Frodsham Solar

Information to Inform Habitats Regulations Assessment

May 2025
Revision P01
Case Reference: EN010153
Document Reference: EN010153/DR/5.3

Regulation 5(2)(q) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Document Control

Revision	Date	Prepared By	Reviewed / Approved By
P01	27/05/2025	K. Doneo	H. Fearn

Prepared For:
Frodsham Solar Ltd

Prepared By:

avian ecology

CONTENTS

FIGURES

TABLES

1.0 INTRODUCTION

1.1 Project Background

1.1.1 Frodsham Solar Limited ('The Applicant') has commissioned this report to assist in the undertaking of a Habitats Regulations Assessment (HRA) by the relevant Competent Authority for the proposed Frodsham Solar Project ('the Proposed Development').

1.1.2 The Proposed Development is classified as a Nationally Significant Infrastructure Project (NSIP) and therefore Frodsham Solar Limited ('the Applicant') is applying for a Development Consent Order (DCO) to construct, operate and ultimately decommission the Proposed Development.

1.1.3 The Proposed Development comprises a new solar energy generating station and an associated on-site Battery Energy Storage System (BESS) on land at Frodsham Marsh, Frodsham, Cheshire West and Chester. It also includes the associated infrastructure for connection to the local electricity distribution network, as well as a private wire electricity connection that would enable local businesses to utilise the renewable energy generated by the Proposed Development.

1.1.4 For a detailed description of the Proposed Development, refer to **ES Volume 1 Chapter 2: The Proposed Development [EN010153/DR/6.1].**

1.2 The Purpose of the Report

1.2.1 The following reports which also have been submitted with the DCO application contain information relevant to the HRA: **Environmental Statement (ES) Vol 1 Chapter 8: Ornithology [EN010153/DR/6.1]**, **Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2]** and **Outline Landscape and Ecology Management Plan Appendix B - Outline Non Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]**.

1.2.2 All figures detailing ornithology information are presented in **Environmental Statement (ES) Vol 1 Chapter 8: Ornithology [EN010153/DR/6.1]** and the associated technical report within the **ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2]**.

1.2.3 Under the Conservation of Habitats and Species Regulations 2017 (as amended[i]), hereafter referred to as the 'Habitats Regulations', all competent authorities must consider whether any plan or project could affect a European site before it can be authorised or carried out. Where the potential for Likely Significant Effects (LSE) cannot be excluded, the competent authority must make an Appropriate Assessment (AA) decision of the implications of the plan or project for the identified European site(s).

1.2.4 The purpose of this report is to provide evidence to determine the potential for the Proposed Development to impact on European sites. This will enable the competent authority (in this case the Secretary of State) to make the AA decision in accordance with U.K. legislation (refer to Section 2 for further legislative details).

1.2.5 Only common species names are referred to throughout this report.[ii] Full ornithological nomenclature is provided within **ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2]**, including common and scientific species names, together with species conservation status and legislative protection where relevant.

1.2.6 For the avoidance of doubt, the following areas are defined (which collectively comprise the Order Limits), as shown in **Figure 3**.

(1) the 'Solar Array Development Area (SADA)' comprising the area that would include solar photovoltaic (PV) modules and support frames, internal access tracks, cabling, inverters, transformers, the solar array substation (known as the 'Frodsham Solar Substation) and the BESS;

(2) the 'Non-Breeding Bird Mitigation Area (NBBMA)' comprising land primarily within Cell 3, which currently forms part of the Frodsham Wind Farm ('FWF') mitigation. Also included in this area is grassland which extends eastwards from Cell 3 towards 'Marsh Farm' buildings, and a series of pools which run parallel to the Manchester Ship Canal and form the boundary of Cell 3. Land

[i] *The Conservation of Habitats and Species Regulations 2017, SI 2017/1012. Available at: Legislation.gov.uk (Accessed: 2 May 2025).*
[ii] *British Ornithologists' Union. (n.d.). British List: Bird Names. Available at: https://bou.org.uk/british-list/bird-names/ (Accessed: 17 March 2025).*

within the NBBMA would be used as a mitigation area for the anticipated displacement of wetland birds associated with the Mersey Estuary, as well as an enhancement area for wetland birds (see section 3.1 for more detailed description);

(3) the 'SPEN/National Grid Substation' comprising the existing SPEN/National Grid Substation and access to the substation compound, and adjacent land associated with the grid connection from Frodsham Solar Substation to the SPEN Substation; and

(4) the 'Skylark Mitigation Area' ('SMA'). The SMA comprises land which will be managed for the benefit of skylarks (a ground-nesting bird species) for the operational lifetime of the Proposed Development (see **ES Volume 3 Figure 1-2 [EN010153/DR/6.3]).** No Development, other than habitat management will occur within the SMA.

(5) 'Private Wire Connection' – which includes land to facilitate future electricity connections to businesses located south-west of the Proposed Development;

(6) the 'Main Site Access without Private Wire Connection' comprising the access road without private wire connection to the west of the SADA.

1.2.7 For avoidance of doubt, **Figure 4** provides a labelled overview of the key areas within and beyond the Order Limits that are referred to throughout this document.

1.2.8 The effects arising from the development of the NBBMA is evaluated separately in terms of potential environmental impacts, mitigation measures, and compliance with conservation objectives due to the anticipated staggering of the Proposed Development construction program (as explained in Section 4, which sets out that the development of the NBBMA will be undertaken prior to construction of adjacent areas of solar development)

1.2.9 This dual-phase approach ensures a comprehensive evaluation of ecological considerations and the implementation of appropriate mitigation strategies to protect European Sites.

1.3 Documents referred to in this report

1.3.1 The HRA has taken account of, and should be read in conjunction with, the documents produced as part of the application and examination:

i) ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2];
ii) ES Vol 1 Chapter 7: Terrestrial Ecology [EN010153/DR/6.1]
iii) ES Vol 1 Chapter 9: Flood Risk, Drainage and Surface Water [EN010153/DR/6.1]
iv) Outline Decommissioning Environmental Management Plan [EN010153/DR/7.7]
v) ES Vol 2 Appendix 4-1: Noise Impact Assessment [EN010153/DR/6.2];
vi) Outline Landscape and Ecology Management Plan [EN010153/DR/7.13]
vii) Outline Construction Environmental Management Plan [EN010153/DR/7.5]]
viii) ES Vol 2 Appendix 4-2: Construction Dust Assessment [EN010153/DR/6.2]
ix) ES Vol 2 Appendix 4-3: Glint and Glare Assessment [EN010153/DR/6.2];
x) Outline Landscape and Ecology Management Plan Appendix B - Outline Non-Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]; and
xi) ES Vol 1 Chapter 10: Ground Conditions [EN010153/DR/6.1]

2.0 LEGISLATIVE BACKGROUND

2.1.1 Council Directives 92/43/EEC[iii] on the Conservation of natural habitats and of wild fauna and flora ("the Habitats Directive"[iv]) 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 ('the Habitats Regulations') is 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 ('the 2019 Regulations'), SACs and Special Protection Areas (SPAs) in the U.K. 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 Habitats Regulations and in guidance now refers to the new national site network.

2.1.4 The U.K. 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[v]) for Energy (EN-1) states that:

[iii] *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Available at: EUR-Lex (Accessed: 29th April 2025).*
[iv] *Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Available at: EUR-Lex (Accessed: 29th April 2025).*
[v] *Department for Energy Security and Net Zero (2024) Overarching National Policy Statement for Energy (EN-1). Available at: GOV.UK (Accessed: April 2025).*

'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;

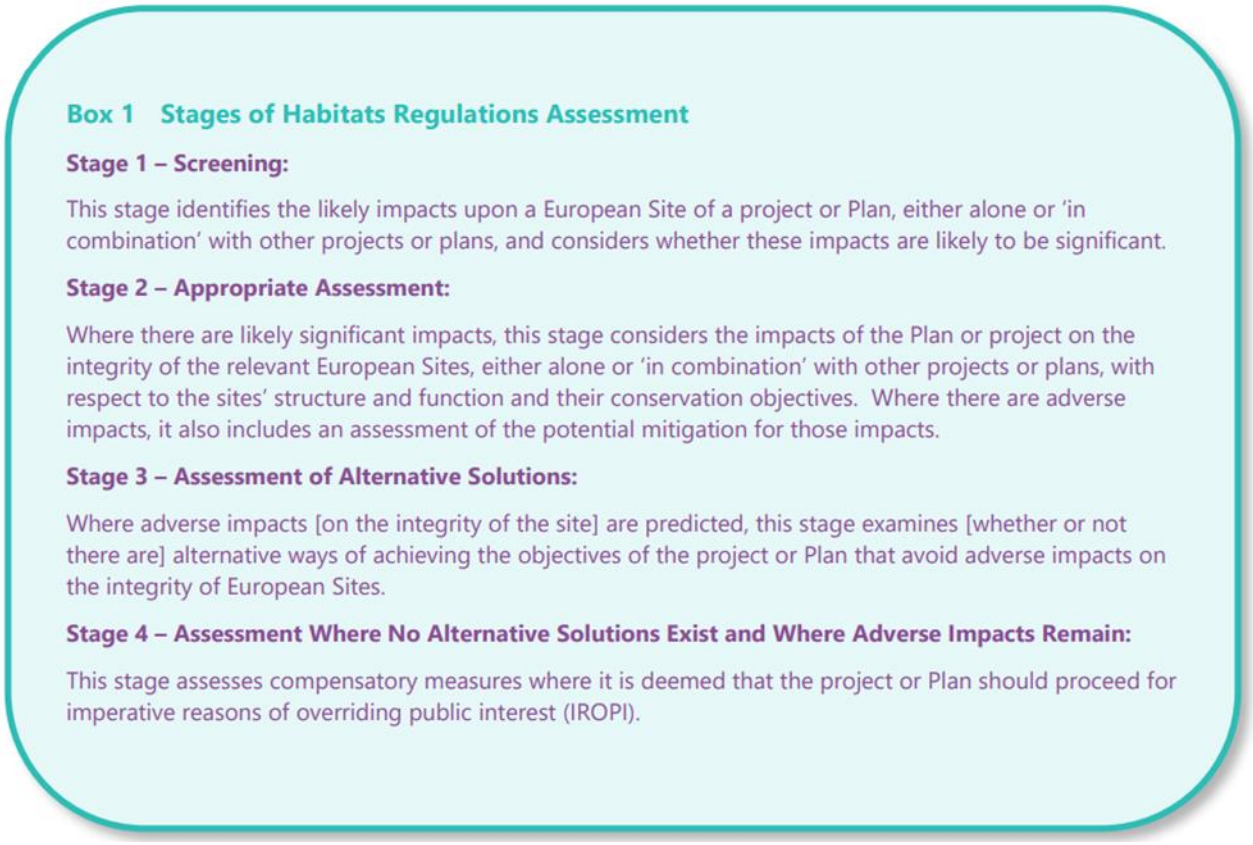
(b) listed or proposed Ramsar sites; and

(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 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 HRA.

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



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, and Stages 3 and 4 are covered by Regulations 64, 68 and 84 of the Habitat Regulations.

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".[vi] 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

[vi] *Natural England. (2021). Habitats Regulations Assessments: Protecting a European Site. Available at: https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site [Accessed 12 May 2025]*

(Case C127/02), 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, whether alone or in combination with any other project. The Advocate General's opinion of the Sweetman case (Case C-258/11) 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)[vii] 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.

[vii] *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*

3.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Site Description

Order Limits

3.1.1 The expected maximum area of land potentially required for the construction, operation and maintenance of the Proposed Development, which includes land required for permanent and temporary purposes, is shown on **ES Vol 3 Figure 1-1: Site Location [EN010153/DR/6.3]**. This is referred to as the "Order Limits". For the avoidance of doubt, the terms Order Limits and Site refer to the same land area, as shown on **ES Vol 3 Figure 1-1: Site Location [EN010153/DR/6.3]**.

The Order Limits and Surrounding Area

3.1.2 The Order Limits is located approximately 500 m to the north of the centre of Frodsham Town Centre within the administrative areas of Cheshire West and Chester Council (CWaCC). The Proposed Development location is shown on **ES Vol 3 Figure 1-1: Site Location [EN010153/DR/6.3].** Key environmental and planning designations on, and in close proximity to, the Order Limits are shown on **ES Vol 3 Figure 1-3: Planning and Environmental Designations [EN010153/DR/6.3]**, these are described below.

3.1.3 The Order Limits comprises a single red line boundary that covers all land required for the Proposed Development, which in total is approximately 337.5 ha. This encompasses the areas required for solar development, all associated infrastructure, BESS, access, cabling, the grid connection to the SPEN Substation, the private wire connections to local businesses and areas for mitigation including the Skylark Mitigation Area and the Non-Breeding Bird Mitigation Area (NBBMA).

3.1.4 The Solar Array Development Area Context Plan is shown within **ES Vol 3 Figure 1-4: Solar Array Development Area Site Context Plan [EN010153/DR/6.3]**, which illustrates the key features described below.

3.1.5 The Solar Array Development Area covers an area of approximately 246ha. It would be located at the eastern extent of Frodsham and Helsby Marsh, an area of land between the Mersey Estuary and the M56. The northern boundary of the Solar Array Development Area is formed by the River Weaver and the former INEOS Inovyn

Dredging Deposit Ground, the north-west boundary by the Manchester Ship Canal, with the Mersey Estuary lying beyond. The western boundary of the Solar Array Development Area is formed by two of the former Manchester Ship Canal Dredging Deposit Ground Cells; Cell 3 and Cell 6. Cell 3 forms part of the NBBMA. The southern boundary of the Solar Array Development Area is formed by agricultural fields and the M56 motorway.

3.1.6 The Solar Development Area comprises three relatively distinct areas:

(1) The Eastern Cluster of Frodsham Wind Farm (approximately 152 ha): This area forms the western half of the Solar Array Development Area. Six wind turbines, 125 m to blade tip, are located in this area. The land forms part of the former Manchester Ship Canal Dredging Deposit Ground, and includes Cells 1, 2 and 5. The cells have been restored to agricultural land and are now grazed by sheep / cattle (by the tenant of Frodsham Marsh Farm). The land in this area lies between approximately 9.5 m and 12.5 m above ordnance datum (AOD), and therefore is elevated above the other two sections of the Solar Development Area.

(2) Former agricultural land used by Frodsham Wildfowlers (approximately 36 ha): The central area of the Solar Array Development Area is former agricultural land which has been left fallow and managed to encourage use by wildfowl. This area is currently used for recreational shooting by Frodsham Wildfowlers. This area of the Order Limits is crossed by a series of ditches which have been used to drain and manage water levels on Frodsham and Helsby Marsh. The land in this area lies at approximately 6 m AOD.

(3) Agricultural land (approximately 61 ha): The south-eastern portion of the Solar Array Development Area is agricultural land. It is understood that the land has been used for growing crops and silage (this is not linked to the activities of Frodsham Marsh Farm). Some areas of the fields appear to have been left fallow and have been colonised with scrub and wet grassland. Hedgerows demarcate boundaries between field units. The land in this area lies at approximately 5 m AOD.

3.1.7 In the eastern half of the Solar Array Development Area (i.e. the area to the east of Brook Furlong), fields tend to be enclosed by dense hedgerows and tree belts. In

the western half of the Solar Array Development Area, the Order Limits is more open, with only occasional trees and remnant sections of hedgerow. There are also areas of scrub and woodland present on the embankments of the Manchester Ship Canal (MSC) dredging deposit cells. The landform across the Order Limits is largely flat. However, engineered embankments are present that result in changes in levels across the Order Limits. The embankments are generally associated with the cells of the former MSC dredging depot grounds, flood defences and structures associated with the M56.

3.1.8 The NBBMA comprises the land on Cell 3, a section of land between Cell 3 and the MSC, and land immediately surrounding Marsh Farm. The land between Cell 3 and the MSC, and land immediately surrounding Marsh Farm forms part of the Mersey Estuary Site of Special Scientific Interest (SSSI). Cell 3 forms part of the mitigation for Frodsham Windfarm and comprises areas of grassland with some manmade scrapes (shallow areas of water). A number of ponds are located in the land between Cell 3 and the MSC, these have been used for recreational fishing which appears to be unregulated.

3.1.9 The Skylark Mitigation Area comprises an area of arable land approximately 30ha in area located to the south of Moorditch Lane and separated from the Solar Development Area and remainder of the Order Limits by Cell 6.

3.1.10 The Main Site Access is from the west, leading from Pool Lane roundabout. Vehicles accessing the Order Limits would turn onto Grinsome Road (a private road) from Pool Lane roundabout and travel east towards Protos[2] for approximately 1.5 km, routing north at Grinsome Road Roundabout, along Road 1 of Protos. Vehicles would then turn east along Marsh Lane which provides access to Frodsham Wind Farm. The Frodsham Wind Farm access tracks provide access to the Solar Array Development Area. There would be no access to the Order Limits by vehicles associated with Frodsham Solar from Frodsham during construction, operation or decommissioning, other than for emergency vehicles. Once operational there would potentially be a new public car parking area on Moorditch Lane, accessed via Brook Furlong (refer to **ES Vol 3 Figure 2-3: (a-e) Illustrative Environmental Masterplan [EN010153/DR/6.3]** for details on the proposed new public car parking area).

3.1.11 A series of Public Rights of Way (PRoW) cross the Order Limits; these are illustrated on **ES Vol 3 Figure 1-5: Public Rights of Way [EN010153/DR/6.3]**. The PRoW include footpaths and restricted byways, which allow access by foot, horseback and cyclists. National Cycle Route 5 runs along a section of the Main Site Access and along part of the southern edge of the Order Limits.

3.2 The NBBMA

3.2.1 The NBBMA boundary is approximately 66.7ha in size, of which 53.31ha is suitable for new and enhanced habitats (wetland and other neutral grassland) to benefit wetland birds. Details of the NBBMA are provided in **ES Vol 1 Chapter 8.0: Ornithology [EN010153/DR/6.1] and Appendix B of the Outline Landscape and Ecology Management Plan (oLEMP) [EN010153/DR/7.13],** which provides the Non Breeding Bird Mitigation Strategy. In summary, Cell 3 would be re-engineered to deliver the following components:

i) Existing scrapes which have been created as part of the Frodsham Windfarm mitigation works would be temporarily removed and then re-instated as part of a wider network of wetland features;
ii) Additional scrapes would be created, substantially increasing the amount of ‘muddy edge’ to provide foraging habitat for SPA species;
iii) Islands would be created to provide safe roosting locations for SPA species and nesting birds;
iv) The entire area of Cell 3 would be managed as grassland, with approximately 9.5 ha of managed wet grassland created in the centre of the cell by lowering ground levels so that the necessary conditions to allow wet grassland to establish are created.
v) The entire mitigation area would be predator fenced with the aim of assisting breeding wader productivity.

