas clypeata*.

3.2.4 A summary of the relevant Conservation Objectives published by NE and threats which affect site integrity are presented in **Appendix B**. The threats for each of the European Sites is shown in **Table 3.2** as identified through the JNCC Standard Forms, where relevant.

3.2.5 In addition, NE's SIPS provide a high-level overview of the issues (both current and predicted) affecting the condition of the interest features of the European Sites and outline the priority measures required to improve the condition of the features. They do not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

Table 3.2: Threats and Pressures for the Identified European Sites

Identified Pressure or Threat	Norfolk Valley Fens SAC	The Broads SAC	Broadland SPA	Broadland Ramsar (Ref 24)
Water Pollution	X	X	X	X
Inappropriate cutting/mowing	X			
Climate change		X	X	X
Invasive species	X	X	X	X
Siltation		X	X	X
Inappropriate water levels	X	X	X	X
Hydrological changes	X	X	X	X
Water abstraction	X	X	X	X
Change in land management	X	X	X	X
Inappropriate ditch management		X	X	X
Inappropriate scrub control	X	X	X	X

Identified Pressure or Threat	Norfolk Valley Fens SAC	The Broads SAC	Broadland SPA	Broadland Ramsar (Ref 24)
Change in species distributions	X	X	X	X
Public access/disturbance		X	X	X
Undergrazing	X	X	X	X
Overgrazing	X			
Drainage		X	X	X
Direct impact from third party (Ministry of Defence)		X	X	X
Inappropriate coastal management		X	X	X
Air pollution: impact of atmospheric nitrogen deposition	X	X	X	X

3.2.6 **Table 3.3** considers whether there are any conceivable impact pathways by which the Scheme could give rise to the threats / pressures for which the European Sites are identified to be at risk. Only sites where the risk applies are specifically named.

Table 3.3: Rationale for Identified Potential Threats and Pressures on European Site Qualifying Features Arising from the Scheme

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from the Scheme	Potential Pathway
Water Pollution	The Scheme has potential to affect European Sites through water pollution, siltation, inappropriate water levels and other hydrological changes. During consultation, NE requested that the HRA provides further detail on hydrological links to the European Sites. This is provided in Section 4 below.	Yes
Siltation		Yes
Inappropriate water levels		Yes
Hydrological changes		Yes
Water abstraction	No water abstraction is required to facilitate the Scheme, either during the construction or operation (and maintenance) and decommissioning.	None
Drainage	The Scheme would be located over 6km from the Broads SAC, Broadlands SPA and Ramsar and therefore will not have any influence on the drainage processes at these European Sites.	None
Inappropriate cutting/mowing	The land management being implemented by the Scheme will be restricted to the Order Limits and accordingly will not change the management of habitats within the European Sites.	None
Change in land management		None
Inappropriate ditch management		None

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from the Scheme	Potential Pathway
Undergrazing		None
Overgrazing		None
Inappropriate scrub control		None
Invasive species	Three stands of Japanese knotweed *Fallopia japonica* were recorded within Site 3 and significant areas of giant hogweed *Heracleum mantegazzianum* were recorded within Sub-Site 5A. The location of these stands of invasive plant species is over 5km from the closest components of the SACs, SPA and Ramsar within the ZoI and therefore the risk of spread is low, especially as there will be no movement of soils offsite. Standard control measures will be put in place during the construction, operation (and maintenance) and decommissioning phases to prevent the spread of these invasive species offsite; detailed within the **Outline Landscape and Ecology Management Plan [EN0110014/APP/7.4]**. Measures will include habitat protection buffers, toolbox talks, employment of an Ecological Clerk of Works (ECoW) and traffic management measures.	None
Climate change	The Scheme will facilitate the increase in renewable energy production. As a result, the Scheme Is likely to have significant beneficial impacts on greenhouse gas emissions, as detailed within **ES Volume 1 Chapter 6: Climate Change.** Accordingly, the Scheme will not contribute to process that affect climate change, and therefore there are no predicted impacts on qualifying species.	None
Change in species distributions	The Scheme has potential to affect European Sites through changes in habitat availability for qualifying species, namely mobile avian species supported by Broadland SAC and Broadland Ramsar. Given the separation distance between the Order Limits and the European Sites, the Scheme will not directly impact any habitats located within the European Sites and is unlikely to directly affect the distributions of the qualifying species of the European Sites. As requested by NE in their consultation response, this sHRA provides full justification and evidence for the assumption that the Scheme will not impact mobile qualifying avian species. This is provided in Section 4 below.	Yes
Public access/disturbance	Temporary closures of Public Rights of Way (PRoWs) have potential to affect local permissive routes during the construction phase of the Scheme, albeit it is highly unlikely that users would be rerouted to The Broads SAC or Broadland SPA/Ramsar given the distance of separation between the Scheme and these European Sites. The Scheme will not change the accessibility of the European Sites to the public, nor will it increase the recreational pressure on the European Sites by resulting in any significant increase in people working or living in the local vicinity.	None

