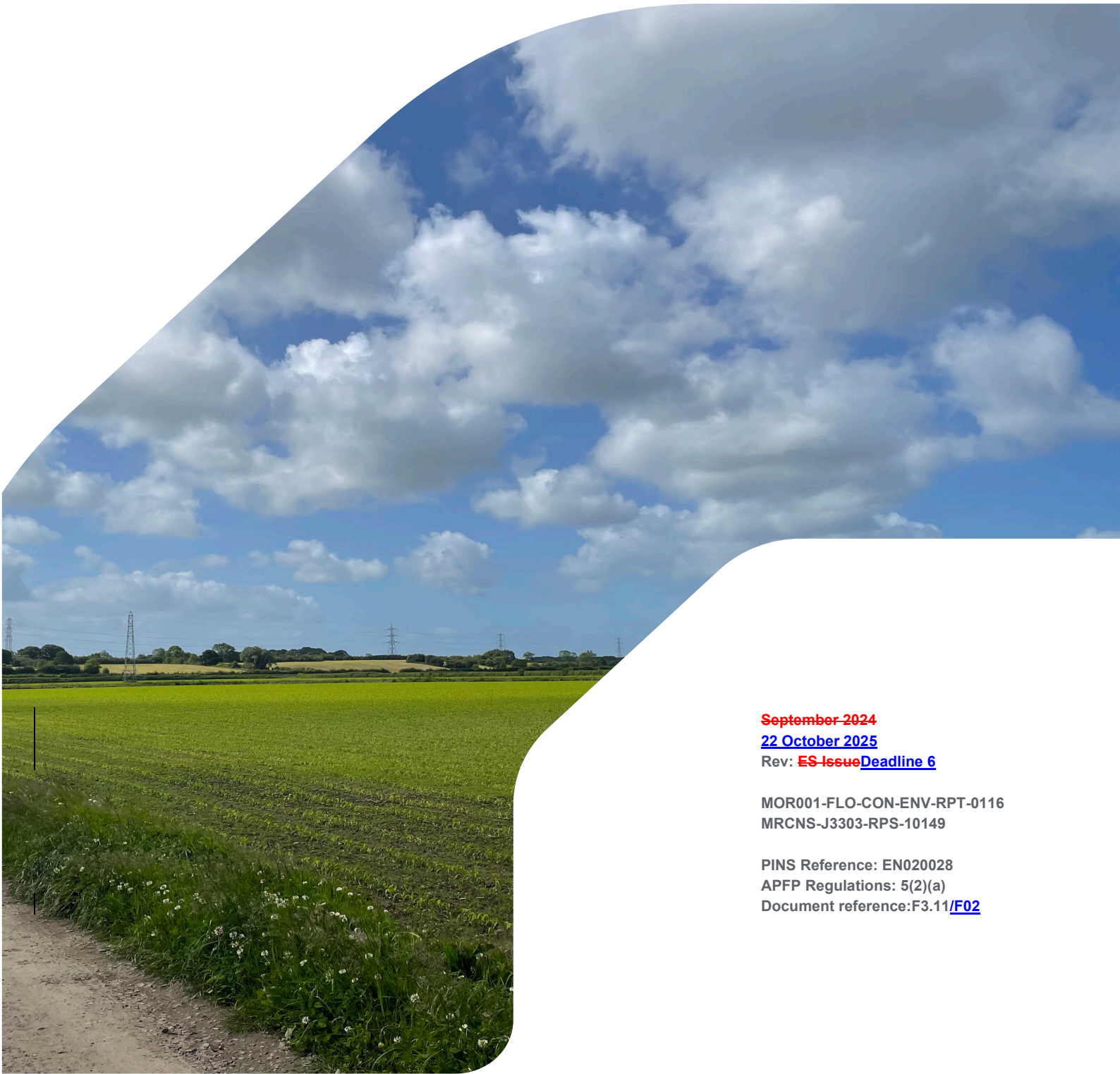
MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Environmental Statement

Volume 3, Chapter 11: Aviation and radar
F02



~~September 2024~~
22 October 2025
Rev: ~~ES Issue~~Deadline 6

MOR001-FLO-CON-ENV-RPT-0116
MRCNS-J3303-RPS-10149

PINS Reference: EN020028
APFP Regulations: 5(2)(a)
Document reference:F3.11/F02

Document status					
Version	Purpose of document	Approved by	Date	Approved by	Date
~~ES~~F02	For ~~issue~~submission at Deadline 6	~~AS~~GL	~~September 2024~~October 2025	IM	~~September 2024~~October 2025