3.2.2 The creation of the Non-Breeding Bird Mitigation Area (NBBMA) involves recontouring land within Cell 3 to form wet grassland habitat, either by redistributing excavated soil to direct surface water flow or by infilling adjacent ponds. Where ponds are affected, a new reservoir pond would be created, or existing ponds would be retained and treated to manage invasive New Zealand Pigmy Weed (NZPW), with measures including controlled draining, herbicide application, and filtration to prevent

spread. A Fish Rescue Plan and long-term water level control infrastructure would also be implemented. The NBBMA would be actively managed for the lifetime of the development through measures such as controlled grazing and hydrological manipulation, overseen by a qualified conservation organisation. Construction would be timed to avoid the core non-breeding bird season and completed in advance of works on areas most used by wetland birds, ensuring continuity of suitable habitat. This long-term, carefully managed mitigation area will deliver significant benefits to a range of wetland bird species over a 40-year period.

3.2.3 Additional details of the NBBMA are provided in **ES Vol 1 Chapter 8.0**: **Ornithology [EN010153/DR/6.1] and the Non Breeding Bird Mitigation Strategy ('NBBMS')** in **Appendix B of the oLEMP [EN010153/DR/7.13].** The **NBBMS** describes the various management prescriptions and habitat management objectives which would need to be delivered in order to achieve the aims for NBBMA.

4.0 DESCRIPTION OF THE CONSTRUCTION AND PHASING

4.1 Construction and Phasing and Lifecycle

4.1.1 The construction phase is expected to last for approximately 30 months, subject to securing a DCO in Summer 2026. It is anticipated that works will start on Site in January 2028 and be completed in mid to late 2030.

4.1.2 The construction of the Proposed Development will be split into different sub-projects / packages to enable the development to be delivered in the most efficient manner. In relation to the solar PV array areas, this is likely to be split into two main sub-projects; the western array area and the eastern array area. The western array area will comprise the solar PV array areas to the west of Brook Furlong i.e. the fields on the former MSC Dredging Deposit Ground (Solar PV Array Areas A01 to A06, with reference to **ES Volume 3 Figure 2-1 Indicative Construction Site Layout [EN010153/APP/6.3]**).

4.1.3 The eastern array will comprise the solar PV array areas to the east of Brook Furlong i.e. the agricultural land on the Frodsham Marshes area of the Order Limits (Solar PV Array Areas B01 to B18, and C01 to C06). There are also likely to be separate packages of work for the Substation and BESS, the 132kV connection to the SPEN Frodsham Substation and the 132kV Private Wire connection. The sub-projects / packages will likely be managed such that they are happening in staggered overlapping programme in order to build out the Proposed Development in the most efficient way possible whilst minimising environmental effects. See **ES Volume 2 Appendix 2-2 Indicative Construction Phasing and Resource Schedule** which illustrates the indicative reasonable worst-case phasing envisaged for the purposes of the Environment Impact Assessment.

4.1.4 The construction of the NBBMA will be undertaken early in the development programme, anticipated early spring 2028. The NBBMA will be constructed and functional (i.e., available for use by relevant bird species) prior to starting construction on the western array on the former MSC Dredging Deposit Ground cells (Cells 1, 2 and 5) in order to ensure habitat remains available for birds during the construction phase. Works to construct the eastern array area may be undertaken at the same time as the construction of the NBBMA.

4.1.5 The primary construction stages are set out below. The activities within each key phase are described in an approximate sequential order, however, many of the activities will occur in parallel due to the scale of the Proposed Development. See **Table 4-1** below for details.

Table 4-1. Construction program

Phase	Category	Activities
NBBMA	Enabling Works	Establish temporary welfare facilities
		Liaison with key utility companies
		Implement temporary Public Right of Way (PRoW) management
		Improve main site access from Grinsome Road/Marsh Lane
	Construction Works Note: there are two options for the Canal Pools, located to the north of Cell 3: Option 1: infilled, a new pond would be created nearby to serve as a water storage area, helping to manage water levels within the NBBMA. Excavated soils from Cell 3 would be used to infill the existing ponds, and a network of pipes and sluices would be installed to distribute water from the new reservoir pond into the NBBMA. Option 2: the existing ponds are retained and would be treated to control the spread of New Zealand Pigmy Weed (NZPW) and then used directly to manage water levels within the NBBMA via the same pipe and sluice network.	Re-engineering of Cell 3 and Canal Pools (option 1)
		Temporary removal and reinstatement of existing scrapes (option 1)
		Creation of additional scrapes & formation of islands (option 1)
		Establishment of managed wet grassland (~9.5 ha)
		Re-engineering of Canal Pools area (option 1)
		Installation of predator exclusion measures & access control

Phase	Category	Activities
		Eradication & management of New Zealand pigmyweed (*Crassula helmsii*) (option 2)
		Excavation and infill works
		Creation of additional grassland (~6.11 ha)
	Operational	Manage hydrology
		Maintain grassland sward height (grazing & mechanical means if required)
		Conduct monthly monitoring (September to May) and on-going adaptive management.
SADA		
Solar Array	Enabling Works	Establish construction compounds & car parking
		Construct & improve internal access roads, crossings, fencing, and surfacing
		Conduct earthworks for development platforms

Phase	Category	Activities
		Deliver solar PV modules and structures
	Construction Works	Erect solar PV mounting structures
		Install solar PV modules & cabling
		Construct PCU foundations
		Carry out 33kV trenching works & cabling
		Install PCU & conduct commissioning
		Establish minor ancillary works & landscaping
Construction Phase – BESS & Frodsham Solar Substation	Enabling Works	Establish construction compounds & welfare facilities
		Construct internal access roads, fencing & surfacing
	Construction Works	Construct foundations & drainage works
		Erect buildings

Phase	Category	Activities
		Install BESS container & balance of plant
		Install cabling & HV equipment
		Conduct testing & commissioning
		Establish minor ancillary works (e.g., lighting, security, landscaping)
132 kV SPEN Substation Grid Connection	Enabling Works	Establish construction compounds & welfare facilities
	Construction Works	Install Trident pole foundations & erect poles
		Conduct trenching at terminal ends of 132kV connection
		String 132kV cables on Trident poles
		Install HV equipment in SPEN Substation
		Conduct testing & commissioning
132 kV Private Wire Grid Connection	Construction Works	Excavate trenches in sections
		Construct Jointing Chambers

Phase	Category	Activities
		Pull cables between Jointing Chambers
		Connect cables within Jointing Chambers
		Conduct testing & commissioning
	Operational The operational lifespan of components within the scheme varies, with solar modules expected to last 15–30 years (allowing for one replacement per module and a 10% contingency is assumed), while mounting structures, DC/AC cabling, trident poles, and substation equipment are designed for up to 40 years. Shorter lifespans are anticipated for items such as the battery storage unit (10–20), solar balance of plant (20 years, replaced as needed), fencing (10 years), meteorological monitoring equipment (5–15 years), and communication/CCTV systems (10–20 years).	Conduct regular visual inspections of infrastructure
		Perform scheduled inspections & equipment testing
		Replace consumable items (e.g., inverter filters)
		Clean solar PV modules, if required
		Repair/replace solar modules & components, if damaged
		Deliver spare parts, replacement equipment & consumables
		Conduct water management (e.g., clearing drainage ditches)
		Perform vegetation management (e.g., cut back grass, hedges,

Phase	Category	Activities
		trees) and maintain ecological enhancements
Additional considerations during the operational phase		Faulty/degraded equipment replacement may require low-frequency HGV movements on an ad-hoc basis.
		No continuous lighting across the development; security lighting will be sensor-triggered at key electrical infrastructure.
Decommissioning Phase	Final details are to be determined pursuant to the **Outline Decommissioning Environmental Management Plan [EN010153/DR/7.7]**	Decommissioning details to be finalised per DCO requirements at end of operational lifespan.

4.2 Existing Baseline Conditions

Functionally Linked Land Within and Surrounding the Order Limits

4.2.1 In the context that the Proposed Development does not directly affect any national site network site, a key impact consideration in this report is impacts to land that can be considered to be Functionally Linked Land ('FLL') to the nearest national site network sites.

4.2.2 The following section identifies and describes the areas within and surrounding the Order Limits that are considered to be FLL, based on a combination of desk-based analysis and field survey data and applying the Natural England definition of FLL as being land "occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC)/ Special Protection Area (SPA)/ Ramsar site has been designated" – in this case being the Mersey Estuary SPA and Ramsar site. For SPAs, this is typically defined as land within 20 km of a SPA that is regularly used by significant numbers of qualifying bird species specifically, areas supporting at least 0.5% of the Great Britain population of a species or 1,000 individuals. Regular usage is defined as being used by significant numbers of birds for 7 or more years since 2010.

Desk Study Record Analysis

4.2.3 Extensive records of qualifying features were recovered from a range of sources, as detailed in **ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2].** Collectively, these desk study records provide a robust evidence base supporting the conclusion that the land within the Order Limits functions as established FLL to the Mersey Estuary SPA.

4.2.4 Parts of the Order Limits (Cells 1, 2, 3 and 5) are located within areas which Natural England (NE) identifies as having 'High Potential' to constitute FLL to the Mersey Estuary SPA, as set out in the report NECR483 Edition 1 – 'Identification of

Functionally Linked Land in the Northwest of England – Phase 2 (NECR483)'.[8] The NE report effectively identifies the Order Limits as FLL for the Northwest of England, establishing that certain areas have the potential to constitute FLL irrespective of field survey results. While some parts of the Order Limits fall outside the areas explicitly mapped as 'High Potential' by NE, it is acknowledged that these areas may still support SPA qualifying features. In contrast, the Manchester Ship Canal, located to the north and north-west, bordering Cell 3, is not considered suitable for SPA-designated species and rightfully is not acknowledged as Functionally Linked Land within NE's FLL plans.

4.2.5 Taken together with the established management of Cells 2, 3, and part of Cell 5, implemented under the Frodsham Wind Farm (FWF) consent, further supports the evidence of these areas as FLL. Cells 2, 3, and 5 (partially covered) are actively managed (as explained in **Outline Landscape and Ecology Management Plan Appendix B - Outline Non Breeding Bird Mitigation Strategy (oNBBMS)[EN010153/DR/7.13]**) for the benefit of Mersey Estuary SPA birds, in order to mitigate anticipated operational impacts of the wind farm. With a consented operational lifespan of 25 years, the current mitigation obligations are due to continue until 2042. This FWF management further demonstrates the functional linkage of the Cells which form part of the Order Limits.

4.2.6 The Order Limits includes two British Trust for Ornithology (BTO) 'Core Count Sector', encompassing the Frodsham Sludge Lagoons (BTO sector 45351) and Weston Marshes (BTO sector 45424), both categorised as "Very High Priority" for WeBS coordinated monthly counts. Additionally, the Order Limits include areas that are designated as non-statutory sites for nature conservation (Frodsham, Helsby and Ince Marshes Local Wildlife Site (LWS), Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS), in part due to the recorded presence of wetland bird species which are associated with the Mersey Estuary SPA.

4.2.7 BTO WeBS data outlined in the **ES Vol 1 Chapter 8: Ornithology [EN010153/DR/6.1]** confirms that five species have been recorded with peak counts

[8] *BOWLAND ECOLOGY. 2022. Identification of Functionally Link Land in the North West of England – Phase 2. NECR483. Natural England*

exceeding 1,000 individuals—black-tailed godwit, lapwing, teal, golden plover, and dunlin—with black-tailed godwit reaching a peak of 3,885 birds. These high counts were primarily recorded at Frodsham Sludge Lagoons sector (Cells 1, 2, 3, 6 and part of Cell 5- discreet locations within the sectors are not provided); however, the large majority of records provided come from Cell 6, which is outside the Order Limits, which is likely due to optimal habitats what support waterbirds including the large waterbody within the cell. Overall, Cell 6, and to some degree Cells 1 2, 3 and part of Cell 5 consistently support a more abundant and diverse bird assemblage compared to the other areas within the Order Limits. In contrast, the SADA located within Weston Marshes BTO sector recorded notably lower peak counts, with lapwing peaking at 130 and teal at 48. This pattern was also reflected in the non-breeding bird surveys undertaken by HyNet during 2021–2022[9] and 2024[10] highlighted in the **ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2]** which recorded over 1,000 individuals of golden plover, lapwing, and black-tailed godwit within transect 6 (south of Cell 5 and within Cell 6, outside of the Order Limits), located between Moorditch Lane and the Manchester Ship Canal. Transect 7b, situated adjacent to the River Weaver, recorded comparatively lower counts, with peak totals of 811 lapwing and 150 golden plover. While still indicative of SPA species presence, these figures demonstrate that the SADA to the east of Brook Furlong (outside the MSC dredging deposit cells), such as within Weston Marshes BTO sector and Transect 7b, support SPA qualifying features to a lesser degree than core areas like Frodsham Sludge Lagoons (Cell 1, 2, 3, 6 and part of Cell 5). It is important to note that the SADA, east of Brook Furlong does not constitute FLL, however it is recognised as suitable habitat for water birds (arable and horticulture) as per the NE FLL plans.

4.2.8 Additional context is provided by data obtained from the Cheshire and Wirral Ornithological Society (CAWOS), which recorded qualifying features and species that form part of the waterbird assemblage across the wider area surrounding the Order Limits. These records represent observations across the entire Mersey Estuary SPA, including adjacent areas, rather than being confined to the Order

[9] HyNet North West (2022) Baseline Ornithology Report Winter 2021-22. Available at: HyNet North West.pdf) (Accessed: 2 May 2025).
[10] HyNet North West (2024) Non-breeding Waterbird Survey Interim Report. Unpublished report.

Limits. While the data are casual and not location-specific, they offer supporting evidence of functional linkage within the wider landscape extending across the Mersey Estuary and adjacent areas for SPA species.

4.2.9 The evidence above demonstrates the use of the Cells 1, 2, 3, 6 and part of Cell 5 are utilised by greater numbers and more frequently by qualifying features and the waterbird assemblage of the Mersey Estuary, compared to the surrounding farmland areas which lie within the SADA boundary. This pattern of utilisation indicates that the identified Cells function as FLL and represent higher quality habitat. By contrast, land within the farmlands and other parts of the SADA are likely to be of sub-optimal quality for these bird species, based on the lesser and evident utilisation. In light of this, the Applicant has also undertaken its own surveys of these areas of land, as reported on below.

Field Survey Results Summary and Area Utilisation Within the Order Limits

4.2.10 Full survey results are presented in **ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2]**.

Table 4-2: SPA species and waterbird assemblage species recorded within the Order Limits during field surveys.

Peak counts are presented and further expressed as a percentage of the national threshold and international threshold in brackets, where the national and (or) thresholds is/are exceeded. Note the Mersey estuary SPA/Ramsar 5-year mean counts are also provided. Only data from October to March are presented below to ensure consistency across the three survey years. Year 1 included surveys in September and April, Year 2 surveyed in September but not April, and Year 3 did not include either September or April.

Data is presented as peak count during the field surveys/national threshold (international threshold (IT))

Area	Species and SPA 5 year mean population counts	Year	October	November	December	January	February	March
SADA	Golden plover. Mersey Estuary SPA 5 year mean population: 2068 National threshold: 4,000 / International threshold: 9,300	Yr 1 peak (%)	-	-	-	-	-	9/0.24%
		Yr 2 peak (%)	-	34/0.84%	17/0.43%	100/2.5% (1% of the IT)	200/5% (2.2% of the IT)	-
		Yr 3 peak (%)	-	60/1.5%	-	23/0.6%	38/0.95%	-

	Lapwing. Mersey Estuary SPA 5 year mean population: 6201 National threshold: 6,200 International threshold: 20,000	Yr 1 peak (%)	159/2.56%	-	50/0.81%	-	-	3/0.05%
		Yr 2 peak (%)	-	280/4.52% (1.4% of the IT)	40/0.65%	245/3.95% (1.23% of the IT)	450/7.26% (2.3% of the IT)	-
		Yr 3 peak (%)	3/0.05%	200/3.23% (1% of the IT)	24/0.39%	244/3.94% (1.22% of the IT)	111/1.79%	2/0.03%
	Curlew. Mersey Estuary SPA 5 year mean population: 1541 National threshold: 1,200 International threshold: 7,600	Yr 1 peak (%)	27/2.3%	-	-	-	-	8/0.7%
		Yr 2 peak (%)	6/0.39%	31/2.5%	4/0.26%	56/3.63%	90/5.84%	17/1.10%
		Yr 3 peak (%)	36/2.34%	28/2.3%	24/2%	45/3.8%	37/3.1%	11/0.9%
	Black-tailed Godwit. Mersey Estuary SPA 5 year mean population: 3579 National threshold: 390 International threshold: 1,100	Yr 1 peak (%)	1/0.026%	-	-	5/1.3%	-	-
		Yr 2 peak (%)	-	-	-	8/2%	-	-
		Yr 3 peak (%)	-	57/14.62 (5.2% of the IT)	-	-	102/26.2% (9.3% of the IT)	3/0.08%
	Redshank. Mersey Estuary SPA 5 year mean population: 9018 National threshold: 940	Yr 1 peak (%)	1/0.1%	-	-	-	-	-

	Internation threshold: 2,400							
		Yr 2 peak (%)	-	-	-	-	4/0.43%	-
		Yr 3 peak (%)	-	-	9/0.96%	6/0.6%	1/0.1%	-
	Shelduck. Mersey Estuary SPA 5 year mean population: 13704 National threshold: 470 International threshold: 2,500	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	-	10/2.13%	-	1/0.02%	8/1.7%
		Yr 3 peak (%)	-	-	-	-	-	1/0.2%
	Pintail. Mersey Estuary SPA 5 year mean population: 218 National threshold: 200 International threshold: 600	Yr 1 peak (%)	-	-	-	-	-	2/1%
		Yr 2 peak (%)	-	-	-	-	-	-
		Yr 3 peak (%)	-	7/3.5%	-	-	2/1%	-
	Teal. Mersey Estuary SPA 5 year mean population: 4394 National threshold: 4,300 International threshold: 5000	Yr 1 peak (%)	4/0.08%	-	17/0.39%	52/1.2%	52/1.2%	35/0.8%

		Yr 2 peak (%)	-	-	-	-	50/1.2%	6/0.14%
		Yr 3 peak (%)	-	92/2.1% (1.8% of the IT)	-	20/0.46%	60/1.4% (1.2% of the IT)	53/1.23%
NBBMA[11]	Golden plover. Mersey Estuary SPA 5 year mean population: 2068 National threshold: 4000 International threshold: 9,300	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	275/6.9% (3% of the IT)	0/0.00%	433/10.8% (4.7% of the IT)	200/5% (2.2% of the IT)	0/0.00%
		Yr 3 peak (%)	15/0.73%	526/13.2% (5.7% of the IT)	80/2%	50/2.42%	631/15.8% (6.8% of the IT)	-
	Lapwing. Mersey Estuary SPA 5 year mean population: 6201 National threshold: 6,200 International 20,000	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	150/2.42%	400/6.45%	800/12.90%	463/7.47%	-
		Yr 3 peak (%)	410/6.61%	1151/18.56% (5.8% of the IT)	586/9.45%	567/9.14%	940/15.16% (4.5% of the IT)	2/0.03%
	Curlew. Mersey Estuary SPA 5 year mean population: 1541 National threshold: 1,200	Yr 1 peak (%)	-	-	-	-	-	-

[11] The canal pools which is part of the NBBMA is not included as these will be removed as part of the Proposed Development. Note that the canal pools are discussed separately as part of the AA.