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from the Scheme	Potential Pathway
Direct impact from third party (Ministry of Defence)	The threat identified by NE relates to the disturbance caused by police/military aircraft on birds at Cantley Marshes (SSSI component of The Broads SAC), located approximately 9.6km from the Order Limits. No MoD or RAF training grounds are located within the ZoI and the Scheme will have no influence aircraft activities in the area. As discussed above, the Scheme will not result in any public access/disturbance to the European Sites and therefore in-combination effects are not anticipated.	None
Inappropriate coastal management	The Scheme is located over 20km from the coast and the nature of the Scheme is such that no changes to coastal management will be caused.	None
Air pollution: impact of atmospheric nitrogen deposition	Parts of The Broads SAC and Broadland Ramsar are within 200m of major roads in the area including the A47 New Road (approximately 15km from the Order Limits), and the A146 Beccles Road (approximately 16km from the Order Limits). Accordingly, and in order to respond to consultation comments from NE, the potential for the Scheme to impact the European Sites through atmospheric nitrogen deposition is provided in Section 4 below.	Yes

4 Screening Assessment

4.1 Overview

4.1.1 As detailed in **Tables 3.2** and **3.3** above, the following potential impact pathways related to threats or pressures identified on European Sites within the ZoI have been identified:

- Water pollution/siltation/inappropriate water levels/hydrological changes;
- Change in species distributions; and
- Air pollution: impact of atmospheric nitrogen deposition.

4.2 Water Pollution/Siltation/Inappropriate Water Levels/Hydrological Changes

4.2.1 An assessment has been made of the hydrological connectivity between European Sites and the Order Limits, which is set out in **ES Volume 3, Appendix 9.1 - Flood Risk Assessment and Outline Surface Water Drainage Strategy [EN0110014/APP/6.3.9.1]**. The European Sites are located at a distance from the Scheme and are situated at a higher elevation, and/or are within a different catchment such that no hydrological connectivity has been identified.

4.2.2 Accordingly, there are no hydrological links which would allow pollution, siltation, changes in water levels or hydrological changes to the European Sites as a result of works during construction, operation (and maintenance) or decommissioning. As such there will be no LSE to the European Sites from pollution, siltation, changes in water levels or hydrological changes from the Scheme in isolation, or in-combination with other plans or projects.

4.3 Change in Species Distributions

4.3.1 Whilst NE agreed during consultation that impacts to qualifying bird species were unlikely and could be screened out, they nonetheless expected a full justification and explanation of this assumption within the HRA. Accordingly, this is provided below. All other qualifying features are either not considered mobile (e.g. snails) or are species with smaller territories/ranges than birds (e.g. otter) and have not been considered further in relation to impacts that may affect distribution.

4.3.2 As detailed in **Table 3.1** above, there are two European Sites with mobile avian qualifying species within the ZoI; Broadland SPA and Broadland Ramsar. The qualifying mobile species are considered individually below.

Bittern

4.3.3 Broadland SPA is designated for supporting at least 10% of Great Britain's breeding population of Bittern. Bitterns are reliant on extensive, mature reedbed habitat which contains a mixture of reed edge and open water areas (Ref 25). Bitterns depend on reedbed and adjacent open water for their entire life cycle, including nesting, breeding and hunting.

4.3.4 Habitats within the Order Limits include arable crops, grassland, small parcels of woodland, boundary hedgerows and small ponds. No extensive reedbeds are present or have been identified near to the Order Limits. As such habitats within the Order Limits are not suitable to support this qualifying species.

Bewick's swan

4.3.5 Broadland SPA and Ramsar are both designated for supporting internationally important numbers of wintering Bewick's swan. Bewick's swan winter roosting sites are found in coastal lagoons and bays and freshwater lakes and reservoirs. Winter foraging grounds are typically focussed on wet pasture with increasing sightings on arable land.

4.3.6 The migratory patterns of Bewick's swans have changed considerably since the time of SPA and Ramsar designation, with very small numbers still migrating to Great Britain to overwinter (Ref 26). No wetland habitat is present within the Order Limits and there is a considerable distance between the Order Limits and the SPA and Ramsar. It is considered likely that the small numbers of Bewick's swans that overwinter in Norfolk would choose to roost and forage in more optimal habitats than those within the Order Limits, especially considering the undulating topography of the land. Accordingly, it is considered highly unlikely that the Scheme would have any impact on the distribution of Bewick's swan nor undermine the conservation objectives of the European Sites in respect of this qualifying species.