Prepared by:	Prepared for:
Morgan Offshore Wind Limited, Morecambe Offshore Windfarm Ltd	**Morgan Offshore Wind Limited, Morecambe Offshore Windfarm Ltd**

Contents

~~11 AVIATION AND RADAR ..... 1~~
~~11.1 Introduction ..... 1~~
~~11.2 Legislation, policy and guidance ..... 2~~
~~11.2.1 Legislation ..... 2~~
~~11.2.2 Planning policy context ..... 2~~
~~11.2.3 Relevant guidance ..... 8~~
~~11.3 Consultation ..... 10~~
~~11.3.1 Scoping ..... 10~~
~~11.3.2 Statutory consultation responses ..... 10~~
~~11.3.3 Summary of consultation responses received ..... 10~~
~~11.4 Study area ..... 30~~
~~11.5 Baseline methodology ..... 30~~
~~11.5.1 Methodology for baseline studies ..... 30~~
~~11.6 Baseline environment ..... 32~~
~~11.6.1 Desk study ..... 32~~
~~11.6.2 Future baseline conditions ..... 34~~
~~11.6.3 Key receptors ..... 34~~
~~11.7 Scope of the assessment ..... 34~~
~~11.8 Measures adopted as part of the Transmission Assets (Commitments) ..... 37~~
~~11.9 Key parameters for assessment ..... 40~~
~~11.9.1 Maximum design scenario ..... 40~~
~~11.10 Assessment methodology ..... 44~~
~~11.10.1 Overview ..... 44~~
~~11.10.2 Receptor sensitivity/value ..... 44~~
~~11.10.3 Magnitude of impact ..... 44~~
~~11.10.4 Significance of effect ..... 45~~
~~11.10.5 Assumptions and limitations of the assessment ..... 46~~
~~11.11 Assessment of effects ..... 47~~
~~11.11.1 Introduction ..... 47~~
~~11.11.2 Onshore construction activity (including temporary above surface structures) at/near Blackpool Airport (impacts to airfield) ..... 47~~
~~11.11.3 Electro-Magnetic Fields (EMF) ..... 50~~
~~11.12 Cumulative effect assessment methodology ..... 52~~
~~11.12.1 Introduction ..... 52~~
~~11.12.2 Scope of cumulative effects assessment ..... 55~~
~~11.13 Cumulative effects assessment ..... 57~~
~~11.13.1 Introduction ..... 57~~
~~11.13.2 Aviation and radar ..... 58~~
~~11.14 Transboundary effects ..... 64~~
~~11.15 Inter-related effects ..... 64~~
~~11.16 Summary of impacts, mitigation measures and monitoring ..... 64~~
~~11.17 References ..... 68~~

11 AVIATION AND RADAR 1
11.1 Introduction 1
11.2 Legislation, policy and guidance 2
11.2.1 Legislation 2
11.2.2 Planning policy context 2
11.2.3 Relevant guidance 8
11.3 Consultation 10
11.3.1 Scoping 10
11.3.2 Statutory consultation responses 10

11.3.3 Summary of consultation responses received 10
11.4 Study area 30
11.5 Baseline methodology 30
11.5.1 Methodology for baseline studies 30
11.6 Baseline environment 32
11.6.1 Desk study 32
11.6.2 Future baseline conditions 34
11.6.3 Key receptors 34
11.7 Scope of the assessment 34
11.8 Measures adopted as part of the Transmission Assets (Commitments) 37
11.9 Key parameters for assessment 40
11.9.1 Maximum design scenario 40
11.10 Assessment methodology 44
11.10.1 Overview 44
11.10.2 Receptor sensitivity/value 44
11.10.3 Magnitude of impact 44
11.10.4 Significance of effect 45
11.10.5 Assumptions and limitations of the assessment 46
11.11 Assessment of effects 47
11.11.1 Introduction 47
11.11.2 Onshore construction activity (including temporary above surface structures) at/near Blackpool Airport (impacts to airfield) 47
11.11.3 Electro-Magnetic Fields (EMF) 50
11.12 Cumulative effect assessment methodology 52
11.12.1 Introduction 52
11.12.2 Scope of cumulative effects assessment 55
11.13 Cumulative effects assessment 57
11.13.1 Introduction 57
11.13.2 Aviation and radar 58
11.14 Transboundary effects 64
11.15 Inter-related effects 64
11.16 Summary of impacts, mitigation measures and monitoring 64
11.17 References 68