	International threshold: 7,600							
		Yr 2 peak (%)	36/2.34%	4/0.3%	4/0.3%	-	59/5%	27/2.3%
		Yr 3 peak (%)	18/1.5%	41/3.4%	19/1.6%	-	18/1.5%	13/1%
	Black-tailed Godwit. Mersey Estuary SPA 5 year mean population: 3579 National threshold: 390 International threshold: 1,100	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	-	-	-	74/19% (6.73% of the IT)	1411/362& (128.3% of the IT)
		Yr 3 peak (%)	537/15.00%	338/94% (33.5% of the IT)	369/94.6% (33.5% of the IT)	411/105% (37.4% of the IT)	445/114% (40.5% of the IT)	8/2.1%
	Redshank. Mersey Estuary SPA 5 year mean population: 9018 National threshold: 940 International threshold: 2,400	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	-	-	-	48/5% (2% of the IT)	-
		Yr 3 peak (%)	1 (0.1%)	-	-	-	6/0.06%	-
	Shelduck. Mersey Estuary SPA 5 year mean population: 13704 National threshold: 470 International threshold: 2,500	Yr 1 peak (%)	-	-	-	-	-	-

		Yr 2 peak (%)	-	-	-	1/0.02%	2/0.04%	11/0.08%
		Yr 3 peak (%)	-	1/0.02%	2/0.04%	-	2/0.04%	7/1.5%
	Wigeon. Mersey Estuary SPA 5 year mean population: 2059 National threshold: 4,500 International threshold: 14,000	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	-	-	19/0.4%	18/0.4%	25/0.6%
		Yr 3 peak (%)	5/0.24%	53/1.2%	26/0.6%	-	158/3.5% (1.1% of the IT)	169/3.8% (1.2 of the IT)
	Pintail. Mersey Estuary SPA 5 year mean population: 218 National threshold: 200 International threshold: 600	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	-	-	-	5/2.5%	4/2.0%
		Yr 3 peak (%)	1/0.5%	-	-	-	2/1%	13/6.5% (1.2% of the IT)
	Teal. Mersey Estuary SPA 5 year mean population: 4394 National threshold: 4,300 International threshold: 5000	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	177/4.03%	56/1.3% (1.2% of the IT)	-	114/2.6% (2.3% of the IT)	291/6.8% (5.8% of the IT)	235/5.5% (4.7% of the IT)

		Yr 3 peak (%)	534/12.15%	562/13.1% (11.2% of the IT)	550/12.8% (11% of the IT)	434/10.1% (8.7% of the IT)	343/8% (6.9% of the IT)	272/6.3% (5.4% of the IT)
	Great crested grebe. Mersey Estuary SPA 5 year mean population: 65 National threshold: 170 International threshold: 6300	Yr 1 peak (%)	-	-	-	-	-	-
		Yr 2 peak (%)	-	1/0.6%	-	-	-	-
		Yr 3 peak (%)	-	-	-	-	-	2/1.2%

Table 4-3 – Peak Count Summary (Years 1–3: 2022–2025) – Areas Outside the Order Limits.

The table below presents incidental (casual) peak counts recorded during field surveys and provide a snapshot of bird usage of Functionally Linked Land (FLL) located outside the Order Limits.

Areas outside of the Order Limits	Year	Target Species							
		Lapwing	Golden plover	Curlew	Black-tailed godwit	Redshank	Pintail	Wigeon	Teal
Cell 6	1	116	-	-	2,000	300	20	-	350
	2	-	200	59	260	14	10	12	359
	3	120	-	-	-	200	46	-	800

Areas outside of the Order Limits	Year	Target Species							
		Lapwing	Golden plover	Curlew	Black-tailed godwit	Redshank	Pintail	Wigeon	Teal
Frodsham Score	1	200	-	200	20	30	-	-	10
	2	-	-	-	-	-	-	-	-
	3	-	-	-	18	-	-	-	-
Manchester Ship Canal	1	-	-	-	-	80	-	-	45
	2	-	-	-	-	-	-	-	-
	3	200	-	50	-	9	-	-	189
River Weaver	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	180	-	-	-	-	-	-	-

4.2.11 These results demonstrate that the SADA supports a range of non-breeding waterbirds, with notable seasonal peaks for several SPA species. Over the three-year baseline survey period, lapwing numbers were consistently highest between November and February, with a peak of 450 individuals in February (Year 2)—exceeding both national (7.26%) and international (2.3%) thresholds. Curlew showed steady presence throughout winter, with highest counts typically in February and January, including a peak of 90 birds in February (Year 2), equating to 5.84% of the national threshold. Black-tailed Godwit demonstrated especially high use of the Order Limits in November and February (Year 3), with counts reaching 26.2% of the national threshold and 9.3% of the international threshold. Teal also peaked in November and February, with multiple years showing over 1% of the national threshold. These patterns indicate that winter months especially November through February represent the period of highest bird activity in SADA.

4.2.12 In contrast, the NBBMA consistently supported higher numbers with more frequent threshold exceedances despite being a much smaller area, approximately 25% the size of the SADA footprint. Teal showed high usage from October to March, with peak counts such as 562 in November and 550 in December (Year 3)—well above both national and international thresholds (up to 13.1% and 11.2%, respectively). Black-tailed Godwit also showed consistent use, particularly from November through February, reaching over 100% of the international threshold in multiple months (Mersey Estuary SPA 5 year mean population: 3579). Lapwing peaked in November (Year 3) with 1,151 birds (18.56% of the national threshold) and remained high through February. Golden Plover numbers were most prominent in January and February, with a peak of 631 individuals in February (Year 3), equating to 15.8% of the national threshold and 6.8% of the international threshold. Curlew, wigeon, and pintail also showed moderate to high winter use. This temporal breakdown confirms that mid-winter months (especially November to February) are key for supporting SPA bird species and the waterbird assemblage across both the SADA and NBBMA, with the NBBMA supporting significant aggregations of SPA species and those which form part of the waterbird assemblage.

4.2.13 It is important to note that surveys conducted during key passage months, such as September and April, recorded relatively low peak counts in comparison to the core winter period. In September of Year 1, black-tailed godwit reached a maximum of 26

individuals and curlew 12 within the SADA. In Year 2, the NBBMA recorded a peak of 46 curlew during September.

4.2.14 The desk study and field survey results from the SADA and NBBMA between 2021 and 2024 confirm the frequent presence of SPA-qualifying species and waterbird assemblage, particularly during winter months (November–February), with several species regularly exceeding national and, occasionally, international importance thresholds. The results also highlight 'hotspots' within the Order Limits, which suggests that the NBBMA is historically preferred by SPA qualifying species and the waterbird assemblage. The heat tables illustrating these 'hotspots' are presented within the **ES Vol 2 Appendix 8-1: Ornithology Survey Report [EN010153/DR/6.2]**.

4.2.15 These findings are consistent with the evidence provided by NE's NECR483 mapping, BTO WeBS data, and historic mitigation designations under the FWF consent. Together, they confirm that the land within and adjacent to the Site constitutes active FLL for the Mersey Estuary SPA, particularly cells 1, 2 and 5. While the NBBMA supports the most significant aggregations, the SADA demonstrably supports SPA species at ecologically relevant levels and plays a meaningful role within the wider SPA network.

4.2.16 This baseline position has been considered through all applicable stages of the HRA process for the Proposed Development, as set out below.

5.0 HABITATS REGULATIONS ASSESSMENT SCREENING (STAGE 1)

5.1 Introduction

5.1.1 Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the Habitats Regulations, that is:

i) whether a plan or project is directly connected to or necessary for the management of the European site; and
ii) if not directly connected to or necessary for European site management, whether a plan or project, alone or in-combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

5.1.2 Under the first test, the purpose of the Proposed Development is not directly connected with or necessary to the management of a European site. Therefore, the second test needs to be undertaken to determine whether the Proposed Development has the potential to have LSEs on a European site.

5.2 Consultation

5.2.1 The Applicant has engaged with Natural England's (NE) through their Discretionary Advice Service (DAS) on the scope and method of surveys to inform the Environmental Impact Assessment (EIA) and this report over the course of the pre-application period.

5.2.2 Pre-application consultations are described in the **ES Vol 1 Chapter 8: Ornithology [EN010153/DR/6.1]** and also presented in **Consultation Report [EN010153/DR/5.1].**

5.3 Identification of European Sites

5.3.1 The Proposed Development is not located within any European-designated site. However, four statutory Sites of European importance are situated within 10km of the Order Limits.

5.3.2 These sites are summarised in Table 5-1 and are shown in **Figure 1, Figure 2, Figure 2a, Figure 2b and Figure 2c.**

Table 5-1: European sites qualifying features.

Site Name (and designation)	Distance and Direction	**Qualifying Features**
Mersey Estuary SSSI[xii] Although not a European Site, this SSSI is included in the designation table as it underpins the interest features of the corresponding SPA/Ramsar site and is therefore relevant to the assessment of impacts on European site integrity (**Figure. 2b**).	Small part of the SSSI lies within the Order Limits	This SSSI is an important roosting site for wildfowl and waders at high tide. Throughout the winter the Site supports large numbers of wildfowl and waders. The birds feed on the rich invertebrate fauna of the intertidal sediments as well as plants and seeds from the saltmarsh and nearby agricultural fields. The site is a valuable staging post for migrating birds in spring and autumn. The site supports (internationally) important numbers of: pintail, teal, shelduck, wigeon and dunlin, with nationally important numbers of curlew, redshank and golden plover.
Mersey Estuary Special Protected Area (SPA)[xiii] (**Figure 2a**).	72m northwest	This SPA is designated for the following ornithological qualifying features: • Shelduck (non-breeding); • Teal (non-breeding); • Pintail (non-breeding); • Golden plover (non-breeding); • Dunlin (non-breeding); • Black-tailed godwit (non-breeding); and, • Redshank (non-breeding). Waterbird assemblage, including great crested grebe, shelduck, wigeon, teal, pintail, ringed plover, golden plover, grey plover, lapwing, dunlin, black-tailed godwit, curlew and redshank.
Mersey Estuary Ramsar Site[xiv] (**Figure 2a**).	72m northwest	Qualifying species: • Dunlin- Wintering • Pintail- Wintering • Redshank - Passage • Redshank - Wintering • Shelduck - Wintering • Teal – Wintering • Curlew – Passage • Spotted redshank- Passage • Common greenshank- Passage • Wigeon – wintering

[xii] *Natural England. (n.d). Citation for Site of Special Scientific Interest (SSSI): Mersey Estuary. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001398.pdf (Accessed: 3 March 2025).*
[xiii] *Natural England. (n.d). European Site Conservation Objectives for Mersey Estuary SPA. Available at: https://publications.naturalengland.org.uk/publication/5790848037945344 (Accessed: 3 March 2025).*
[xiv] *Joint Nature Conservation Committee. (n.d). Information Sheet on Ramsar Wetlands (RIS): Mersey Estuary. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11041.pdf (Accessed: 3 March 2025).*

		Waterbird assemblage – Wintering
Midland Meres & Mosses - Phase 1 Ramsar[xv] (**Figure 2c)**.	6.7km	Designated features: • Open water transition fen ('mere'), lowland raised bog ('moss') and associated habitats • Wetland invertebrate assemblage • Wetland plant assemblage
Midland Meres and Mosses- Phase 2 Ramsar Site[xvi] (**Figure 2c)**.	7.0km	Nationally important species occurring on the Site, include the following: Higher Plants: • *Calamagrostis stricta,* • *Carex elongata,* • *Cicuta virosa,* • *Thelypteris palustris* Lower Plants: • *Sphagnum pulchrum,* • *Dicranum* undulatum Species currently occurring at levels of national importance: Species with peak counts in spring/autumn: • Shoveler - Passage • Cormorant - Winter • Bittern - Winter • Water rail -Winter Nationally important invertebrate species occurring on the Site. • *Limnophila heterogyna,* • *Atylotus plebeius,* • *Hagenella clathrata,* • *Limnophila fasciata,* • *Carorita limnaea,* • *Glyphipteryx lathamella,* • *Trichiosoma vitellinae,* • *Eilema serica,* • *Brachythops wusteneii,* • *Pachinematus xanthocarpos,* • *Sittcus floricola,* • *Lampronia fuscatella,* • *Hybomitra*

[xv] *Natural England (n.d.) Midland Meres & Mosses Phase 1. Available at: https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11043&SiteName=Midland%20Meres&countyCode=&responsiblePerson=&SeaArea=&IFCAArea= (Accessed: 4 March 2025).*

[xvi] *Natural England (n.d.) Midland Meres & Mosses Phase 2. Available at: https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11080&SiteName=Midland%20Meres&countyCode=&responsiblePerson=&SeaArea=&IFCAArea= (Accessed: 4 March 2025).*

5.4 European Site Conservation Objectives

5.4.1 NE has established generic Conservation Objectives that apply to each European site's designated interest features. These objectives are further supported by Supplementary Advice on Conservation Objectives (SACOs[xvii]), which provide site-specific guidance to clarify what may constitute an adverse effect on a site's features. SACOs are periodically updated and may not yet be available for all European sites.

5.4.2 In cases where supplementary advice is not available, NE recommends that HRAs rely on the generic objectives, adapting them to the specific conditions of the European site.

5.4.3 For SPAs, the primary objective is to prevent habitat deterioration and significant disturbance to qualifying bird species, ensuring the site's integrity is maintained. This enables the site to contribute fully to the aims of the Habitats Regulations, which is achieved by maintaining and restoring bird populations, subject to natural change.

5.4.4 The conservation objectives of the European sites identified in Table 5-1 are presented as follows.

Mersey Estuary SPA and Ramsar [xviii]

5.4.5 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:

i) The extent and distribution of the habitats of the qualifying features
ii) The structure and function of the habitats of the qualifying features
iii) The supporting processes on which the habitats of the qualifying features rely
iv) The population of each of the qualifying features; and,
v) The distribution of the qualifying features within the site.

[xvii] *Natural England (2025) 'Supplementary Advice for Mersey Estuary SPA'. Available at: https://designatedsites.naturalengland.org.uk/ConservationAdvice/SupplementaryAdvice.aspx?SiteCode=UK9005131&SiteName=mersey%20estuary&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7 (Accessed: May 2025).*
[xviii] *Natural England (2014) European Site Conservation Objectives for Mersey Estuary SPA (UK9005131). Natural England. Available at: https://publications.naturalengland.org.uk/publication/5790848037945344 (Accessed: 27 May 2025).*

5.4.6 The SACOs relevant to this HRA Report, as published by NE and the Joint Nature Conservation Committee (JNCC), are referenced where relevant in Section 5 (Appropriate Assessment) of this HRA Report. [xix]

Midland Meres and Mosses Phase 1 & 2 Ramsar [xx] [xxi]

5.4.7 Conservation objectives for sites such as the Midland Meres and Mosses Phases 1 and 2 Ramsar sites are typically documented by Natural England and may be linked to associated Special Areas of Conservation (SACs) or Sites of Special Scientific Interest (SSSIs) within the Ramsar designation. However, these specific conservation objectives were not available at the time of assessment. In their absence, the following threats and pressures have been identified as relevant to both sites.

i) Pollution;
ii) Invasive species; and
iii) Eutrophication.

5.4.8 As the provisions on the Habitats Regulations relating to HRAs extend to Ramsar sites, Natural England generally considers the conservation advice packages for the overlapping SPA designations to be, in most cases, sufficient to support the management of the Ramsar interests.[xxii]

5.5 Natural England Guidance on the Mersey Estuary SPA

5.5.1 Two NE reports specific to the Mersey area, and therefore of relevance to the HRA, have been reviewed in its preparation. These are:

[xix] *Natural England & Joint Nature Conservation Committee (JNCC), Supplementary Advice on Conservation Objectives (SACOs), [online] Available at: <https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9005131&SiteName=mersey&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7> [10th March 2025].*
[xx] *Joint Nature Conservation Committee (JNCC). (1994). Information Sheet on Ramsar Wetlands (RIS): Midland Meres and Mosses Phase 1. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11043.pdf (Accessed: 12 March 2025).*
[xxi] *Joint Nature Conservation Committee (JNCC). (1997). Information Sheet on Ramsar Wetlands (RIS): Midland Meres and Mosses Phase 2. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11080.pdf (Accessed: 12 March 2025).*
[xxii] *Natural England (n.d.) Mersey Estuary Ramsar. Available at: https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK11041&SiteName=mersey&SiteNameDisplay=Mersey%20Estuary%20Ramsar&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=&HasCA=0 (Accessed: 4 March 2025).*

i) Review and analysis of changes in waterbird use of the Mersey Estuary SPA, Mersey Narrows & North Wirral Foreshore pSPA and Ribble & Alt Estuaries SPA; [xxiii] and

ii) Identification of Functionally Linked Land (FLL) supporting SPA waterbirds in the Northwest of England.[xxiv]

5.5.2 The Review and Analysis of Changes in Waterbird Use report provides data on waterbird population trends and habitat use in several SPAs, informing assessments of potential impacts on these areas. The Identification of FLL document maps critical habitats outside SPAs that support waterbirds, ensuring these areas are considered in HRAs to protect the integrity of the SPAs.