Whooper swan

4.3.7 Broadland SPA is designated for supporting 1.8% of Great Britain's wintering population of Whooper swan. Winter roosting sites are found in sheltered open freshwater lakes and other wetlands. Winter foraging grounds include open water and arable farmland (Ref 27).

4.3.8 No wetland habitat is present within the Order Limits, and there is a considerable distance between the Order Limits and the SPA. As with Bewick's swan, it is considered likely that the Whooper swans that overwinter in Norfolk would choose to roost and forage in more optimal habitats than those within the Order Limits, especially considering the undulating topography of the land. Accordingly, it is considered highly unlikely that the Scheme would have any impact on the distribution of

Whooper swan nor undermine the conservation objectives of the European Sites in respect of this qualifying species.

Marsh harrier

4.3.9 Broadland SPA is designated for supporting 10.2% of Great Britain's breeding population of Marsh harrier. Breeding marsh harrier primarily inhabit marshland and reedbeds but are also found hunting over farmland (Ref 28).

4.3.10 A data search of the area within 5km of the Order Limits identified no historic records for Marsh harrier. Breeding bird surveys conducted at the Order Limits in 2024 and 2025 also recorded no Marsh harrier, suggesting that the Order Limits does not support this species during the breeding season. Accordingly, it is considered highly unlikely that the Scheme would have any impact on the distribution of Marsh harrier nor undermine the conservation objectives of the European Sites in respect of this qualifying species.

Hen harrier

4.3.11 Broadland SPA is designated for supporting 2.9% of the Great Britain's overwintering population of Hen harrier. Hen harrier winter habitat includes coastal marshes, river valleys, fenland and nearby farmland.

4.3.12 No marshland, fenland or river valleys are present within or adjacent to the Order Limits, and there is a considerable distance between the Order Limits and the SPA. It is considered likely that Hen harrier home ranges would be centred on semi-natural habitats not found within the Order Limits, such as the Chet river valley located approximately 4.3km to the east of the Order Limits. Whilst a Hen harrier home range may extend up to 10km (Ref 29), it is considered that there are abundant similar opportunities for hunting Hen harrier in arable farmland in addition to those present within the Order Limits. Accordingly, it is considered highly unlikely that the Scheme would have any impact on the distribution of Hen harrier nor undermine the conservation objectives of the European Sites in respect of this qualifying species.

Ruff

4.3.13 Broadland SPA is designated for supporting 6.4% of Great Britain's overwintering population of Ruff. Ruff is a wading bird that is primarily found in tidal and wetland habitats and occasionally found in wet grasslands (Ref 30).

4.3.14 As there are no tidal or wet grassland habitats within or adjacent to the Order Limits, it is considered highly unlikely that this qualifying species would be present.

Eurasian wigeon

4.3.15 Broadland Ramsar site is designated for supporting 1.6% of Great Britain's overwintering population of Eurasian wigeon. Eurasian wigeon winter roosting sites are found in open water and marshland habitats. Winter foraging grounds are typically in flooded fields or wet grassland adjacent to open water roost sites (Ref 31).

4.3.16 As there are no open water or marshland habitats within or adjacent to the Order Limits, it is considered highly unlikely that this qualifying species would be present.

Gadwall

4.3.17 Broadland Ramsar site is designated for supporting 3.1% of Great Britain's overwintering population of Gadwall. Gadwall is a duck that relies on open water habitat (Ref 32).

4.3.18 As there are no open water or marshland habitats within or adjacent to the Order Limits, it is considered highly unlikely that this qualifying species would be present.

Northern shoveler

4.3.19 Broadland Ramsar site is designated for supporting 1.6% of Great Britain's overwintering population of Northern shoveler. Overwintering habitats include a variety of wetlands and open water (Ref 33), and they rely on shallow water for foraging.

4.3.20 As there are no open water or marshland habitats within or adjacent to the Order Limits, it is considered highly unlikely that this qualifying species would be present.

Change in Species Distributions - Conclusion

4.3.21 As set out in the sections above, habitats within the Order Limits are either not suitable to support qualifying bird species of the European Sites, or due the ecology of the species it is considered highly unlikely that the qualifying species would be present.

4.3.22 As such there will be no LSE to the European Sites from changes in species distributions from the Scheme in isolation, or in-combination with other plans or projects.