Tables

~~Table 11.1: Summary of the NPS EN-1, NPS EN-3 and NPS EN-5 requirements relevant to this chapter ..... 3~~
~~Table 11.2: Summary of NPPF requirements relevant to this chapter ..... 6~~
~~Table 11.3: Summary of the Department for Transport (DfT) requirements relevant to this chapter ..... 6~~
~~Table 11.4: Summary of local planning policy relevant to this chapter ..... 7~~
~~Table 11.5: Summary of key consultation comments raised during consultation activities undertaken for the Transmission Assets relevant to aviation and radar ..... 11~~
~~Table 11.6: Summary of desk study sources used ..... 31~~
~~Table 11.7: Summary of other desk study sources used ..... 32~~
~~Table 11.8: Key receptors taken forward to assessment ..... 34~~
~~Table 11.9: Matters considered within this assessment ..... 35~~
~~Table 11.10: Impacts scoped out of the assessment ..... 36~~
~~Table 11.11: Measures (commitments) adopted as part of the Transmission Assets ..... 39~~
~~Table 11.12: Maximum design scenario considered for the assessment of impacts ..... 41~~
~~Table 11.13: Sensitivity criteria ..... 44~~

~~Table 11.14: Magnitude of Impact criteria ..... 45~~
~~Table 11.15: Assessment matrix ..... 46~~
~~Table 11.16: List of other projects, plans and activities considered within the CEA ..... 54~~
~~Table 11.17 Scope of assessment or cumulative effects ..... 56~~
~~Table 11.18: Offshore activity near Blackpool Airport (impacts to airfield) (Scenarios 1–3) ..... 58~~
~~Table 11.19: Offshore activity near Blackpool Airport (impacts to airfield) (Scenarios 4a-4c) ..... 61~~
~~Table 11.21: Summary of environmental effects, mitigation and monitoring ..... 66~~
~~Table 11.22: Summary of cumulative environmental effects, mitigation and monitoring ..... 66~~
Table 11.1: Summary of the NPS EN-1, NPS EN-3 and NPS EN-5 requirements relevant to this chapter 3
Table 11.2: Summary of NPPF requirements relevant to this chapter 6
Table 11.3: Summary of the Department for Transport (DfT) requirements relevant to this chapter 6
Table 11.4: Summary of local planning policy relevant to this chapter 7
Table 11.5: Summary of key consultation comments raised during consultation activities undertaken for the Transmission Assets relevant to aviation and radar 11
Table 11.6: Summary of desk study sources used 31
Table 11.7: Summary of other desk study sources used 32
Table 11.8: Key receptors taken forward to assessment 34
Table 11.9: Matters considered within this assessment 35
Table 11.10: Impacts scoped out of the assessment 36
Table 11.11: Measures (commitments) adopted as part of the Transmission Assets 39
Table 11.12: Maximum design scenario considered for the assessment of impacts 41
Table 11.13: Sensitivity criteria 44
Table 11.14: Magnitude of Impact criteria 45
Table 11.15: Assessment matrix 46
Table 11.16: List of other projects, plans and activities considered within the CEA 54
Table 11.17 Scope of assessment or cumulative effects 56
Table 11.18: Offshore activity near Blackpool Airport (impacts to airfield) (Scenarios 1–3) 58
Table 11.19: Offshore activity near Blackpool Airport (impacts to airfield) (Scenarios 4a-4c) 61
Table 11.20: Summary of environmental effects, mitigation and monitoring 66
Table 11.21: Summary of cumulative environmental effects, mitigation and monitoring 66

Figures (See Volume 3, Chapter Figures)

Figure number	Figure title
11.1	Aviation features in the vicinity of the aviation and radar study area for the Transmission Assets
11.2	Transmission Assets onshore infrastructure in relation to Blackpool Airport
11.3	Cumulative aviation and radar study area

Appendices

APPENDIX A : DRAFT WILDLIFE HABITAT ATTRACTANTS RISK ASSESSMENT 70

Glossary

Term	Meaning
Aerodrome Reference Point	An Aerodrome Reference Point is the centre-point of an aerodrome, located at the geometric centre of all the usable runways and is used as the designated geographical location of an aerodrome.
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Baseline	The status of the environment without the Transmission Assets in place.
Commitment	This term is used interchangeably with mitigation and enhancement measures. The purpose of commitments is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects. Primary and tertiary commitments are taken into account and embedded within the assessment set out in the ES.
Development Consent Order	An order made under the Planning Act 2008, as amended, granting development consent.
Effect	The term used to express the consequence of an impact. The significance of effect is determined by correlating magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Generation Assets	The generation assets associated with the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm include the offshore wind turbines, inter-array cables, offshore substation platforms and platform link (interconnector) cables to connect offshore substations
Impact	Change that is caused by an action/proposed development, e.g., land clearing (action) during construction which results in habitat loss (impact).
Instrument Meteorological Conditions	Instrument Meteorological Conditions are weather conditions which would preclude flight by the visual flight rules (conditions where the aircraft is in, or close to cloud or flying in visibility less than a specified minimum).
Intertidal Infrastructure Area	The temporary and permanent areas between MLWS and MHWS.
Landfall	The area in which the offshore export cables make landfall (come on shore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area at Lytham St. Annes between Mean Low-Water Springs and the Transition Joint Bay inclusive of all construction works, including the offshore and onshore cable routes, intertidal working area and landfall compound(s).
Maximum design scenario	The realistic worst case scenario, selected on a topic-specific and impact specific basis, from a range of potential parameters for the Transmission Assets.