5.5.3 With regards to FLL, NE recommends focusing on what are referred to as the 'main component' species of the assemblages, categorised as:

i) areas of land occurring within 20 km of an SPA, that are regularly used by significant numbers of qualifying bird species;
ii) A significant number of birds has been defined as 0.5% of the GB population or 1000 individuals; and
iii) Regular usage is defined as being used by significant numbers of birds for 7 or more years since 2010

5.6 Identification of Potential Impacts

5.6.1 This section sets out the identified potential impacts on the qualifying features associated with the European sites from the Proposed Development. These include consideration of the construction, operational and decommissioning phases. Decommissioning impacts are considered likely to be similar to, or less than, those identified for the construction phase.

[xxiii] *Natural England. (2015). Review and analysis of changes in waterbird use of the Mersey Estuary SPA, Mersey Narrows & North Wirral Foreshore pSPA and Ribble & Alt Estuaries SPA. Available at: https://publications.naturalengland.org.uk/publication/4713137133584384 (Accessed: 12 March 2025).*
[xxiv] *Bowland Ecology. (2021). Identification of Functionally Linked Land supporting Special Protection Areas (SPAs) waterbirds in the North West of England. Available at: https://publications.naturalengland.org.uk/publication/6303434392469504 (Accessed: 12 March 2025).*

5.6.2 It is acknowledged that environmental conditions and technological approaches may evolve over the operational life of both the SADA and NBBMA, introducing some uncertainty around future decommissioning impacts.

5.6.3 During the operational phase, the routine activities on site would be limited primarily to vegetation and landscape management; maintenance of footpaths, recreational facilities and fencing; equipment maintenance; and servicing, cleaning of solar PV modules, and onsite agricultural management e.g. associated with grazing. There would also be a requirement for replacement of components that fail or reach the end of their lifespan. It can be expected that there would be one or more replacements of the solar array equipment, including Power Conversion Units, as well as the BESS equipment, required over the 40-year lifetime of the project (currently anticipated to be 2030. to 2070). The replacement of components would be periodic throughout the lifetime of the scheme and would not involve the intensity of construction required at the outset of the project. As such, whilst the types of impacts could be similar, the magnitude of effect experienced during the replacement and maintenance works would be less than that assessed for the construction phase. This report has therefore considered the potential for impacts to occur during the operational phase at periodic intervals.

5.6.4 Decommissioning activities would commence 40 years after final commissioning (currently anticipated to be 2070). All solar PV modules, mounting poles, cabling, inverters, transformers, BESS equipment, the Frodsham Solar Substation, and fencing would be removed from the Site and recycled or disposed of in accordance with good practice and market conditions at that time. The Site would be returned to a condition suitable for return to its original use after decommissioning.

5.6.5 On decommissioning, the landscaping works undertaken across the Site would remain in place, and the land would be handed back to the landowner, with the only exception being the potential requirement by the landowner to revert the grassland created on the eastern half of the Site (to the east of Brook Furlong) and the Skylark Mitigation Area to land suitable for arable farming. Given that the western half of the Site is currently used for grazing, the grassland created and managed in this area would be retained.

5.6.6 It is likely that tree and scrub planting, together with created pond and wetland habitats, would be retained, including the habitats created within the NBBMA.

However, as the land would be handed back to the landowners on completion of decommissioning the long term retention of the landscaping improvement works cannot be guaranteed. Similarly, following decommissioning the landowner may or may not retain the permissive footpaths created across the Site.

5.6.7 Decommissioning would be phased and is expected to take 12 to 24 months.

5.6.8 The following potential impact pathways have been identified:

i) Habitat degradation due to changes in air quality;
ii) Habitat degradation due to changes in water quality;
iii) Loss of FLL used by qualifying bird species and waterbird assemblage;
iv) Disturbance or displacement of qualifying bird species from FLL;
v) Disruption to bird flight paths due to glint and glare effects.

5.6.9 The potential impacts from each are discussed in turn. Note that the potential pathways are considered for all phases, construction, operational and decommissioning phases. The pathways per phase are confirmed in the screening assessment table (Table 5-2).

Degradation of habitats due to changes in air quality

5.6.10 A reduction in air quality because of potential dust pollution and increased traffic in the construction, operation and decommissioning phases for both the NBBMA and the SADA of the Proposed Development has the potential to lead to degradation of habitats within the European sites.

5.6.11 No other pathways for potential effects have been identified.

Degradation of habitats due to changes in water quality

5.6.12 Hydrological linkage exists between the Proposed Development Order Limits, the River Weaver, the Manchester Ship Canal, and the River Mersey, which could provide pathways for waterborne pollutants to reach the Mersey Estuary SPA and Ramsar.

5.6.13 Potential effects include during the construction, operation and decommissioning phases include:

i) Surface water runoff carrying fine sediments and pollutants;
ii) Increased turbidity and sedimentation;
iii) Chemical contamination from construction-related pollutants; and
iv) Water quality impacts as a result of Invasive non-native species, notably New Zealand pigmyweed *Crassula helmsii* (NZPW)

5.6.14 No other pathways for potential effects have been identified.

Loss of functionally linked land for qualifying bird species

5.6.15 Construction will not result in direct loss of habitats within the European sites identified in Table 5-1. However, land within and adjacent to the Order Limits to the Mersey Estuary SPA and Ramsar do constitute 'FLL' for qualifying bird species and the waterbird assemblage for which the European sites are designated (discussed further in Section 6.3). FLL has been confirmed Parts of the Site (Cells 1, 2, 3, and 5), which fall within areas identified by NE as having 'High Potential' to be Functionally Linked Land (FLL) to the Mersey Estuary SPA (NECR483). The Manchester Ship Canal and Eastern extent/array of the Order Limits, do not constitute FLL, however these have been identified as 'suitable' as they may still support SPA/Ramsar species and the waterbird assemblage.

5.6.16 As such, there will be an potential temporary loss and fragmentation of FLL (Mersey Estuary SPA) during the construction period, and potential for long-term loss of FLL for usage by birds under the footprint of the solar PV modules and associated infrastructure where this is above ground level for the period of the development i.e. 40 years. The long-term loss of FLL is expected within cells 1, 3 and 5 within the SADA footprint.

5.6.17 Temporary loss of FLL is anticipated within Cell 3 during the construction phase of the NMBBA stage of the Proposed Development only.

Disturbance/ displacement of qualifying bird species using FLL

5.6.18 There is potential for disturbance/displacement of SPA/Ramsar site qualifying bird species and the waterbird assemblages utilising FLL within and (or) adjacent to the Order Limits during the construction and operational and decommissioning phases. This could reduce feeding efficiency and/or lead to changes in species distribution

and therefore contradict the conservation objectives of the SPA/Ramsar sites. Potential disturbance could arise from:

i) Vehicle movements;
ii) Increased human presence;
iii) Construction noise and vibratory works; and
iv) Light spill.

5.6.19 During the operational phase, disturbance or displacement could occur through the development delivering increased public access to the land; however, this is considered likely to be comparable to the current farming related activity levels and recreational activities, which include unregulated fishing within the NBBMA (Canal Pools, adjacent to Cell 3).

5.6.20 Replacement of components will cause temporary disturbance and displacement throughout the operational lifespan. Disturbance and displacement are likely to be similar to that of the construction phase. However, this will be periodic across the Proposed Development lifetime.

Disruption of flight paths of qualifying bird species due to glint and glare

5.6.21 During the operational phase, solar PV panels could introduce glint and glare, potentially disrupting flight paths of qualifying bird species associated with the European sites.

5.7 Screening Assessment

5.7.1 The European sites considered for assessment in the case of the Proposed Development have been identified through desk study as presented in Table 5-2, with an explanation of the conclusions reached set out below the table.

Table 5-2. Screening assessment. Note that all lines in the assessment table

Impact Pathway	Project Phase	Impact Source (Area)	Receptor Area	SPA/Ramsar Feature Affected	Screening Outcome	Notes
Loss of FLL	Construction	SADA	SADA (within FLL – cells 1,2 and 5)	Qualifying features and waterbird assemblage	Screened in	Temporary loss during clearance and enabling works.
	Construction	NBBMA	NBBMA	Qualifying features and waterbird assemblage	Screened in	Temporary loss during reengineering of the area for enhancement
	Operational	SADA	SADA (within FLL-cells 1,2 and 5)	Qualifying features and waterbird assemblage	Screened in	Long-term conversion of FLL due to development footprint (Solar panels)
Disturbance / Displacement	Construction	SADA	NBBMA (already operational)	Qualifying features and waterbird assemblage	Screened in	NBBMA operational during SADA construction; potential disturbance and displacement.
	Construction	NBBMA	NBBMA	Qualifying features and waterbird assemblage	Screened in	Initial disturbance during re-profiling, fencing, and scrape creation.
	Operational and decommissioning	SADA	NBBMA and adjacent FLL (cells 1,2 and 5)	Qualifying features and waterbird assemblage	Screened in	Increased access to the land is anticipated through the development design, however the extent of this disturbance is considered to be of similar magnitude to what the land currently experiences. Replacement of components could be similar or less to the construction and

						decommissioning phase intensity.
Water Quality Degradation	Construction	SADA and the NBBMA	NBBMA	Qualifying features and waterbird assemblage	Screened in	Potential for runoff of sediment/pollutants into NBBMA/FLL/Mersey Estuary SPA/Ramsar through excavation, maintenance and component replacement activities.
	Construction	SADA	SPA/Ramsar via hydrological connections	Qualifying features and waterbird assemblage	Screened in	Potential indirect runoff through ditches; mitigation proposed.
	Operational and decommissioning	SADA	SPA/Ramsar via hydrological connections/NBBMA	Qualifying features and waterbird assemblage	Screened in	Potential for runoff of sediment/pollutants into NBBMA/FLL/Mersey Estuary SPA/Ramsar
Air Quality	Construction	SADA	Habitats which support SPA features	Qualifying features and waterbird assemblage	Screened in	Low emissions; effective dispersion and in-design controls (oCEMP).
	Operational and decommissioning	SADA	Habitats which support SPA features	Qualifying features and waterbird assemblage	Screened in	Passive land use with no material emissions, although dust to be managed during maintenance activities.
Glint and Glare	Operational	SADA (solar panels alone)	Overflying SPA/Ramsar features	Qualifying features and waterbird assemblage	Screened in	Possible interference with flight paths between SPA and FLL.
All Potential Pathways	All phases	N/A	Midland Meres & Mosses Ramsar Ph. 1 & 2 (>6 km)	Qualifying features (fen/bog habitats, flora, inverts)	Screened out	No hydrological or air quality link; no supporting bird usage evidence.

Midland Meres and Mosses Phase 1 & 2 – all phases

5.7.2 The Midland Meres and Mosses Phase 1 and Phase 2 Ramsar sites are located over 6 km from the Proposed Development. These sites are designated primarily for their wetland habitats and associated plant and invertebrate assemblages, with some SSSI units also supporting waterbirds such as shoveler, water rail and bittern. While there is some overlap in qualifying bird species between the Midland Meres and Mosses and the Mersey Estuary SPA/Ramsar, there is no evidence from desk-based study that the SSSI units closest to the Order limits regularly support internationally important waterbird populations.

5.7.3 There are no direct or indirect hydrological links between the Proposed Development and the Ramsar sites. Additionally, given the distance and the localised nature of site emissions and construction activity, there is no plausible pathway for air quality, noise, lighting, or visual impacts. Any mobile species overlap (e.g. shoveler, bittern, water rail) is addressed through assessment of the Mersey Estuary SPA and Ramsar site as part of the waterbird assemblage.

5.7.4 All potential impact pathways to the Midland Meres and Mosses Phase 1 and 2 Ramsar sites are therefore screened out of further assessment.

5.7.5 Note that the following screening assessment relates to the Mersey Estuary SPA/Ramsar only.

Air quality and Construction Dust

5.7.6 Airborne emissions from the Proposed Development could, in principle, affect nearby designated sites via two distinct pathways:

i) Construction dust (course particulate matter generated from site activities during the construction, operational and decommissioning phases; and

ii) Air quality pollutants (fine particulate matter (PM_{10} and $M_{2.5}$[25]) and nitrogen oxides (NO_x) particularly from plant and vehicle emissions, all of which can arise from construction, operation and decommissioning phases.

5.7.7 While the **ES Vol 2 Appendix 4-2: Construction Dust Assessment [EN010153/DR/6.2]** assesses air quality and dust impacts, it is limited to the construction phase and focuses solely on dust emissions. However, construction traffic has been reviewed separately and is not considered to present a significant air quality issue. This assessment describes a series of best practice mitigating measures which have been integrated into the **Outline Construction Environmental Management Plan [EN010153/DR/7.5]**. For the operational and decommissioning phases, it is anticipated that similar activities and mitigation measures will apply, these are provided for in the **Outline Operational Environmental Management Plan [EN010153/DR/7.5]** and the **Outline Decommissioning Environmental Management Plan [EN010153/DR/7.5]** . The implementation of these mitigation measures (which are secured by virtue of the Requirements in Schedule 2 of the draft DCO), such measures cannot be considered at the HRA screening stage.

5.7.8 The Proposed Development lies within the administrative area of Cheshire West and Chester Council (CWaC), where long-term monitoring data confirm that concentrations of particulate matter (PM_{10} and $PM_{2.5}$[26]) are consistently well below national air quality objectives. Predicted background levels for the Draft Order and surrounding 1km grid squares remain low and are expected to decline further between 2025 and 2029. There are no Air Quality Management Areas (AQMAs) within the vicinity of the Order Limits that relate to relevant pollutants of concern (PM_{10}, $PM_{2.5}$ or NO_2), and prevailing wind conditions are favourable for the dispersion of emissions away from sensitive ecological and ornithological receptors.

5.7.9 The Mersey Estuary SPA and Ramsar site is underpinned by the Mersey Estuary SSSI, which comprises extensive areas of saltmarsh and intertidal mudflats which

[25] Particles with an aerodynamic diameter below 10µm (referred to as 'PM10') correspond to the inhalable fraction of particulate matter. Those with a diameter of less than 2.5µm ('PM2.5')
[26] Particles with an aerodynamic diameter below 10µm (referred to as 'PM10') correspond to the inhalable fraction of particulate matter. Those with a diameter of less than 2.5µm ('PM2.5')

support the qualifying features of interest. One of the conservation objectives of the SPA is to maintain the extent, distribution, and availability of supporting habitat for the non-breeding waterbird assemblage throughout the wintering period, including foraging, moulting, roosting, and loafing behaviours.[27]

5.7.10 These supporting estuarine habitats do not occur within the SADA and NBBMA, which comprises improved grassland and ephemeral pools. A very small section of the SSSI (~0.003 ha) overlaps the Order Limits boundary, but this area will be retained and protected through best practice and therefore, no direct impacts are anticipated. Furthermore, the principal estuarine habitats that support SPA features lie at a sufficient distance (see 5.7.6) from any potential construction, operational and decommissioning phase emission sources to prevent meaningful pollutant deposition.

5.7.11 In addition, the Manchester Ship Canal is not considered FLL, and that the presence of Frodsham Score' (an embankment on the estuary side of the Manchester Ship Canal) provides physical screening, establishing a functional buffer of approximately 250 m between the Proposed Development and the estuarine edge of the Mersey Estuary SPA/Ramsar. This separation reinforces the conclusion that no plausible air quality pathway exists between the source and the designated habitats or species of the Mersey Estuary.

5.7.12 However, further to the People over Wind ruling (CJEU Case C-323/17), as the conclusion of no likely significant effect depends on the implementation of embedded mitigation (e.g. dust suppression and controlled access), and such measures cannot be considered at the screening stage, it is concluded that an LSE cannot be ruled out at screening stage.

5.7.13 Airborne emissions (construction dust and air quality pollutants) will therefore be taken forward to the Appropriate Assessment, where the effectiveness of proposed

[27] *Natural England (2014) Supplementary Advice for Mersey Estuary SPA. Natural England. Available at: https://designatedsites.naturalengland.org.uk/ConservationAdvice/SupplementaryAdvice.aspx?SiteCode=UK9005131&SiteName=mersey+estuary&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7 (Accessed: 8 May 2025).*

mitigation will be assessed in relation to the conservation objectives of the Mersey Estuary SPA and Ramsar site.

Water Quality

5.7.14 There is a potential hydrological link between the Proposed Development and the Mersey Estuary SPA and Ramsar site via on-site ditches, drains, and surface water pathways that connect to the River Weaver and the Manchester Ship Canal and ultimately the Mersey Estuary. During construction, there is a risk that fine sediments and contaminants (e.g. fuel, concrete washout, silt) could be mobilised via surface runoff and enter connected watercourses, leading to degraded estuarine water quality. Potential impacts include increased turbidity, nutrient loading, and chemical contamination, particularly during the construction phase of the NBBMA highlighted in **ES Vol 1 Chapter 10: Ground Conditions [EN010153/DR/6.1].**

5.7.15 Although no direct works are proposed within SPA or Ramsar-designated waterbodies, the proximity of the Order Limits to these hydrologically connected receptors creates viable pathways for indirect effects. The **oCEMP [EN010153/DR/7.5]** includes embedded pollution control measures such as silt fencing, buffer zones, and pollution prevention protocols, which are expected to minimise risk, they cannot be relied upon at this screening stage.

5.7.16 In accordance with the People over Wind ruling (CJEU Case C-323/17), reliance on mitigation measures cannot be considered at the screening stage. Given the proximity, connectivity, and sensitivity of the receptor, there remains a credible pathway for significant effects on the Mersey Estuary SPA and Ramsar features via water quality degradation.

5.7.17 Invasive non-native species, notably NZPW, are present within the Order Limits (canal pools adjacent to the NBBMA) and can contribute to water quality degradation through dense growth that reduces dissolved oxygen, alters nutrient cycling, and limits light penetration.[28] While the SPA is designated for bird species, such habitat changes can reduce habitat suitability for waterbird foraging and roosting and are

[28] *Smith, T. and Buckley, P. (2020) Biological Flora of the British Isles: Crassula helmsii. Journal of Ecology, 108(3), pp. 797-813. Available at: Wiley Online Library (Accessed: 2 May 2025).*

therefore acknowledged as a supporting habitat pressure under the water quality conservation objective.[29]

5.7.18 Water quality impacts are therefore screened in for further assessment at the AA stage.

Glint and Glare (Disruption of Flight Paths)

5.7.19 Solar photovoltaic panels can create solar reflections ("glint") that may be visible to overflying birds. In the absence of detailed data on flight lines between the Mersey Estuary SPA/Ramsar and FLL and the proximity of the Order Limits to known FLL, a precautionary approach has been taken and this potential impact is screened in for further consideration at the AA stage.