4.4 Air Pollution: Impact of Atmospheric Nitrogen Deposition

4.4.1 An assessment of potential increases in road traffic emissions from the Scheme at ecological receptors has been undertaken, as set out in **ES Volume 1, Chapter 13 - Air Quality [EN0110014/APP/6.1.13]**. This assessment demonstrates that increases in traffic on roads within 200m of the European Sites are below the relevant screening thresholds of 1,000 total AADT or 200 HDV AADT (Ref 34). This is true for the Scheme in isolation, and in-combination with other plans and projects.

4.4.2 Accordingly, changes to traffic flows associated with the Scheme are below published screening criteria and therefore will not result in likely significant effects to any European Site within the ZoI through nitrogen deposition.

4.5 Screening Assessment Conclusion

4.5.1 A number of potential impact pathways have been identified between the Scheme and the identified European Sites within the ZoI. However, information presented within this section in relation to hydrology, qualifying bird species and air quality demonstrates that LSE are not expected to any of the identified European Sites from the Scheme in isolation, or in-combination with other plans or projects. Accordingly, this HRA does not proceed to Appropriate Assessment stage.

5 Conclusion

5.1.1 This sHRA identified the following European Sites within 10km of the Scheme with the potential to be affected by the Project:

- Norfolk Valley Fens SAC;
- The Broads SAC;
- Broadland SPA; and
- Broadland Ramsar.

5.1.2 The relevant threats/vulnerabilities identified for the qualifying features of these European Sites as a result of the Scheme were identified to relate to:

- Water pollution/siltation/inappropriate water levels/hydrological changes;
- Change in species distributions; and
- Air pollution: impact of atmospheric nitrogen deposition.

5.1.3 The screening assessment found no mechanism for impacts arising at the identified European Sites via these pathways. A such, no Likely Significant Effects have been identified at Norfolk Valley Fens SAC, The Broads SAC, Broadland SPA and Broadland Ramsar, either alone or in-combination with any other plan or project.

5.1.4 The sHRA does not proceed to Appropriate Assessment stage.

References

Ref 1. HM Government (2017) The Conservation of Habitats and Species Regulations (2017) No. 1012

Ref 2. Council Directive 92/43/EEC. 1992 No. 43. on the Conservation of natural habitats and of wild fauna and flora ('The Habitats Directive, 1992').

Ref 3. Directive 2009/147/EC. 2009 No. 147. of the European Parliament and of the Council on the Conservation of Wild Birds ('The Birds Directive, 2009').

Ref 4. HM Government (2019). The Conservation of habitats and Species (Amendment) (EU Exit) Regulations 2019. o. 579

Ref 5. HM Government (2025). Department for Energy Security & Net Zero (DESNZ). Overarching National Policy Statement for Energy (EN-1)

Ref 6. HM Government (2008). Planning Act 2008 c. 29

Ref 7. HM Government (2025). DESNZ. National Policy Statement for Renewable Energy Infrastructure (EN-3)

Ref 8. HM Government (2024). Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments

Ref 9. For the avoidance of doubt, the European Sites considered within this HRA report include the following, in accordance with the Habitats Regulations and the NPPF: Special Protection Areas (including Marine Components), potential Special Protection Areas, Special Areas of Conservation (including Marine Components), candidate Special Areas of Conservation, listed or proposed Ramsar sites.

Ref 10. EWHC 1204 (2008) R (Hart District Council v ((1) The Secretary of State for Communities and Local Government (2) Luckmore Ltd (3) Barrat Homes Ltd) v ((1) Taylor Wimpey Developments Ltd (2) Natural England Interested Parties

Ref 11. Judgement of the Court (seventh Chamber) 12 Apil 2018 Case C-323/17

Ref 12. For the purpose of this assessment, 'site integrity' of a European Site is defined as being 'the coherence of its ecological structure and function across its whole area which enables it to sustain the habitats, complex of habitats and/or population levels of the species for which it was classified (or designated)' (UK Government, 2019).

Ref 13. HM Government (2023). Department for Environment, Food & Rural Affairs (DEFRA). Environmental Principles Policy statement (updated January 2023)

Ref 14. An 'appreciable effect' is an effect resulting in noticeable changes to a receptor.