5.7.20 The Mersey Estuary SPA and Ramsar site supports internationally important populations of waterbirds, many of which regularly use terrestrial and freshwater habitats outside the designated boundary. Based on desk study records, field surveys, Natural England's NECR483 mapping[30], and previous mitigation designations (e.g. under the Frodsham Wind Farm consent- see **Appendix B - Outline Non Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13**]), parts of the Draft Order, including the SADA (cells 1, 2 and 5) and the NBBMA, are considered FLL. The FLL supports SPA qualifying species and waterbird assemblage species including but not limited to, lapwing, golden plover, black-tailed godwit, teal, curlew, and redshank. **Figure 5** presents FLL within the Order Limits as shown within Natural England's NECR483 report .

5.7.21 Construction of the NBBMA will result in the temporary loss of FLL within Cell 3, and the land between Cell 3 and the Manchester Ship Canal, although this impact will be temporary and short term (less than 1 year) and the area will ultimately be retained, enhanced, and brought into long-term management to support SPA bird populations and the waterbird assemblage. Within the SADA, long-term loss of FLL (cells 1, 2 and 5) will occur due to the installation of above-ground solar infrastructure and

[29] Best, M. A., Wither, A. W. and Coates, S. 2007. Dissolved oxygen as a physico-chemical supporting element in the Water Framework Directive. Marine Pollution Bulletin, 55, 53-64.
[30] Natural England (2023) Identification of Functionally Linked Land in the North West of England – Phase 2 (NECR483). Available at: Natural England (Accessed: 2 May 2025).

associated development. This change in land use will displace waterbirds that previously utilised this area for foraging and (or) roosting.

5.7.22 Given the confirmed use of both the NBBMA and SADA by qualifying features and the waterbird assemblage during baseline surveys, desk-study data, and the anticipated loss or alteration of habitat function, the potential for LSEs on the Mersey Estuary SPA/Ramsar site cannot be excluded.

5.7.23 This pathway is therefore screened in for further consideration in the Appropriate Assessment.

Disturbance and Displacement of Qualifying Bird Species and the Waterbird Assemblage

5.7.24 SPA and Ramsar qualifying features and waterbird assemblage are known to utilise areas within the SADA and NBBMA for foraging and (or) roosting.

5.7.25 During the construction, operational and decommissioning phases, both areas have the potential to experience increased human activity, noise, visual intrusion, lighting, vibration and general disturbance associated with enabling works and construction activities. It is also acknowledged that:

i) The SADA will be subject to phased enabling works, site clearance, and infrastructure installation over an anticipated two-year construction period;
ii) The NBBMA, although constructed first to function as mitigation and enhancement habitat, may be exposed to indirect construction disturbance (e.g. vehicle movements, visual stimuli, lighting);
iii) During the operational phase, the NBBMA may experience indirect disturbance from maintenance and replacement works undertaken in the adjacent SADA which will be of similar magnitude of the construction phase and decommissioning phase;
iv) The NBBMA may also be subject to a level of disturbance during the operational phase, although the current levels are likely to be similar to the current baseline that the land is exposed to; and
v) During decommissioning, similar activities may recur, although likely of shorter duration and intensity.

5.7.26 Although embedded measures such as fencing, timing restrictions, lighting controls, and a phased construction strategy will help aid to reduce disturbance levels, the proximity of these works to FLL and the regular presence of SPA/Ramsar species and the waterbird assemblage, mean that the potential for disturbance-related effects on qualifying features and the waterbird assemblage cannot be excluded.

5.7.27 This pathway is therefore screened in for further assessment at the AA stage.

5.8 Screening Conclusion

5.8.1 The Proposed Development is not directly connected with or necessary to the management of any European site. A screening assessment has therefore been undertaken to determine the potential for LSEs on European sites, alone or in combination with other plans and projects.

5.8.2 Based on the Order Limits proximity to the European Site, known species presence, hydrological connections, and the potential for indirect impacts, the Mersey Estuary SPA/Ramsar site has been screened into this assessment. Several pathways for potential LSE were identified, relating to:

i) Loss of FLL (both short and long-term);
ii) Disturbance and Displacement of qualifying species and those part of the waterbird assemblage;
iii) Changes in water quality;
iv) Air Quality; and
v) Potential disruption of bird flight paths due to glint and glare (precautionary approach).

5.8.3 All other potential impact pathways and all other European sites within the wider search area including the Midland Meres and Mosses Phase 1 and 2 Ramsar sites have been screened out based on distance, absence of credible impact pathways, or lack of sensitive features at relevant units.

6.0 APPROPRIATE ASSESSMENT (STAGE 2)

6.1.1 This section sets out the information to inform the AA for the Proposed Development, as required under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended). The assessment focuses on the potential for adverse effects on the Mersey Estuary SPA/Ramsar site, the only European site screened into the assessment, considering the Mersey Estuary SPA/Ramsar site conservation objectives.

6.1.2 This stage of the HRA (Stage 2) evaluates whether the Proposed Development, either alone or in combination with other plans or projects, is likely to result in any adverse effects on the integrity of the European site.

6.1.3 The assessment considers all relevant phases of the Proposed Development including the construction, operation, and decommissioning phases and reflects the phased delivery approach, whereby the NBBMA will be established and functional prior to construction commencing in the SADA.

6.1.4 Each potential impact pathway is assessed in turn, incorporating both embedded design measures and additional mitigation, with conclusions drawn based on the best available scientific evidence.

6.1.5 Where qualifying species are shared between the SPA and Ramsar designations, these are considered together under a single assessment, in line with guidance and policies.

6.2 Habitat Loss – FLL- construction and operational

6.2.1 Long-term and temporary habitat loss within the Order Limits is a relevant impact pathway due to the confirmed presence of FLL used by qualifying features and the waterbird assemblage of the Mersey Estuary SPA and Ramsar site. This includes land within the SADA (cells 1, 2 and 5) and NBBMA (cell 3, as supported by NE

strategic mapping (NECR483[31]), desk-based review, and field survey data collected between 2021 and 2024.

6.2.2 The SADA is regularly used by SPA-qualifying species and the waterbird assemblage, with peak winter counts for species such as lapwing, curlew, golden plover (2.2% of the international threshold), black-tailed godwit (26.2% of the international threshold; 5-year mean: 3579), and teal. Several of these counts exceeded 1% national or international population thresholds, confirming the area's greater functional role in supporting SPA bird populations and assemblages.

6.2.3 The NBBMA in its current state supports a significantly higher density and diversity of SPA qualifying features and the waterbird assemblage than the SADA, including internationally important counts of black-tailed godwit (128.3% of the international threshold) and high counts of golden plover (6.8% of the internation threshold), teal (13.1% of the international threshold), and lapwing (5.8% of the international threshold). This ornithological value underpins its selection as the location for long-term, on-site mitigation.

6.2.4 Construction of the SADA will result in the long-term loss of sub-optimal agricultural habitats, including arable fields and improved grassland. While neither of these habitats are cited within the Mersey Estuary SPA's SACOs[32], these habitats and areas are acknowledged as functionally important as supplementary foraging and roosting areas for qualifying features and the waterbird assemblage.

6.2.5 Temporary habitat loss will occur during initial works in the NBBMA, including reprofiling and habitat creation, but will be completed in advance of any land loss of FLL within the SADA footprint and will be constructed outside of peak sensitive period for non-breeding birds (March onwards). This sequencing ensures continuity of available supporting habitat throughout construction of the NBBMA.

[31] *Natural England (2023) Identification of Functionally Linked Land in the North West of England – Phase 2 (NECR483). Available at: Natural England (Accessed: April 2025)*

[32] *Natural England (2025) 'Supplementary Advice for Mersey Estuary SPA'. Available at: https://designatedsites.naturalengland.org.uk/ConservationAdvice/SupplementaryAdvice.aspx?SiteCode=UK9005131&SiteName=mersey%20estuary&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7 (Accessed: 8 May 2025).*

6.2.6 Although the SADA is considered sub-optimal in terms of habitat quality reflected in lower bird numbers compared to the NBBMA, it is still utilised as demonstrated through the survey results. This ongoing use, despite its limitations, supports the view set out in Section 6.2.2 that the SADA provides functional habitat value, particularly during periods when higher-quality alternatives may be unavailable.

6.2.7 Retaining habitat availability in the SADA in the short term is a deliberate strategy to maintain continuity of habitat availability while the NBBMA continues to be enhanced. A phased approach rather than immediate construction of the SADA at the same time as creating the NBBMA ensures that a known, if sub-optimal, foraging and roosting resource remains available to SPA species. This approach avoids a sudden loss of habitat and allows time for the NBBMA to become fully functional and established as the primary mitigation area. It also allows for a spatial buffer between active construction areas to the east of Brook Furlong and the NBBMA. Disturbance and displacement effects are considered separately under the Disturbance impact pathway (Section 6.3, onwards) and are not duplicated here.

6.2.8 In practice, while early works in the NBBMA will lead to temporary loss of FLL, the majority of the area specifically Cells 1, 2, 5 (Western Array of the SADA footprint) and 6 (outside of the Order Limits) will remain available and functional while construction is undertaken within the NBBMA and the Eastern Array of the SADA (not FLL). This phasing ensures that a substantial proportion of FLL remains accessible to qualifying bird species and the waterbird assemblage throughout early to mid-development stages. The NBBMA will be functionally operational by the time works progress across the broader SADA footprint. This further reduces the risk of disturbance-related displacement and supports the Mersey Estuary SPA/Ramsar conservation objectives during construction. This staggering of the program will enable ecological and ornithological continuity.

6.2.9 The NBBMA will deliver approximately 53.31 ha of high-quality, managed wetland habitat including 9.5 ha of wet grassland, extensive scrapes, water control structures, and predator fencing. These features are designed to provide enhanced ecological function across the full non-breeding cycle (i.e. consistently wet features- discussed below), building on lessons learned from the adjacent Frodsham Wind Farm mitigation area.

6.2.10 Land-take within the Mersey Estuary SSSI (part of the NBBMA), including the Canal Pools and adjacent neutral grassland, affects areas of low conservation value to SPA and Ramsar qualifying bird species and the wider waterbird assemblage. These locations are currently subject to moderate and inconsistent levels of recreational disturbance and have demonstrated low and sporadic bird usage based on survey evidence (see Table 6-1).

6.2.11 There are currently two options considered with regards to the Canal Pools at present, one of which (option one) which potentially leads to the replacement of the pools and the second which retains the pools and goes under long-term management and treatment of INNS (option two). This is described in more detail within the **Outline Non Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]**.

6.2.12 The replacement of the Canal Pools will assist in facilitating the delivery of a hydrologically connected, actively managed wetland system incorporating scrapes, wet grassland, and a water management area designed to support non-breeding waterbirds (including SPA species and those part of the assemblage) and contribute to favourable condition objectives. These works are expected to result in a measurable ecological enhancement in line with Natural England's guidance for management of notified features, if Option one is adopted. It is important to note that from an assessment level during the HRA, option one would be considered more impactful due to temporary construction activities and therefore this option will be carried throughout the rest of the document.

6.2.13 All habitat creation and management measures associated with the NBBMA are set out in the **Outline Non Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]** which is secured and will be required to be implemented via a Requirement of the DCO. The NBBMA will become functionally available immediately upon completion (i.e. no more than nine months from commencement) and will be actively managed over the 40-year operational lifespan of the Proposed Development. The construction of the NBBMA will also avoid critical periods of utilisation by SPA species and the waterbird assemblage (November to February, inclusive).

6.2.14 While the loss of FLL (cells 1, 2 and 5) and land considered suitable for waterbirds (arable and horticultural) within the SADA boundary may appear substantial in terms of overall area within the Order Limits, this land comprises primarily sub-optimal habitats such as intensively grazed improved grassland and arable fields that provide relatively low foraging and roosting value for most non-breeding waterbirds.

6.2.15 In contrast, the NBBMA will be specifically designed to support a range of wetland bird species and includes habitat features tailored to their ecological requirements. As a result, the NBBMA is expected to deliver a higher functional carrying capacity per unit area than the land lost within the SADA (particularly cells 1, 2 and 5), thereby maintaining and (or) enhancing the overall availability and quality of supporting habitat.

6.2.16 There is no set formula for determining mitigation requirements for displaced SPA species, so a combination of quantitative analysis and professional judgement has been applied. Using a similar method applied to the Cleeve Hill Solar Park development,[33] based on bird-days per hectare from 2021–2025 survey data, 47.8 ha of suitable habitat is required to mitigate displacement from the Proposed Development. Although the NBBMA provides 39.7 ha, much of it is currently unsuitable for curlew, lapwing and golden plover due to tall ruderal vegetation. Therefore, habitat enhancement measures will be implemented to deliver high-quality wet grassland (grazing marsh) in line with species' needs, with the focus on habitat quality over area size. See **oLEMP Appendix B - Outline Non Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]**.

6.2.17 In summary, while the Proposed Development will result in the long-term loss of lower-value FLL within the SADA, this is offset by the earlier delivery of significantly enhanced habitat within the NBBMA. The strategic sequencing of works, higher ecological function of the mitigation area, and long-term secured management ensure that functional linkage with the Mersey Estuary SPA is maintained and in ecological and ornithological terms, improved.

[33] *MacArthur Green (2019) Ornithology Report. Norfolk Vanguard Offshore Wind Farm. Document Reference: EN010085-000402-6.4.9.1. The Planning Inspectorate. Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010085-000402-6.4.9.1%20Ornithology%20Report.pdf (Accessed: 22 May 2025).*

6.2.18 There will be no adverse effect on the integrity of the Mersey Estuary SPA or Ramsar site from habitat loss. Supporting land availability, quality, and ecological connectivity for qualifying species will be maintained in line with the Mersey Estuary SPA/Ramsar conservation objectives.

Table 6-1 peak counts of species recorded utilising the canal pools within the NBBMA during the field surveys.

These results have been separated from the NBBMA results due to the two options being considered surrounding the canal pools.

Area within the NBBMA	Year	Target Species				
		Curlew	Black-tailed godwit	Redshank	Wigeon	Teal
Canal pools	1	9	-	-	-	-
	2	70	1	1	-	38
	3	37	-	-	80	64

6.3 Disturbance and Displacement of Qualifying features and waterbird assemblage – construction phase

Overview of impact pathways

6.3.1 Construction of the Proposed Development has the potential to disturb or displace non-breeding waterbirds, including qualifying features of the Mersey Estuary SPA and Ramsar site, using FLL within the Order Limits. Disturbance pathways include direct effects (e.g. noise, human activity, machinery) and indirect effects (e.g. lighting, vibration, and visual intrusion).

Baseline evidence

6.3.2 Baseline data confirm that both the SADA (Cells 1, 2 and 5) and NBBMA (Cell 3) are used by SPA species throughout the non-breeding season, particularly between November and February, with the NBBMA consistently supporting higher densities

and species richness. Species recorded at thresholds of national or international importance include lapwing, golden plover, black-tailed godwit, teal, and curlew.

Sequencing and Seasonal Avoidance

6.3.3 To avoid and minimise cumulative disturbance within the Order Limits, construction of the NBBMA will be completed in advance of works within the western array (Cells 1, 2, and 5) of the SADA. Construction of the NBBMA will be scheduled outside the peak non-breeding bird season (March-October) to reduce impacts on this area of FLL. Avoidance of construction activities in Cells 1, 2, and 5 will ensure that these areas of Functionally Linked Land (FLL) remain available to support SPA species and the non-breeding waterbird assemblage outside the peak period, when the creation of the NBBMA is being undertaken. The Order Limits do not support breeding features of the SPA, and the Site is not designated for breeding bird interest. This seasonal approach balances ecological protection with construction delivery.

Sequencing and Seasonal Avoidance

6.3.4 During construction of the Eastern Array, a separation distance of approximately 600 m will be maintained from the NBBMA until it is fully operational. This approach is supported by published literature on disturbance distances for non-breeding waterbirds (e.g. NatureScot, 2022[34]) where disturbance distances for the qualifying species and waterbird assemblage range between 100m (mallard, gadwall) up to 650m (curlew). The proposed spatial and temporal mitigation falls within or exceeds these distances, providing a robust buffer.

6.3.5 Once Eastern Array construction is complete, works will proceed in the Western Array. By this stage, the NBBMA will be fully functional, delivering 53.31 ha of managed wetland habitat capable of supporting displaced waterbirds. While construction in proximity to Cell 5 and Cell 2 may introduce some risk of disturbance to the NBBMA, this is reduced by a combination of mitigation measures. Topographical separation provides a natural barrier, with Cell 5 situated

[34] Goodship, N.M. and Furness, R.W., 2022. Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. Available at: NatureScot [Accessed 9 May 2025].

approximately 3–4 m higher than Cell 3. In addition, as set out below works within a specified distance of the NBBMA would be subject to targeted noise mitigation where required. This combination of elevation, physical separation, and targeted noise mitigation will ensure that disturbance to qualifying features is effectively minimised during Western Array construction.

Buffering of the Construction Zones

6.3.6 No disturbance is anticipated within the SPA/Ramsar boundary. The SADA is physically and visually separated from the Mersey Estuary by the Manchester Ship Canal and the Frodsham Score embankment, providing a minimum 250 m buffer to key estuarine habitats. SPA species will likely be habituated to some level of potentially disturbing activities, including boat traffic using the adjacent Manchester Ship Canal, and vehicles using the road which passes north of the NBBMA and runs parallel to the Manchester Ship Canal, as well as member of the public being present, using the pools within the Mersey Estuary SSSI for fishing activities.

6.3.7 While Cell 6 comprises FLL and lies adjacent to the Order Limits, disturbance from construction is not considered likely to occur. This is due to significant topographic and vegetative screening: Cell 6 sits 6–10 m below the development platform and is visually separated by steep embankments and dense scrub vegetation. There are no direct sight lines or acoustic pathways between construction areas and the habitats within Cell 6.

Noise and Vibration

6.3.8 The noise impact assessment identified that, in the absence of mitigation, predicted noise levels (LAeq) from earthworks within the NBBMA (Cell 3) and from general construction activities within the Solar Array Development Area (SADA) are likely to exceed established thresholds. Note that all other construction activities such as Continuous Flight Auger (CFA) piling, predicts construction-phase sound levels will remain below disturbance thresholds at the assessed ecological sensitive receptor locations.

6.3.9 Noise from construction traffic is considered in **ES Vol 2 Appendix 4-1: Noise Impact Assessment [EN010153/DR/6.2].** Construction traffic will inevitably increase along the road between Cells 3 and 6 during the construction phase;

however, due to the visual screening and elevated location of Cell 6, the disturbance would be considered very limited and negligible. Based on the Noise Impact Assessment [**EN010153/DR/6.2**], construction traffic is expected to increase by 0.9dB (threshold to consider mitigation 3dB) and does not exceed 70dB LAmax, which are established noise thresholds set within NE guidance.[35]

6.3.10 Noise modelling provided in **ES Vol 2 Appendix 4-1: Noise Impact Assessment [EN010153/DR/6.2]** indicates that mitigation measures may be required in the following scenarios to avoid adverse effects on qualifying species:

i) When construction works to create the NBBMA within Cell 3 lie within 80m of the eastern boundary of Cell 3 during weekdays, or within 110m on Saturdays;
ii) Site preparation, PV installation, or general construction activities within 180 m of Cell 3's eastern boundary during the core non-breeding bird period (Nov-Feb); and
iii) Saturday morning works within 120 m of the SSSI north of Cells 2 and 3 during the core non-breeding bird period (Nov-Feb).

6.3.11 The mitigation measures to be employed may include the use of acoustic screening such as hoarding, hay bales, or equivalent barriers capable of achieving of 5–10 dB attenuation. In addition, an Ecological Clerk of Works (ECoW) will oversee the implementation of works, including undertaking behavioural monitoring and bird counts. These data will be used to assess whether qualifying species are present in numbers exceeding 1% of the relevant population thresholds and to inform whether construction activities need modifying, whether they should proceed or be suspended, in accordance with an agreed protocol. Outside the sensitive period of November to February the ECoW would be consulted for any works occurring within the distances specified above to confirm the need for mitigation measures to be employed. This may be influenced by the time of year, the number of birds recorded as being present and seasonal variations in weather conditions.

6.3.12 No visual or noise disturbance is expected within Cell 6 (outside of the Order Limits) or adjacent off-site FLL due to topographic screening (e.g. scrub, embankments) and

[35] *A review of the effects of noise on Birds' Version 1 published in 2018 by Natural England (Allan Drewitt, Emma Hawthorne, Richard Saunders & Sarah Anthony)*

elevation differences of 6–10 m. Similarly, works near the River Weaver are separated from sensitive habitats by elevated land (e.g. Cell 1), limiting visual and acoustic pathways for disturbance.

Lighting

6.3.13 Construction works would take place 08.00 to 18.00 hrs Monday to Friday and 08:00 to 13:00 hrs Saturday. The compounds would be lit during periods of low light during construction working hours. Outside working hours, lighting would only be switched on for security breaches or temporary mobile task lighting.

6.3.14 A sensitive lighting strategy would be put in place to manage temporary lighting used during the construction phase, pursuant to the **oCEMP [EN010153/DR/7.5]** . Any lighting that is required would be directed away from the NBBMA and FLL (Cells 1, 2 and 5) when construction is taking place within the Eastern Array. This would be achieved by the use of low-level lighting and lighting hoods to prevent the spillage of light from its intended source. Any lighting would be directed away from the ditches, watercourses and ponds, and associated terrestrial habitats.

Conclusion Against Conservation Objectives

6.3.15 Conservation objectives for the Mersey Estuary SPA require that disturbance including noise, vibration, light, and visual intrusion does not significantly affect the behaviour or distribution of qualifying species (Natural England, 2014[36]). AEWA (2016[37]) defines significant disturbance as any activity likely to cause sustained changes in local abundance or distribution, or reductions in survival, breeding, or foraging success.

6.3.16 Taking into account the embedded design, phasing of construction, seasonal timing, topographical screening, acoustic mitigation, and OCoW oversight, it can be concluded beyond reasonable scientific doubt that the construction of the Proposed Development will not result in a significant disturbance of SPA/Ramsar qualifying

[36] *Natural England. 2014. Site Improvement Plan Mersey Estuary (SIP 138): Natural England.*
[37] *The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). 2016. Resolution 6.7 - Adoption of guidance in the context of implementaiton of the AEWA action plan.*

species or an adverse effect on the integrity of the Mersey Estuary SPA or Ramsar site.

6.4 Disturbance and Displacement of Qualifying features and waterbird assemblage – operational and decommissioning phases

6.4.1 The operational phase of the Proposed Development will introduce a long-term change in land use within the Solar Array Development Area (SADA), transitioning from agricultural or semi-natural grassland to a managed solar energy landscape creating long-term displacement of species which utilised Cells 1, 2 and 5 (FLL).

6.4.2 Ongoing, low-level disturbance are likely to include:

i) intermittent human presence for inspection, replacement and maintenance activities,
ii) the visual presence of solar panels,
iii) occasional reflections from photovoltaic (PV) modules.

6.4.3 These factors may influence the behaviour of qualifying waterbirds using adjacent FLL, including the NBBMA.

Component Replacement and Pollution Risk

6.4.4 Component replacement activities over the operational lifetime are expected to be infrequent, and short in duration. Nonetheless, these works could generate temporary noise, vibration, dust, or localised risk of pollution (e.g. from fuel, oils, or waste materials). The greatest sensitivity is likely at the eastern edge of the NBBMA where the area fringes the SADA.

6.4.5 Note that these activities will likely be of a similar, or lower, magnitude to the construction phase.

6.4.6 Such activities will be managed through embedded mitigation set out in the **oOEMP** [**EN010153/DR/7.6]** and **oDEMP** [**EN010153/DR/7.7]**, including:

i) a sensitive lighting strategy that avoids illumination of sensitive wild bird and supporting habitats (no permanent lighting is proposed within the SADA);

ii) restriction of access routes to established tracks and compounds to minimise supporting habitat encroachment;
iii) habitat screening along site boundaries to minimise visual and noise intrusion;
iv) habitat management prescriptions secured via the Outline Operational Environmental Management Plan (oOEMP);
v) standard pollution prevention controls (e.g. spill kits, bunded storage); and
vi) seasonal working where component replacement and (or) disturbance similar to that described in the construction phase is anticipated.

Recreational Pressure and Access Management

6.4.7 Public access and recreation in and around the Order Limits will continue during operation, with some increased use of permissive paths and informal routes for walking and dog walking. Potential disturbance pathways include:

i) visual and acoustic disturbance from walkers and cyclists,
ii) Controlled dogs, especially in proximity to wetland habitats (e.g. NBBMA and Cells 1/2 boundary); and
iii) Concentration of access in sensitive edge habitats.

6.4.8 To manage and mitigate recreational pressure, the following design and access control measures have been incorporated into the project:

i) screening and planting at key locations (see the **oLEMP**) to block visual disturbance,
ii) realignment of new permissive paths behind existing or enhanced topographic screening features wherever feasible,
iii) signage to encourage responsible dog-walking behaviour (e.g. leads in sensitive zones),
iv) avoiding cycling and horse-riding on paths closest to the NBBMA and Cell 1/River Weaver boundary; and
v) provision of a dedicated birdwatching/viewing area overlooking Cell 3, with screens and/or a bird hide to focus recreational use in one location while shielding sensitive habitats.

6.4.9 These measures are secured through the **oOEMP** [**EN010153/DR/7.6]** and **oLEMP [EN010153/DR/7.13]** and associated access management strategy.

Design and Ecological Functionality

6.4.10 The arrangement of solar panels across the SADA has been designed to retain open sightlines and avoid excessive enclosure of habitats, ensuring continued suitability for species preferring open terrain (e.g. lapwing) when considering cells 4 and 6 south of the NBBMA. Under-panel grassland will be managed to support ecological value by increasing invertebrate populations.

6.4.11 The NBBMA, which will be operational and actively managed prior to the start of SADA construction, will continue to serve as the primary area of FLL within the Order Limits. It will be managed to provide open, wet grassland and scrape habitat, maintained through active water level control, vegetation management, and predator control. This ensures ongoing availability of suitable habitat for displaced qualifying species, aligned with their ecological needs.

Monitoring and Adaptive Management

6.4.12 Post-construction monitoring will be undertaken at specified intervals as secured in the **oLEMP [EN010153/DR/7.13]**. This will include regular bird surveys and behavioural monitoring to track continued utilisation of the NBBMA by SPA qualifying features and those part of the waterbird assemblage.

6.4.13 If unexpected declines in usage or evidence of disturbance are recorded, dynamic and adaptive management measures will be triggered, which may include enhanced screening, access restrictions, or habitat modification if required.

Conclusion

6.4.14 The conservation objectives of the Mersey Estuary SPA and Ramsar site require that long-term land use change, human activity, and associated disturbance (including during decommissioning) do not result in sustained reductions in the abundance, distribution, or foraging behaviour of qualifying species..

6.4.15 With robust mitigation and dynamic adaptive management in place during both operational and decommissioning phases, and with the continued provision of high-

quality habitat within the NBBMA, the availability and functionality of FLL will be maintained. Accordingly, the integrity of the Mersey Estuary SPA/Ramsar site is expected to be safeguarded throughout the life cycle of the Proposed Development

6.5 Water Quality and Ground Conditions

Compliance with the Water Framework Directive (All Phases)

6.5.1 The Proposed Development has been screened in for potential effects on water quality under the **Water Framework Directive (WFD) ES Vol 2 Appendix 9-2: Water Framework Directive Assessment [EN010153/DR/6.2].** It lies within the Northwest River Basin District, where environmental objectives include:

i) preventing deterioration of water body status;
ii) achieving standards for protected areas; and
iii) progressively reducing pollution.

6.5.1.1 Across all phases (construction, operation and decommissioning), the measures incorporated into the design and mitigation of the Proposed Development through the **oCEMP [EN010153/DR/7.5]** , **oOEMP** [**EN010153/DR/7.6]** and **oDEMP** [**EN010153/DR/7.7]** will contribute positively to all relevant WFD objectives throughout the construction, operational and decommissioning phases of the development. These measures include pollution prevention, drainage controls, and sensitive habitat management.

Land Use Change and INNS Control – operational phase only

6.5.2 During the operational phase, the change in land use from arable agriculture to solar development will eliminate the application of pesticides and fertilisers, reducing diffuse nutrient loading and potential chemical inputs to surface and groundwater. This aligns with NE's targets for maintaining or improving water quality to support non-breeding bird assemblages.

6.5.3 An Invasive Non-Native Species (INNS) plan will be produced as part of the full CEMP as outlined within the **oCEMP [EN010153/DR/7.5]**. Presence of NZPW has been identified within parts of the NBBMA which are detailed and presented in **Outline Landscape and Ecology Management Plan Appendix B - Outline Non**

Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]. A targeted NZPW control and management strategy will be implemented for the Proposed Development. The strategy would include measures for eradication and long-term control of this invasive species, which will significantly improve habitat quality in wetland habitat and water quality and will contribute to the delivery of favourable conditions for SPA/Ramsar qualifying bird species.

Ground disturbance and Groundwater risk – construction and operational phase

6.5.4 As outlined in the ES Chapter 10 (Ground Conditions), there is some potential for temporary effects on surface water and groundwater quality during construction of the NBBMA, primarily due to shallow excavation of previously deposited dredged materials. These activities may slightly increase the leachability of contaminants in soils or perched groundwater. However, the excavations will be shallow (circa 1 m) and are to be located above the water table, and therefore pose a low risk to controlled waters.

6.5.5 To manage the risk, the following measures will be implemented:

i) A Method Statement and Monitoring Plan will be prepared for all excavation works within the NBBMA;
ii) A watching brief by a qualified ecologist or ornithologist will be undertaken during wetland creation, to ensure ecological sensitivity is maintained;
iii) Water quality monitoring will be carried out in nearby surface watercourses;
Invertebrate surveys will be undertaken both during and following construction to assess ecological responses;
iv) A Materials Management Plan (MMP) and/or Deposit for Recovery (DfR) permit will be developed and agreed with the Environment Agency prior to works, supported by a site-specific groundwater risk assessment, and where necessary; and
v) a Remediation Strategy or treatment protocol for soils (if applicable).

Decommissioning phase considerations

6.5.6 Although the decommissioning phase is not expected for several decades, it has been appropriately considered in the **Outline Decommissioning Environmental**

Management Plan [EN010153/DR/7.7]. The cessation of site activities and removal of solar infrastructure will be undertaken with measures in place to prevent pollution and manage surface water appropriately.

6.5.7 A dedicated Decommissioning Surface Water Management Plan (DSWMP) will be prepared and implemented to control run-off, sedimentation, and pollution risks during this phase. In addition, a Pollution Prevention Plan will be developed to ensure that decommissioning activities do not result in contamination of watercourses or groundwater.

6.5.8 The Proposed Development has been designed to manage flood risk throughout its full lifecycle, including decommissioning, as detailed in the **Flood Risk Assessment and Drainage Strategy (ES Appendix 9-1) [EN010153/DR/6.2].**

6.5.9 In conclusion, the development will not compromise WFD objectives or SPA conservation targets. On the contrary, the reduction in agricultural runoff, active wetland management in the NBBMA, and removal of invasive species are expected to contribute to improved local water quality and ecological function, supporting the long-term condition of supporting habitats for non-breeding SPA species.

6.6 Air Quality (All Phases)

Baseline air quality and Sensitivity of designated sites

6.6.1 The Proposed Development is located within the administrative area of Cheshire West and Chester Council, where long-term monitoring confirms that concentrations of PM_{10}, $PM_{2.5}$, and NO_2 are consistently below national air quality objectives. Modelling of predicted background levels for the Order Limits and surrounding 1 km grid squares demonstrates that concentrations are low and expected to decline further between 2025 and 2029. There are no Air Quality Management Areas (AQMAs) in proximity to the Site, and prevailing wind conditions promote the dispersion of airborne emissions away from sensitive ecological receptors.

6.6.2 The Mersey Estuary SPA and Ramsar site, underpinned by the Mersey Estuary Site of Special Scientific Interest (SSSI), supports extensive areas of saltmarsh and intertidal mudflat. These estuarine habitats are critical to the site's qualifying features and waterbird assemblage and are protected to maintain their extent, distribution,

structure, and function in support of foraging, roosting, moulting, and loafing behaviours. These sensitive estuarine habitats do not occur within the Order Limits.

6.6.3 A further mitigating factor is the spatial separation between the Proposed Development and the SPA/Ramsar site. The Manchester Ship Canal, which lies between the Order Limits and the estuarine edge of the Mersey Estuary, is not Functionally Linked Land and serves as a hard boundary. On the estuary side of the canal lies Frodsham Score, a raised embankment that provides visual and physical screening. This establishes a functional buffer of approximately 250 metres between potential emission sources and the nearest designated estuarine habitat. This distance far exceeds IAQM's 50 m risk zone.

FLL Habitat sensitivity

6.6.4 The land within the SADA (Cells 1, 2 and 5) and the NBBMA has been identified as Functionally Linked Land (FLL), used by qualifying waterbird species associated with the SPA/Ramsar site. This land comprises primarily improved grassland and ephemeral pools, and supports birds at high tide when intertidal foraging grounds are submerged.

6.6.5 The construction dust assessment **(ES Vol 2 Appendix 4-2: Construction Dust Assessment [EN010153/DR/6.2])** concludes that a high risk of ecological impact from dust deposition during construction has been identified on a precautionary basis, due to the presence of FLL within the SADA (Cells 1, 2 and 5) and NBBMA which supports features of the Mersey Estuary SPA and Ramsar site. However, the habitats within the SADA and NBBMA primarily improved grassland and ephemeral pools are not inherently sensitive to dust deposition, and the qualifying wetland bird features are not dependent on vegetation quality. As such, the functional value of the FFL is unlikely to be compromised.

6.6.6 Significant effects are unlikely, subject to implementation of standard best practice measures. These are secured within the **oCEMP [EN010153/DR/7.5], oOEMP [EN010153/DR/7.6]** and **oDEMP [EN010153/DR/7.7]**.

6.6.7 In conclusion therefore, there is no credible pathway for dust or pollutant emissions to reach estuarine habitats that support qualifying bird features, the FLL within the

Order limits is not sensitive to dust and remains functionally viable under predicted construction scenarios and the mitigation measures , are effective and enforceable.

6.6.8 In light of the above, the Proposed Development will not have an adverse effect on the integrity of the Mersey Estuary SPA or Ramsar site as a result of construction dust or air quality pollutants.

6.7 Glint and Glare- operational

6.7.1 Glint and glare modelling has been undertaken to assess potential reflective impacts from the Proposed Development detailed in **ES Vol 2 Appendix 4-3: Glint and Glare Assessment [EN010153/DR/6.2]**. The assessment confirmed that, prior to mitigation, limited solar reflections were predicted along three short sections of the M56 (approximately 1.1 km in total) and at dwellings associated with 39 receptors in Frodsham.

6.7.2 Embedded mitigation measures include adjustments to panel orientation and the provision of 3.5 m high vegetative screening. These design elements reduce residual reflections to negligible levels. As screening matures, perceptual impacts will decline further. Any remaining reflections are predicted to occur during low sun angles, when direct sunlight would already be present in the field of view, thereby limiting any additional visual impact.

6.7.3 No glint or glare effects coincide spatially with areas used regularly by SPA bird species foraging ranges, either within the designated site or on FLL based on SPA flightpaths and the Vantage Point survey data **[TA], whe**re no obvious patterns emerged from species which flew over and (or) came in to land within the Order Limits. [38]

6.7.4 The potential for visual disturbance to SPA/Ramsar qualifying species has been assessed with reference to typical bird flight behaviour and the characteristics of the designated site. Waterbirds associated with the SPA/Ramsar generally move across the flat estuarine landscape in broad, dispersed flight paths, meaning their exposure to visual elements—such as solar panel reflections or structural outlines is brief and

[38] *Natural England (2024) Seabird Mapping & Sensitivity Tool (SeaMaST). Available at: data.gov.uk (Accessed: 2 May 2025).*

intermittent. The open topography further reduces the potential for sustained visual impact. Additionally, perimeter planting (Including narrow wildflower grassland planting) around the solar panels will help integrate the development into the landscape and may reduce the likelihood of attracting waterbirds into the SADA area. Overall, the potential for visual disturbance or displacement is very low.