Ref 15. Joint Nature Conservation Committee. SACs in England Available at https://sac.jncc.gov.uk/site/england Accessed January 2026

Ref 16. Joint Nature Conservation Committee. Special Protections Areas (SPAs) List of Sites https://jncc.gov.uk/our-work/list-ofspas/#england Accessed January 2026

Ref 17. Natural England Site Improvement Plans: East of England https://publications.naturalengland.org.uk/category/4873023563759616 Accessed January 2026

Ref 18. Natural England (2018) Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (NEA001) https://publications.naturalengland.org.uk/publication/4720542048845824

Ref 19. Joint Nature Conservation Committee. SACs in England Available at https://sac.jncc.gov.uk/site/england Accessed January 2026

Ref 20. Joint Nature Conservation Committee. Special Protections Areas (SPAs) List of Sites https://jncc.gov.uk/our-work/list-ofspas/#england Accessed January 2026

Ref 21. Chapman, C. & Tyldesley, D. (2016). Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number 207

Ref 22. The Broadland SPA is located within 10km of the following Site sub-Sites: 7k (9.18km NE), 7l (9.33km NE), 8a (9.45km NE), 8b (9.04km NE), 9 (6.86km NE), 10a (8.08km NE), 10b (7.18km NE), 10c (7.80km NE), 10d (7.44km NE), 10e (6.65km NE).

Ref 23. The Broadland Ramsar site is located within 10km of the following Site sub-Sites: 7k (9.18km NE), 7l (9.33km NE), 8a (9.45km NE), 8b (9.04km NE), 9 (6.86km NE), 10a (8.08km NE), 10b (7.18km NE), 10c (7.80km NE), 10d (7.44km NE), 10e (6.65km NE).

Ref 24. The Ramsar Information Sheet (RIS) for Broadland Ramsar identifies no Adverse factors affecting the site's ecological character. However, on a precautionary basis, it has been assumed that the same threats and pressures affecting Broadland SPA will affect Broadland Ramsar. https://jncc.gov.uk/jncc-assets/RIS/UK11010.pdf

Ref 25. Schofield, C. (2013) Reedbeds and bittern: An assessment of current status in Greater Lincolnshire. Available at https://glnp.org.uk/images/uploads/news/reedbed-and-bittern-report-march-2013.pdf Accessed January 2026

Ref 26. https://www.rspb.org.uk/birds-and-wildlife/bewicks-swan

Ref 27. https://www.rspb.org.uk/birds-and-wildlife/whooper-swan

Ref 28. Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B., Thompson, D. (2013) Raptors: A field guide for surveys and monitoring. Third Edition. Available at https://raptormonitoring.org/wp-content/uploads/2015/05/Raptors-2014-Part-2.pdf Accessed January 2026

Ref 29. Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B., Thompson, D. (2013) Raptors: A field guide for surveys and monitoring. Third Edition. Available at https://raptormonitoring.org/wp-content/uploads/2015/05/Raptors-2014-Part-2.pdf Accessed January 2026

Ref 30. https://www.shropshirewildlifetrust.org.uk/wildlife-explorer/birds/wading-birds/ruff

Ref 31. Portugal, S. and Guillemain, M. (2011) Vigilance patters of wintering Eurasian Wigeon: female benefits from male low-cost behaviour. J Ornithol.

Ref 32. https://www.bto.org/learn/about-birds/birdfacts/gadwall

Ref 33. https://www.fws.gov/species/northern-shoveler-anas-clypeata

Ref 34. Natural England (2018). NE Internal Guidance – Approach to Advising Competent Authorities on Road Traffic Emissions and HRAs V1.4 Final - June 2018

Appendix A European Sites

A.1.1 A summary of the European Sites considered within this sHRA is set out below. For each European Site the closest component Site of Special Scientific Interest (SSSI) is also presented.

Site	Distance to Closest Site and CRC	Reason for Designation	Nearest Component SSSI
Norfolk Valley Fens SAC	2.38km NW of sub-Site 4A and 3.2km NW of CRC11	**Annex I habitats that are a primary reason for selection of this site** 7230 Alkaline fens Norfolk Valley Fens is one of two sites selected in East Anglia, in eastern England, where the main concentration of lowland Alkaline fens occurs. This site comprises a series of valley-head spring-fed fens. Such spring-fed flush fens are very rare in the lowlands. Most of the vegetation at this site is of the small sedge fen type, mainly referable to M13 Schoenus nigricans – Juncus subnodulosus mire, but there are transitions to reedswamp and other fen and wet grassland types. The individual fens vary in their structure according to intensity of management and provide a wide range of variation. There is a rich flora associated with these fens, including species such as grass-of-Parnassus Parnassia palustris, common butterwort Pinguicula vulgaris, marsh helleborine Epipactis palustris and narrow-leaved marsh-orchid Dactylorhiza traunsteineri. **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site** 4010 Northern Atlantic wet heaths with Erica tetralix. 4030 European dry heaths. 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites). 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae). 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae * Priority feature. 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* Priority feature. **Annex II species that are a primary reason for selection of this site** 1014 Narrow-mouthed whorl snail Vertigo angustior	Flordon Common SSSI