6.7.5 The panels themselves will have non-reflective coating, are low-profile and non-intrusive relative to existing landscape elements such as hedgerows, scrub, and trees. At typical heights below 4 m, the arrays do not obstruct flight paths or present a novel visual barrier. There is no evidence to suggest that panels of this height and configuration would trigger avoidance responses in estuarine waterbirds.

6.7.6 While the Glint and Glare Assessment did not directly consider effects on birds, ecological evidence on flight behaviour, combined with the Order Limits design, topography, and embedded mitigation, indicates that the risk of glint/glare-related disturbance to SPA species is negligible.

6.7.7 There is very limited research of this effect in the UK, with the main studies associated with very large solar farms in desert regions, which are not comparable with the UK. It is noted that a NE 2016 report (NEER 012[39]) 'Evidence review of the impact of solar farms on birds, bats and general ecology' makes no reference to evidence of glint and glare. To the Applicant's knowledge, there are no known cases of waterbirds colliding with solar panels. As such the risk of such an occurrence is extremely low.

6.7.8 The Proposed Development will not result in disturbance sufficient to affect the behaviour, distribution, or fitness of qualifying features and waterbird assemblage of the Mersey Estuary SPA or Ramsar site and will not result in an adverse effect on site integrity.

[39] *Natural England (2017) Evidence review of the impact of solar farms on birds, bats and general ecology (NEER012) 1st edition - 9th March 2017.*

6.8 In-Combination Effects

6.8.1 In accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), this section considers whether the Proposed Development, in combination with other relevant plans and projects, may result in adverse effects on the integrity of the Mersey Estuary SPA and Ramsar site. Particular attention is given to pathways such as habitat loss, disturbance, and degradation of FLL used by non-breeding SPA qualifying features.

6.8.2 A review of relevant development allocations, planning applications, and nationally significant infrastructure projects (NSIPs) has been undertaken to identify plans or projects that could plausibly act in combination with the Proposed Development. This includes major projects located within the Protos development area and surrounding landscape.

6.8.3 The approach to the Cumulative Effects Assessment is described in **ES Volume 1 Chapter 4.0 [EN010153/DR/6.1]**. A short list of projects which the Proposed Development could have potential significant cumulative environmental effects with has been prepared, see **ES Volume 2 Appendix 4-2 [EN010153/DR/6.2]**. The location of the projects is shown on **ES Volume 3 Figure 4-3 [EN010153/DR/6.3]**.

6.8.4 A number of schemes within the Protos development site close to the Order limits benefit from planning permission and are being brought forward either concurrently or in overlapping timeframes. Owing to the proximity of these schemes to one another, they have been collectively considered. Individual projects with greater spatial or ecological relevance to the Proposed Development are addressed separately.

6.8.5 For the purpose of this HRA, which may compromise the conservation objectives of the Mersey Estuary SPA/Ramsar site have been considered.

Halton Schemes – Ref 16 (100MW BESS) and Ref 17 (135Kv substation)

6.8.6 These developments are located to the north of the Weaver Navigation (2.5 km from the NBBMA) on land which is unlikely to be used by the species associated with the Mersey Estuary SPA, Ramsar and SSSI. Potential cumulative impacts related to air

and water quality can also be ruled out due to the distance (above the thresholds) of the two developments.

6.8.7 The habitats present on the development are relatively common (of local value) and of low quality (i.e. not sensitive to temporary air quality changes). The area is also not considered to support SPA/Ramsar species. The nature of the development proposed (BESS) means the level of impact on ornithology is likely to be limited.

6.8.8 As such significant cumulative effects are not predicted.

Protos Schemes – Ref 20 (Ince Biopower CO2); Ref 27 (Plastics Recycling Facility); Ref 25 & 28 (Hydrogen Production Facility); Ref 31 (Waste Recycling and hydrogen refuelling); 34 (Standby Electricity Generating Plant); Ref 35 (Post Combustion CO2 Capture Facility); Ref 81 (Protos West AGI)

6.8.9 The likelihood of significant cumulative effects occurring with the developments at Protos are limited due to the separation distance between these projects and the Order Limits. Furthermore, all the Protos development were subject to HRA screening and deemed to not have any effects on the integrity of the Mersey Estuary SPA.

6.8.10 In order to mitigate effects of the Protos development a large scale strategic ecological mitigation strategy has been developed and was implemented in advance of development on Protos. This has been in place for a number of years and is delivering ecological benefit, even in advance of many of the development plots being used. On this basis no significant cumulative effects are predicted.

6.8.11 Due to the distance from the Proposed Development and the presence of mitigation, no adverse cumulative effects on SPA/Ramsar bird features are predicted. However, the mitigation strategy for the Protos Schemes, in combination with the mitigation and enhancement measures for the Proposed Development, will potentially have a cumulative (beneficial) significant effect on ornithological populations.

Ref 33 (Encirc Automated Warehouse)

6.8.12 The likelihood of significant cumulative effects occurring with the developments at Enric are limited due to the separation distance between this project and the SADA and NBBMA (2.8 km).

6.8.13 Potential cumulative impacts related to air and water quality can be confidently ruled out due to the lack of impact pathway and the physical distance between the developments.

6.8.14 On this basis no significant cumulative effects are predicted.

Ref 38 (HyNet Hydrogen Pipeline)

6.8.15 The proposed HyNet Hydrogen Pipeline crosses the eastern section of the SADA and intersects the centre of the Skylark Mitigation Area. At its closest point, it lies approximately 0.5 km south of Cell 3, the NBBMA. Given this alignment, there is potential for cumulative effects on qualifying bird species of the Mersey Estuary SPA, Ramsar and SSSI.

6.8.16 The Habitats Regulations Assessment (HRA) prepared in support of the HyNet Hydrogen Pipeline identified the potential for likely significant effects (LSEs) on the Mersey Estuary SPA and Ramsar site during construction and decommissioning, particularly due to disturbance and risks associated with water and dust pollution. As such, a Stage 2 Appropriate Assessment was deemed necessary. Surveys conducted to inform the HRA recorded high numbers of SPA qualifying species, particularly in areas around Cell 6, which lies adjacent to both the Proposed Development and the pipeline corridor.

6.8.17 While potential LSEs related to water and air quality were identified, cumulative impacts from these pathways are considered unlikely due to the physical separation of the two schemes, the presence of sub-optimal habitats (not sensitive to dust), and the application of standard best-practice and embedded mitigation measures, which will be secured through each project's CEMPs.

6.8.18 As the HyNet project is still at the pre-application stage, with submission expected in 2025, its construction could overlap with that of the Proposed Development. However, during operation, the pipeline would be fully underground, and habitats would be reinstated post-construction, minimising long-term ecological impacts.

6.8.19 The pipeline runs approximately 0.5 km south of the Non-Breeding Bird Mitigation Area (NBBMA) at its closest point and does not intersect any known FLL. Although it lies within 500 metres of FLL, indirect impacts are expected to be limited due to the

distance involved and the presence of natural screening between the pipeline works and sensitive areas.

6.8.20 In addition, the PEIR sets out that the pipeline works would proceed (at a rate of approximately 150–350 m per day), which would enable the pipeline within the Site to be laid in approximately one month, meaning effects would be short term and temporary. The PEIR also states that the construction phase would be undertaken between March and September, avoiding the peak sensitive period for non-breeding birds.

6.8.21 The nature of disturbance during pipeline construction is expected to be similar to that of the Proposed Development. The HyNet PEIR includes a draft oCEMP, committing to a suite of management plans and best practice measures to safeguard wildlife during construction, similar to those set out in the **oCEMP [EN010153/DR/7.5]** for the Proposed Development (Frodsham Solar). These measures are anticipated to be secured via Development Consent Order (DCO) requirements.

6.8.22 The **oCEMP [EN010153/DR/7.5]** describes the commitment to proactive collaboration throughout the construction phase with Cadent Gas, the Applicant for the HyNet Hydrogen pipeline, to co-ordinate construction programmes and environmental mitigation where practicable. This includes the requirement to control noise impacts within specified distances of the NBBMA within the core non breeding bird period Nov-March.

6.8.23 During the operational phase, the pipeline will remain underground, and previously affected habitats will be restored. As such, no cumulative operational effects are anticipated.

Ref 37 (HyNet Carbon Dioxide Pipeline)

6.8.24 The closest point of this project is approximately 3 km from the NBBMA, with the remainder of the development located further away.

6.8.25 As the majority of impacts from the development are expected to be confined to the construction phase, the potential for cumulative effects on ornithological receptors in combination with the Proposed Development is considered to be limited.

6.8.26 The HRA for the HyNet CO_2 Pipeline concluded that LSEs were identified during screening relating to air quality, disturbance, habitat loss, and impacts on qualifying features of designated sites (including the Mersey Estuary SPA/Ramsar) and functionally linked land, these were fully assessed through a Stage 2 Appropriate Assessment. A comprehensive suite of mitigation measures was proposed, including lighting and noise controls, pollution prevention, protected species licensing, and habitat reinstatement, all to be secured through the project's CEMP[40] and Register of Environmental Actions and Commitments (REAC). Following implementation of these measures, it was concluded that the development would not adversely affect the integrity of any European site, either alone or in combination with other plans or projects.

6.8.27 Impacts to redshank and the waterbird assemblage was identified through disturbance (noise and lighting) around the River Dee, which is to be mitigated through screening.

6.8.28 No adverse in-combination effects are anticipated because the HyNet CO_2 Pipeline will implement effective mitigation measures secured through the REAC and CEMP that address all identified impact pathways, including those affecting redshank and the waterbird assemblage. The Proposed Development and the HyNet Pipeline are unlikely to have overlapping construction activities in the same functional areas, due to the distances of over 3 km, location and nature (temporary) of the project from the Proposed Development.

6.8.29 As such, the integrity of the Mersey Estuary SPA, Ramsar site, and other relevant European sites will be maintained.

Ref 32 (Hydrogen Production Facility)

6.8.30 Located within the existing Stanlow industrial area (over 3 km away from the NBBMA), this facility does not encroach upon any sensitive ornithological habitats. As such, no significant cumulative ornithological effects are anticipated.

[40] HyNet North West (2023) Outline Construction Environmental Management Plan (OCEMP) Rev G. Available at: National Infrastructure Planning%20Rev%20G%20(Clean).pdf) (Accessed: 2 May 2025).

Ref 78 (Runcorn Carbon Dioxide Spur Pipeline)

6.8.31 The pipeline would run along the northern boundary of the Proposed Development. The pipeline specifically runs through cells 1 and 5 (SADA). Cells 1 and 5 are considered sub optimal habitats comprising intensively grazed improved grassland and arable fields that provide relatively low foraging and roosting value for most non-breeding water birds and therefore, construction dust impacts are unlikely to affect the value of this habitat for non breeding birds significantly. It is anticipated that the implementation of the CEMPs for both projects would avoid significant cumulative effects occurring on matters such as water quality, flood risk, ground contamination, air quality and biodiversity.

6.8.32 As the pipeline project is currently at the scoping stage, a detailed mitigation strategy has not yet been defined. However, based on the nature, scale, and likely timing of impacts is comparable to other linear infrastructure schemes in the region, such as the hydrogen pipeline. It is anticipated that CWACC will require a CEMP to be secured via planning condition. This would include appropriate mitigation measures for bird species and their supporting habitats, where applicable.

6.8.33 Similar to the hydrogen pipeline the Applicant is committed to proactive collaboration throughout the construction phase with the applicant for the Runcorn Spur CO_2 pipeline. The **oCEMP [EN010153/DR/7.5]** sets out that the Applicant will co-ordinate where practicable on construction programmes and environmental mitigation measures. Specifically in relation to the Runcorn Spur CO_2 pipeline the following controls on programming would be implemented via the full CEMP for the Proposed Development:

i) Construction works from neither project would be undertaken in Cells 1, 2 and 5 at the same time as the works being undertaken to create the NBBMA.
ii) Pipeline construction works would not be undertaken within the NBBMA at the same time as construction works are undertaken within Cell 1, 2 and 5 (from either project).
iii) Where construction works within Cells 1, 2, and 5 are undertaken simultaneously, these would be phased in order to avoid any potentially significant cumulative impacts, for example, by avoiding noisy activities from both projects being undertaken close to the boundary of the NBBMA at the same time.

6.8.34 It is anticipated that similar controls could be implemented via the planning conditions on the Runcorn Spur CO_2 pipeline on the basis that such a condition would be necessary to make the development acceptable; relevant to planning; relevant to the development to be permitted; enforceable; precise; and reasonable in all other respects.

6.8.35 It is considered very likely that the project would involve similar construction techniques to the hydrogen pipeline, and so would advance at a similar rate (approximately 150–350 metres per day). Given the short duration of disturbance associated with pipeline installation and the application of best-practice mitigation by both developments, significant cumulative effects on non-breeding waterbirds during the construction phase are considered unlikely.

6.8.36 In order to avoid a sequential impact, particularly if the pipeline is constructed shortly after the completion of the NBBMA and the construction of the solar array on Cell 1, 2 and 5, it is assumed that the pipeline planning permission would control the timing of works to minimise impacts on SPA qualifying features and require the full restoration of the NBBMA to the condition specified in the **oLEMP Appendix B - Outline Non Breeding Bird Mitigation Strategy (oNBBMS) [EN010153/DR/7.13]**. However, this is a matter for CWaCC to consider when determining the application and to be assessed within the HRA of the Runcorn Spur CO_2 pipeline.

6.8.37 During the operational phase, the pipeline will be located underground and habitats reinstated following construction. As such, no cumulative operational impacts on birds are anticipated.

6.8.38 Provided these measures are implemented, it can be concluded that no adverse in-combination effects on the integrity of the Mersey Estuary SPA and Ramsar site are expected.

7.0 IN-COMBINATION ASSESSMENT CONCLUSION

7.1.1 A number of nearby developments have been reviewed for potential in-combination effects with the Proposed Development, particularly in relation to qualifying bird species and supporting habitats of the Mersey Estuary SPA and Ramsar site.

7.1.2 Several developments, including the Halton schemes (Refs 16 and 17), Encirc Automated Warehouse (Ref 33), and Protos schemes (Refs 20, 25, 27, 28, 31, 34, 35, and 81), are located at sufficient distance from the SADA and NBBMA, or lie within previously developed land of limited ornithological value. Their respective HRAs concluded no likely significant effects (LSEs) either alone or in combination, and mitigation strategies such as the Protos strategic ecological mitigation have already been implemented and are delivering benefits. As such, no adverse in-combination effects are predicted.

7.1.3 The HyNet Hydrogen Pipeline (Ref 38) lies approximately 0.5 km south of the NBBMA. While within 500 m of Functionally Linked Land (FLL), it does not intersect it and is located below (visually and acoustically screened) and is not located within identified FLL (Lordship Lane). A Stage 1 HRA screening concluded LSEs related to water and air quality, however best-practice construction-phase mitigation including timing of works (outside of the breeding season) and environmental management plans will be secured through the Development Consent Order (DCO), which would avoid the risk of impacts. As such, no significant in-combination effects are anticipated during either construction or operation.

7.1.4 The HyNet CO_2 Pipeline (Ref 37) is located over 3 km from the NBBMA and Proposed Development. A full Appropriate Assessment has been undertaken for that scheme, concluding no adverse effect on integrity following implementation of mitigation measures (e.g. lighting and noise controls, pollution prevention, and habitat reinstatement). Given the separation distance and nature of the project, no cumulative effects with the Proposed Development are expected.

7.1.5 The Hydrogen Production Facility (Ref 32) is situated within the Stanlow industrial area and is unlikely to contribute to cumulative ornithological impacts due to the absence of suitable habitat and the location of the development.

7.1.6 The Runcorn CO_2 Spur Pipeline (Ref 78) would run along the northern boundary of the Proposed Development, including through Cells 1, 3, and 5. While detailed mitigation for this project has yet to be finalised, its impacts are anticipated to be similar in nature and scale to other linear infrastructure. The Applicant proposes a coordinated, phased construction programme to avoid simultaneous disturbance within key areas and reduce cumulative effects. Mitigation will include avoidance of noisy works during sensitive periods (non-breeding season) and avoidance of overlap in areas of shared habitat use.

7.1.7 Given the temporary nature of pipeline construction (150–350 m per day), the commitment to habitat reinstatement, and the adoption of best-practice mitigation across both projects, significant cumulative effects on non-breeding waterbirds are considered unlikely during construction.

7.1.8 On the basis of the above it is concluded that no adverse in-combination effects on the integrity of the Mersey Estuary SPA and Ramsar site are anticipated.

8.0 CONCLUSION STAND ALONE AND IN-COMBINATION

8.1.1 This AA has considered the implications of the Proposed Development for the Mersey Estuary SPA and Ramsar site, including all relevant impact pathways, conservation objectives, and the potential for in-combination effects with other plans and projects. The assessment recognises that construction of the SADA will result in the long-term loss of FLL used by qualifying non-breeding waterbirds and the wider waterbird assemblage. While this majority of the land comprises sub-optimal habitats such as intensively grazed improved grassland and arable fields it nevertheless supports supplementary foraging and roosting activity by SPA qualifying bird species and waterbird assemblage.

8.1.2 To mitigate the loss of the FLL, a purpose-designed NBBMA will be delivered in advance of SADA construction. The NBBMA will provide 53.31 ha of high-quality, actively managed wetland and grassland habitat, tailored to meet the ecological needs of SPA qualifying features. Its design, timing of delivery, and long-term management will offset the loss of lower-value habitat within the SADA and ensure no net loss of functional capacity for the bird populations concerned. The NBBMA also extends the ecological mitigation secured under the existing Frodsham Wind Farm beyond its original lifespan, providing continuity and enhancement of FLL.

8.1.3 To minimise disturbance to functionally linked land (FLL) and maintain habitat availability for SPA qualifying species, the dual construction programme will be phased and staggered. Initial works will focus on the eastern extent of the SADA, furthest from the NBBMA and adjacent FLL in the western extent. This phased approach ensures that the NBBMA and surrounding FLL remain undisturbed and available for use during the non-breeding season, providing effective mitigation while eastern construction progresses. By maintaining a functional buffer zone between active works and sensitive areas, this strategy reduces the risk of disturbance-related displacement and supports the conservation objectives of the Mersey Estuary SPA and Ramsar site throughout the construction phase.

8.1.4 Cumulative effects in combination with other developments such as the HyNet Hydrogen Pipeline and the Runcorn Carbon Dioxide Spur Pipeline, one of which intersect the Order Limits have been considered. While both projects have the potential to impact FLL (directly and indirectly) during construction, effective mitigation measures (including seasonal restrictions, habitat reinstatement, project liaison and CEMPs) are either secured or expected. Provided that construction activities are appropriately phased, no adverse in-combination effects on the Mersey Estuary SPA and Ramsar site are anticipated.

8.1.5 While the SADA will no longer support SPA qualifying species, the creation and long-term management of high-quality wetland habitats within the NBBMA will provide significant ecological gains. These habitats comprising wet grassland, scrapes, and open water will exceed like-for-like mitigation requirements by delivering enhanced foraging, roosting, and loafing opportunities for displaced and additional wetland bird species. The NBBMA will be managed adaptively by experienced professionals, supported by ecological monitoring, and will also improve a degraded section of the Mersey Estuary SSSI by replacing invasive-dominated fishing pools with diverse wetland features. Given the absence of comparable managed wetland reserves along the Mersey Estuary, the NBBMA represents a strategically valuable habitat resource for passage and overwintering SPA species. With minimal disturbance expected during operation and visitor access carefully managed through screening and path design, the Proposed Development is assessed to deliver minor beneficial effects in the short term, increasing to beneficial significant effects in the medium to long term for the Mersey Estuary SPA/Ramsar site.

8.1.6 In conclusion, with the successful implementation of the proposed mitigation measures including early delivery and long-term management of the NBBMA and adherence to the phasing strategy, the Proposed Development will not result in an adverse effect on the integrity of the Mersey Estuary SPA or Ramsar site, either alone or in combination with other plans or projects.

8.1.7 This conclusion is made in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), and all mitigation and phasing commitments are secured through the DCO and associated environmental management plans.

9.0 REFERENCES

i) A review of the effects of noise on Birds' Version 1 published in 2018 by Natural England (Allan Drewitt, Emma Hawthorne, Richard Saunders & Sarah Anthony)

ii) Bowland Ecology. (2021). Identification of Functionally Linked Land supporting Special Protection Areas (SPAs) waterbirds in the North West of England. Available at: https://publications.naturalengland.org.uk/publication/6303434392469504 (Accessed: 12 March 2025).

iii) BOWLAND ECOLOGY. 2022. Identification of Functionally Link Land in the North West of England – Phase 2. NECR483. Natural England

iv) British Ornithologists' Union. (n.d.). British List: Bird Names. Available at: https://bou.org.uk/british-list/bird-names/ (Accessed: 17 March 2025).

v) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Available at: EUR-Lex (Accessed: 29th April 2025).

vi) Department for Energy Security and Net Zero (2024) Overarching National Policy Statement for Energy (EN-1). Available at: GOV.UK (Accessed: April 2025).

vii) Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Available at: EUR-Lex (Accessed: 29th April 2025).

viii) Goodship, N.M. and Furness, R.W., 2022. Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. Available at: NatureScot [Accessed 9 May 2025].

ix) Joint Nature Conservation Committee (JNCC). (1994). Information Sheet on Ramsar Wetlands (RIS): Midland Meres and Mosses Phase 1. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11043.pdf (Accessed: 12 March 2025).

x) Joint Nature Conservation Committee (JNCC). (1997). Information Sheet on Ramsar Wetlands (RIS): Midland Meres and Mosses Phase 2. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11080.pdf (Accessed: 12 March 2025).

xi) Joint Nature Conservation Committee. (n.d). Information Sheet on Ramsar Wetlands (RIS): Mersey Estuary. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11041.pdf (Accessed: 3 March 2025)

xii) 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

xiii) MacArthur Green (2019) Ornithology Report. Norfolk Vanguard Offshore Wind Farm. Document Reference: EN010085-000402-6.4.9.1. The Planning Inspectorate. Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010085-000402-6.4.9.1%20Ornithology%20Report.pdf (Accessed: 22 May 2025).

xiv) Natural England & Joint Nature Conservation Committee (JNCC), Supplementary Advice on Conservation Objectives (SACOs), [online] Available at: <https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9005131&SiteName=mersey&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7> [10th March 2025].

xv) Natural England (2017) Evidence review of the impact of solar farms on birds, bats and general ecology (NEER012)1st edition - 9th March 2017.

xvi) Natural England (2023) Identification of Functionally Linked Land in the North West of England – Phase 2 (NECR483). Available at: Natural England (Accessed: April 2025)

xvii) Natural England (2024) Seabird Mapping & Sensitivity Tool (SeaMaST). Available at: data.gov.uk (Accessed: 2 May 2025).

xviii) Natural England (2025) 'Supplementary Advice for Mersey Estuary SPA'. Available at: https://designatedsites.naturalengland.org.uk/ConservationAdvice/SupplementaryAdvice.aspx?SiteCode=UK9005131&SiteName=mersey%20estuary&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7 (Accessed: May 2025).

xix) Natural England (2025) 'Supplementary Advice for Mersey Estuary SPA'. Available at: https://designatedsites.naturalengland.org.uk/ConservationAdvice/SupplementaryAdvice.aspx?SiteCode=UK9005131&SiteName=mersey%20estuary&SiteNameDisplay=Mersey+Estuary+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=7 (Accessed: 8 May 2025

xx) Natural England (n.d.) Mersey Estuary Ramsar. Available at: https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?Site

Code=UK11041&SiteName=mersey&SiteNameDisplay=Mersey%20Estuary%20Ramsar&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=&HasCA=0 (Accessed: 4 March 2025).

xxi) Natural England (n.d.) Midland Meres & Mosses Phase 1. Available at: https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11043&SiteName=Midland%20Meres&countyCode=&responsiblePerson=&SeaArea=&IFCAArea= (Accessed: 4 March 2025).

xxii) Natural England (n.d.) Midland Meres & Mosses Phase 2. Available at: https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11080&SiteName=Midland%20Meres&countyCode=&responsiblePerson=&SeaArea=&IFCAArea= (Accessed: 4 March 2025).

xxiii) **Natural England** (2014) European Site Conservation Objectives for Mersey Estuary SPA (UK9005131). Natural England. Available at: https://publications.naturalengland.org.uk/publication/5790848037945344 (Accessed: 27 May 2025).

xxiv) Natural England. (2015). Review and analysis of changes in waterbird use of the Mersey Estuary SPA, Mersey Narrows & North Wirral Foreshore pSPA and Ribble & Alt Estuaries SPA. Available at: https://publications.naturalengland.org.uk/publication/4713137133584384 (Accessed: 12 March 2025).

xxv) Natural England. (2021). Habitats Regulations Assessments: Protecting a European Site. Available at: https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site [Accessed 12 May 2025].

xxvi) Natural England. (n.d). Citation for Site of Special Scientific Interest (SSSI): Mersey Estuary. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001398.pdf (Accessed: 3 March 2025).

xxvii) Natural England. (n.d). European Site Conservation Objectives for Mersey Estuary SPA. Available at: https://publications.naturalengland.org.uk/publication/5790848037945344 (Accessed: 3 March 2025).

xxviii) Natural England. 2014. Site Improvement Plan Mersey Estuary (SIP 138): Natural England.

xxix) Smith, T. and Buckley, P. (2020) Biological Flora of the British Isles: Crassula helmsii. Journal of Ecology, 108(3), pp. 797-813. Available at: Wiley Online Library (Accessed: 2 May 2025).

xxx) The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). 2016. Resolution 6.7 - Adoption of guidance in the context of implementaiton of the AEWA action plan.

xxxi) The Conservation of Habitats and Species Regulations 2017, SI 2017/1012. Available at: Legislation.gov.uk (Accessed: 2 May 2025).

FIGURES

Order Limits/Site

Main Development Area
Breeding Birds

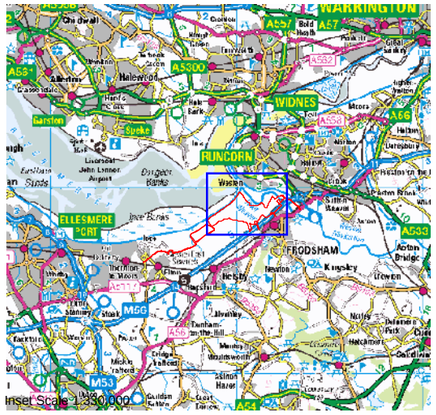
600m Development Buffer
Wintering Birds

1km Development Buffer
Species of Principal Importance
Non-statutory designated sites for nature conservation with cited ornithological interests

2km Development Buffer
Statutory designated sites for nature conservation (excluding geological sites) with cited ornithological interests

10km Development Buffer
Statutory designated sites for nature conservation (excluding geological sites) with cited ornithological interests– International

Minor update to the Order Limits made April 2025



Cubico
SUSTAINABLE INVESTMENTS

0344 8700 007
axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

1

Figure Title

Zones of Influence

Scale

1:85000@A3

Date

May 2025

N

0 6
kilometers

Order Limits/Site

Main Development Area

10km Development Buffer

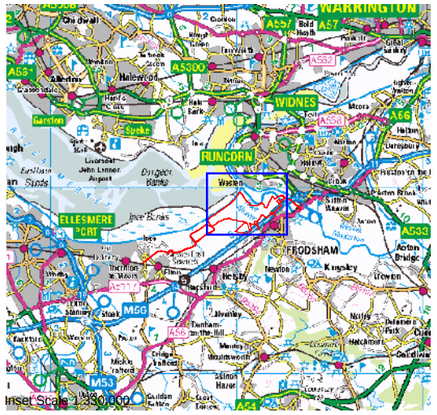
Designated Site

Site of Special Scientific Interest (SSSI)

Special Protection Area (SPA)

Ramsar Site

Minor update to the Order Limits made April 2025



Cubico
SUSTAINABLE INVESTMENTS

0344 8700 007

axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

2

Figure Title

Statutory Designated Sites for Nature Conservation

Scale

1:85000@A3

Date

May 2025

N

0 6

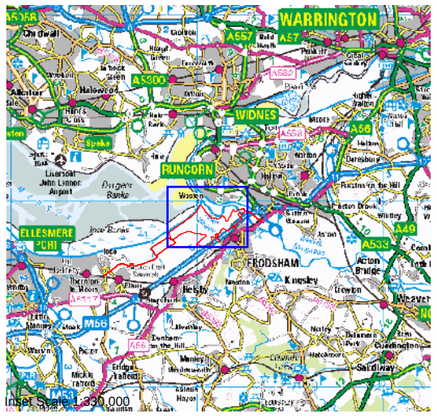
kilometers

Order Limits/Site

Designated Site

Special Protection Area (SPA)

Ramsar



Cubico SUSTAINABLE INVESTMENTS

0344 8700 007

axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

2a

Figure Title

Mersey Estuary (SPA and Ramsar)

Scale

1:26000@A3

Date

May 2025

N

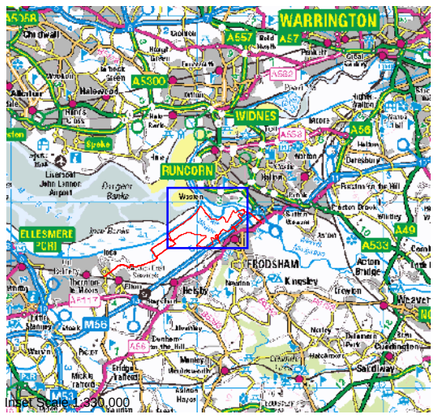
0 2

kilometers

Order Limits/Site

Designated Site

Site of Special Scientific Interest (SSSI)



Cubico SUSTAINABLE INVESTMENTS

0344 8700 007

axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

2b

Figure Title

Mersey Estuary (SSSI)

Scale

1:26000@A3

Date

May 2025

N

0 2

kilometers

Order Limits/Site

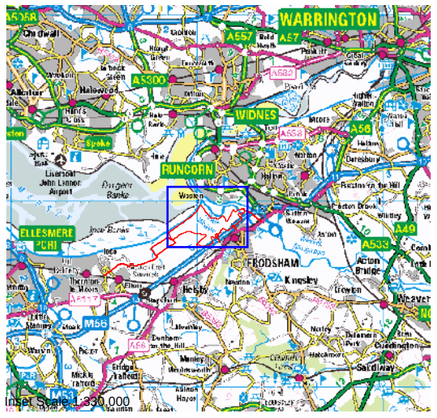
10km Main Development Buffer

Designated Site

Ramsar

Midland Meres & Mosses - Phase 1

Midland Meres & Mosses Phase 2



Inset Scale 1:330,000

Cubico SUSTAINABLE INVESTMENTS

0344 8700 007

axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

2c

Figure Title

Midland Meres & Mosses Phase 1&2 (Ramsar)

Scale

1:26000@A3

Date

May 2025

N

0 7

kilometers

Order Limits/Site

Main Site Access with Private Wire Connection

Main Site Access without Private Wire Connection

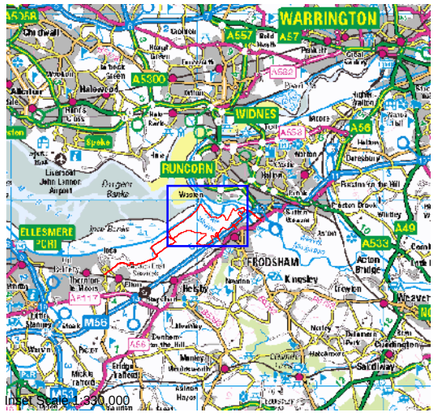
Non-Breeding Bird Mitigation Area

Skylark Mitigation Area

Solar Array Development Area

SPEN

SPEN Grid Connection



Cubico SUSTAINABLE INVESTMENTS

0344 8700 007

axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

3

Figure Title

Proposed Development Areas

Scale

1:26000@A3

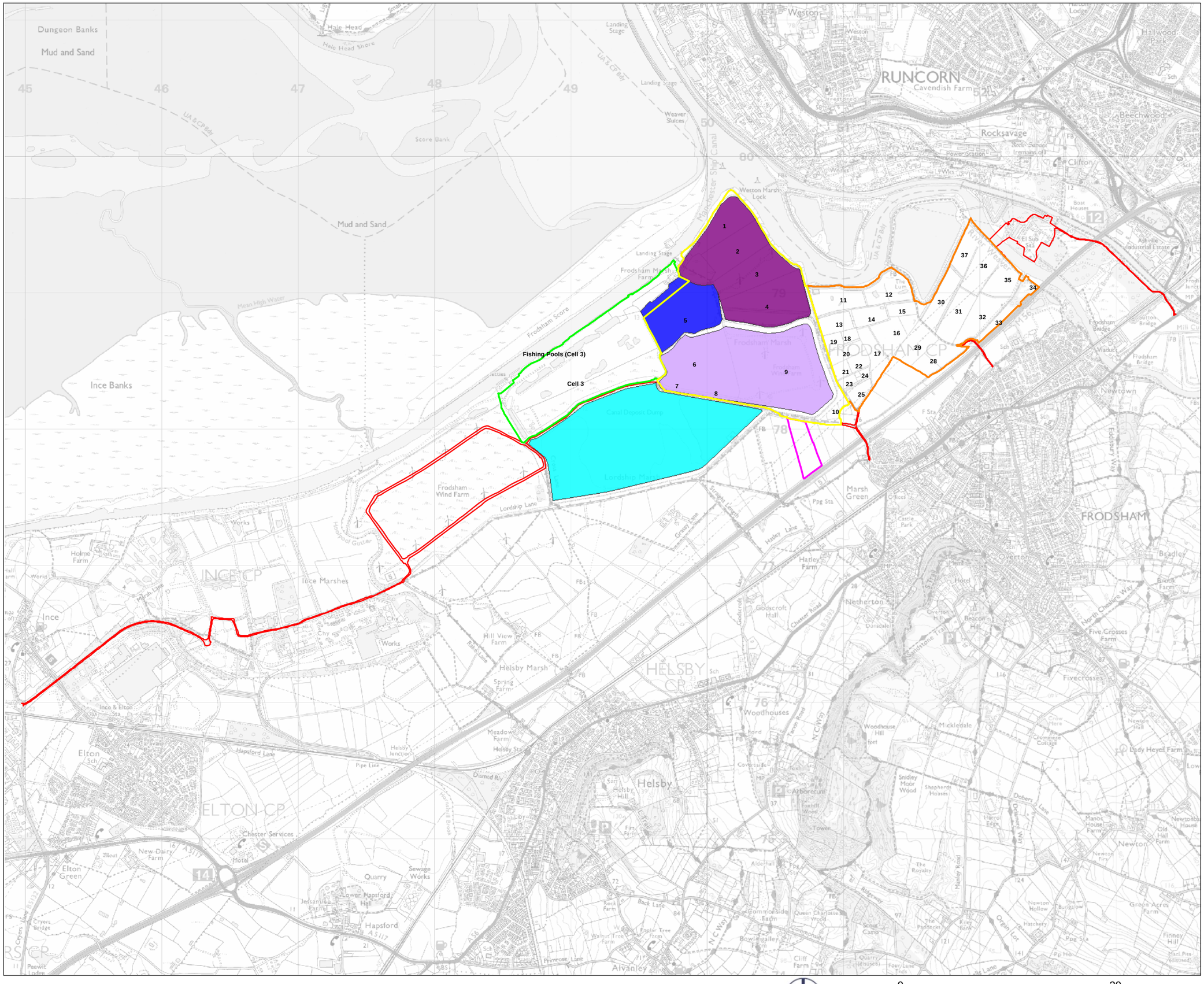
Date

May 2025

N

0 20

kilometers



Cubico
SUSTAINABLE INVESTMENTS

0344 8700 007

axis.co.uk

axis

Project

FRODSHAM SOLAR
HABITATS REGULATIONS ASSESSMENT

Figure Number

4

Figure Title

Proposed Development Areas - With Cells

Scale

1:26000@A3

Date

May 2025

BOW17/1311 Natural England Functionally Linked Land (FLL) Project - Phase 2

Drawing Title: CAWOS FLL Plans

Drawn by: HD
Checked by: LB
Date: 10/10/22

NATURAL ENGLAND

bowland ecology

Legend

- Special Protection Area

CAWOS FLL

- Low potential
- High potential

Previously identified FLL (NECR361 Appendix 9)

- Low potential
- Moderate potential
- High potential

Site Location