Site	Distance to Closest Site and CRC	Reason for Designation	Nearest Component SSSI
		Norfolk Valley Fens represents narrow-mouthed whorl snail Vertigo angustior in East Anglia. At Flordon Common a strong population occurs in flushed grassland with yellow iris Iris pseudacorus maintained by light grazing. 1016 Desmoulin's whorl snail Vertigo moulinsiana Norfolk Valley Fens is one of several sites representing Desmoulin's whorl snail Vertigo moulinsiana in East Anglia. Within Norfolk Valley Fens there are a number of marginal fens around pingos – pools that formed in hollows left when large blocks of ice melted at the end of the last Ice Age. These are very ancient wetlands and several support strong populations of V. moulinsiana as part of a rich assemblage of Red Data Book and Nationally Scarce species in standing water habitat.	
The Broads SAC	6.65km NE of sub-Site 10E and 6.85km NE of CRC14	**Annex I habitats that are a primary reason for selection of this site** 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. The Broads is the richest area for charophytes in Britain (Stewart 1996). Twenty species have been recorded, which represents over 65% of the British flora. The core of this interest is the Thurne Broads and particularly Hickling Broad which is the richest site in the UK. Sixteen species have been recorded within Hickling Broad, a large shallow brackish lake. Within the Broads examples of Chara vegetation are also found within fen pools (turf ponds) and fen and marsh ditch systems. The Broads supports a number of rare and local charophyte species, including Chara aspera, C. baltica, C. connivens, C. contraria, C. curta, C. intermedia, C. pedunculata, Nitella mucronata, Nitellopsis obtusa, Tolypella glomerata and T. intricata. 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation The Broads in East Anglia contain several examples of southern natural eutrophic lakes. Although artificial, having arisen from peat digging in medieval times, these lakes and the ditches in areas of fen and drained marshlands support relict vegetation of the original Fenland flora, and collectively this site contains one of the richest assemblages of rare and local aquatic species in the UK. The stonewort – pondweed – water-milfoil – water-lily Characeae – Potamogeton – Myriophyllum – Nuphar associations are well-represented, as are club-rush – common reed Scirpo – Phragmitetum associations. Some Broads, such as Martham North, Martham South and Upton Broad, have escaped the problem of enrichment that has so affected the flora and fauna on many of the other Broads. Others, such as Hickling Broad, are recovering from these effects as a result of remedial measures. Martham North, Martham	Yare Broads and Marshes SSSI

Site	Distance to Closest Site and CRC	Reason for Designation	Nearest Component SSSI
		South, Upton and Hickling Broad contain holly-leaved naiad Najas marina, a national rarity. The dyke (ditch) systems support vegetation characterised by water-soldier Stratiotes aloides, whorled water-milfoil Myriophyllum verticillatum and broad-leaved pondweed Potamogeton natans. 7140 Transition mires and quaking bogs The Broads contain examples of transition mire in a flood plain in the south-eastern part of the UK, where the habitat is rare. The areas of transition mire, mainly of M5 Carex rostrata – Sphagnum squarrosum mire, M9 Carex rostrata – Calliergon cuspidatum/giganteum mire and S27 Carex rostrata – Potentilla palustris tall-herb fen, are relatively small, having developed in re-vegetated peat-cuttings as part of a complex habitat mosaic of fen, carr and open water. 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae * Priority feature. This flood plain mire site in East Anglia has the largest example of calcareous fens in the UK and possibly the largest occurrence in the EU outside Sweden. The Cladium habitat occurs in a diverse set of conditions that maintain its species-richness, including managed Cladium fen, contacts between Cladium beds and small sedge mires, and situations where Cladium occurs at the limits of its ecological range. The habitat type forms large-scale mosaics with other fen types, open water and woodland, and important associated plant species are the Annex II 1903 Fen orchid Liparis loeselii (found at Upton Fen), marsh helleborine Epipactis palustris, lesser tussock-sedge Carex diandra, slender sedge C. lasiocarpa and fibrous tussock-sedge C. appropinquata. 7230 Alkaline fens The Broads is one of two sites selected for Alkaline fens in East Anglia, in eastern England, where a main concentration of lowland fen occurs. There are areas of short sedge fen (both M13 Schoenus nigricans – Juncus subnodulosus mire and M9 Carex rostrata – Calliergon cuspidatum/giganteum mire), which in places form a mosaic with S24 Phragmites australis – Peucedanum palustris fen. There are complex zonations present and many differences exist between the individual fens that comprise the site. The fens are principally of the flood plain mire type. The site contains a range of rare and local plant species, including the Annex II 1903 Fen orchid Liparis loeselii, lesser tussock-sedge Carex diandra and slender sedge C. lasiocarpa.	

Site	Distance to Closest Site and CRC	Reason for Designation	Nearest Component SSSI
		91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* Priority feature The complex of sites in the Broads of East Anglia contains the largest blocks of alder Alnus glutinosa wood in England. Within the complex complete successional sequences occur from open water through reedswamp to alder woodland, which has developed on fen peat. There is a correspondingly wide range of flora, including a number of uncommon species such as marsh fern Thelypteris palustris. **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site** 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) Annex II species that are a primary reason for selection of this site. 1016 Desmoulin's whorl snail Vertigo moulinsiana The Broads is the main stronghold of Desmoulin's whorl snail Vertigo moulinsiana in East Anglia and is one of several sites selected in this part of its range. Several large populations are known, associated with standing and flowing water and ditch systems. This is a very important area for its wetland invertebrate fauna, and many Red Data Book and Nationally Scarce species occur here. 1903 Fen orchid Liparis loeselii. The Broads in eastern England provide representation of the Fenland form of fen orchid Liparis loeselii in the eastern part of its UK range. Three small populations of var. loeselii are known to occur on this site, and 242 plants were found in 1996. 4056 Ramshorn snail Anisus vorticulus. Anisus vorticulus occurs across a range of sites in southern and eastern England. The Broads is one of the three main population centres for this species in the UK. **Annex II species present as a qualifying feature, but not a primary reason for site selection** 1355 Otter Lutra lutra	
Broadland SPA	6.65km NE of sub-Site 10E and 6.85km NE of CRC14	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: ▪ Botaurus stellaris (Europe - breeding) at least 10% of the GB breeding population three year mean 1996-1998. ▪ Circus aeruginosus 10.2% of the GB breeding population, year mean, 1987/8-1991/2.	Yare Broads and Marshes SSSI

Site	Distance to Closest Site and CRC	Reason for Designation	Nearest Component SSSI
		Over winter the area regularly supports: ▪ Circus cyaneus 2.9% of the GB population 5 year peak mean 1987/8-1991/2. ▪ Cygnus columbianus bewickii (Western Siberia/North-eastern & North-western Europe) at least 8.2% of the GB population count, as at 1996/7. ▪ Cygnus cygnus (Iceland/UK/Ireland) 1.8% of the GB population count, as at 1996/7. Philomachus pugnax 6.4% of the GB population 5 year mean 1987/88-1991/2. ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: ▪ Anas strepera (North-western Europe) 0.8% of the population 5 year peak mean, 1991/2-1995/6.	
Broadland Ramsar	6.65km NE of sub-Site 10E and 6.85km NE of CRC14	**Ramsar criterion 2** The site supports a number of rare species and habitats within the biogeographical zone context, including the following Habitats Directive Annex I feature. H7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae. Calcium-rich fen dominated by great fen sedge (saw sedge). H7230 Alkaline fens Calcium-rich springwater-fed fens. H91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) Alder woodland on floodplains, and the Annex II species. S1016 Vertigo moulinsiana Desmoulin`s whorl snail. S1355 Lutra lutra Otter. S1903 Liparis loeselii Fen orchid. The site supports outstanding assemblages of rare plants and invertebrates including nine British Red Data Book plants and 136 British Red Data Book invertebrates. **Ramsar criterion 6** Qualifying Species/populations (as identified at designation). Species with peak counts in winter: Tundra swan, Cygnus columbianus bewickii, NW Europe 196 individuals, representing an average of 2.4% of the GB population (5 year peak mean 1998/9-2002/3).	Yare Broads and Marshes SSSI

Site	Distance to Closest Site and CRC	Reason for Designation	Nearest Component SSSI
		Eurasian wigeon, Anas penelope, NW Europe 6769 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3). Gadwall, Anas strepera strepera, NW Europe 545 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3). Northern shoveler, Anas clypeata, NW & C Europe 247 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3). Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: ▪ Pink-footed goose, Anser brachyrhynchus, Greenland, Iceland/UK 4263 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3). ▪ Greylag goose, Anser anser anser, Iceland/UK, Ireland 1007 individuals, representing an average of 1.1% of the population (Source period not collated).	

Appendix B Conservation Objectives and Threats Affecting Site Integrity

B.1.1 Summary of the relevant Conservation Objectives for each of the European Sites, along with a summary of the factors affecting their integrity from Standard Forms and Natural England SIPS.

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS, as Required)
Norfolk Valley Fens SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species ▪ The structure and function (including typical species) of qualifying natural habitats ▪ The structure and function of the habitats of qualifying species ▪ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely ▪ The populations of qualifying species, and, ▪ The distribution of qualifying species within the site. Qualifying Features: ▪ H4010. Northern Atlantic wet heaths with Erica tetralix; Wet heathland with cross-leaved heath ▪ H4030. European dry heaths ▪ H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone ▪ H6410. Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae); Purple moor-grass meadows ▪ H7210. Calcareous fens with Cladium mariscus and species of the Caricion davallianae; Calcium-rich fen dominated by great fen sedge (saw sedge)* ▪ H7230. Alkaline fens; Calcium-rich springwater-fed fens ▪ H91E0. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae); Alder woodland on floodplains*	▪ Water Pollution ▪ Inappropriate cutting/mowing ▪ Invasive species ▪ Inappropriate water levels ▪ Hydrological changes ▪ Water abstraction ▪ Change in land management ▪ Inappropriate scrub control ▪ Change in species distributions ▪ Undergrazing ▪ Overgrazing ▪ Air pollution: impact of atmospheric nitrogen deposition

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS, as Required)
	▪ S1014. Vertigo angustior; Narrow-mouthed whorl snail S1016. Vertigo moulinsiana; Desmoulin`s whorl snail	
The Broads SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species ▪ The structure and function (including typical species) of qualifying natural habitats ▪ The structure and function of the habitats of qualifying species ▪ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely ▪ The populations of qualifying species, and, ▪ The distribution of qualifying species within the site. Qualifying Features: ▪ H3140. Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.; Calcium-rich nutrient-poor lakes, lochs and pools ▪ H3150. Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation; Naturally nutrient-rich lakes or lochs which are often dominated by pondweed ▪ H6410. Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae); Purple moor-grass meadows ▪ H7140. Transition mires and quaking bogs; Very wet mires often identified by an unstable `quaking` surface ▪ H7210. Calcareous fens with Cladium mariscus and species of the Caricion davallianae; Calcium-rich fen dominated by great fen sedge (saw sedge)* ▪ H7230. Alkaline fens; Calcium-rich springwater-fed fens ▪ H91E0. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae); Alder woodland on floodplains* ▪ S1016. Vertigo moulinsiana; Desmoulin`s whorl snail	▪ Water Pollution ▪ Climate change ▪ Invasive species ▪ Siltation ▪ Inappropriate water levels ▪ Hydrological changes ▪ Water abstraction ▪ Change in land management ▪ Inappropriate ditch management ▪ Inappropriate scrub control ▪ Change in species distributions ▪ Public access/disturbance ▪ Undergrazing ▪ Drainage ▪ Direct impact from third party (Ministry of Defence) ▪ Inappropriate coastal management ▪ Air pollution: impact of atmospheric nitrogen deposition

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS, as Required)
	▪ S1355. Lutra lutra; Otter ▪ S1903. Liparis loeselii; Fen orchid S4056. Anisus vorticulus; Little whorlpool ram's-horn snail	
Broadland SPA	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 ▪ The population of each of the qualifying features, and, ▪ The distribution of the qualifying features within the site. Qualifying Features: ▪ A021 Botaurus stellaris; Great bittern (Breeding) ▪ A037 Cygnus columbianus bewickii; Bewick's swan (Non-breeding) ▪ A038 Cygnus cygnus; Whooper swan (Non-breeding) ▪ A050 Anas penelope; Eurasian wigeon (Non-breeding) ▪ A051 Anas strepera; Gadwall (Non-breeding) ▪ A056 Anas clypeata; Northern shoveler (Non-breeding) ▪ A081 Circus aeruginosus; Eurasian marsh harrier (Breeding) ▪ A082 Circus cyaneus; Hen harrier (Non-breeding) A151 Philomachus pugnax; Ruff (Non-breeding)	▪ Water Pollution ▪ Climate change ▪ Invasive species ▪ Siltation ▪ Inappropriate water levels ▪ Hydrological changes ▪ Water abstraction ▪ Change in land management ▪ Inappropriate ditch management ▪ Inappropriate scrub control ▪ Change in species distributions ▪ Public access/disturbance ▪ Undergrazing ▪ Drainage ▪ Direct impact from third party (Ministry of Defence) ▪ Inappropriate coastal management ▪ Air pollution: impact of atmospheric nitrogen deposition
Broadland Ramsar	None available.	No threats identified in Standard Data Form. No SIP available.