Term	Meaning
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morecambe OWL	Morecambe Offshore Windfarm Limited is a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) (Cobra) and Flotation Energy Ltd.
Morgan OWL	Morgan Offshore Wind Limited is a joint venture between bp Alternative Energy investments Ltd. and Energie Baden-Württemberg AG (EnBW).
National Policy Statements	The current national policy statements published by the Department for Energy Security and Net Zero in 2023 and adopted in 2024.
Obstacle Limitation Surfaces	Obstacle Limitation Surfaces define the airspace around aerodromes to be maintained free from obstacles so as to permit the intended aeroplane operations at the aerodromes to be conducted safely and to prevent the aerodromes from becoming unusable by the growth of obstacles around the aerodromes.
Offshore export cables	The cables which would bring electricity from the Generation Assets to the landfall.
Offshore substation platform(s)	A fixed structure located within the wind farm sites, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
Onshore export cable corridor	The corridor within which the onshore export cables will be located.
Onshore Infrastructure Area	The area within the Transmission Assets Order Limits landward of Mean High Water Springs. Comprising the offshore export cables from Mean High Water Springs to the transition joint bays, onshore export cables, onshore substations and 400 kV grid connection cables, and associated temporary and permanent infrastructure including temporary and permanent compound areas and accesses. Those parts of the Transmission Assets Order Limits proposed only for ecological mitigation/biodiversity benefit are excluded from this area.
Onshore Order Limits	See Transmission Assets Order Limits: Onshore (below).
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets, and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Preliminary Environmental Information Report	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project, and which helps to inform consultation responses.

Term	Meaning
Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse, by means of electrical transformers.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning.
Transmission Assets Order Limits: Offshore	The area within which all components of the Transmission Assets seaward of Mean Low Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning. Also referred to in this report as the Offshore Order Limits, for ease of reading.
Transmission Assets Order Limits: Onshore	The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning. Also referred to in this report as the Onshore Order Limits, for ease of reading.
Uncontrolled Airspace	Airspace in which Air Traffic Control does not exercise any executive authority but may provide basic information services to aircraft in radio contact. In the UK, Class G airspace is uncontrolled. Aircraft operating in uncontrolled airspace may be in receipt of an Air Traffic Service; however, within this classification of airspace, pilots are ultimately responsible for their own terrain and obstacle clearance.
Visual Flight Rules	Visual Flight Rules simply means that the aircraft is intended to operate in Visual Meteorological Conditions utilising outside visual reference. Clouds, heavy precipitation, low visibility, and otherwise adverse weather conditions should be avoided under Visual Flight Rules.

Acronyms

Acronym	Meaning
AIP	Aeronautical Information Publication
AOA	Airport Operators Association
ATS	Air Traffic Service
BAEZ	Blackpool Airport Enterprise Zone
CEA	Cumulative Effects Assessment
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CNS	Communication, Navigation and Surveillance
CoT	Commitment

Acronym	Meaning
DCO	Development Consent Order
DCSA	Defence Communication Services Agency
EC	European Commission
EIA	Environmental Impact Assessment
EMF	Electro-Magnetic Field
ES	Environmental Statement
EU	European Union
HMR	Helicopter Main Route
HDD	Horizontal Directional Drilling
IAIP	Integrated Aeronautical Information Package
ICAO	International Civil Aviation Organisation
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedures
ILS	Instrument Landing System
MCA	Maritime and Coastguard Agency
MDS	Maximum Design Scenario
MGN	Maritime Guidance Note
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MilAIP	Military Aeronautical Information Publication
MOD	Ministry of Defence
NAVAID	Aeronautical Navigation Aids
NHV	Noordzee Helikopters Vlaanderen
NPPF	National Planning Policy Framework
NPS	National Policy Statement
OLS	Obstacle Limitation Surfaces
OREI	Offshore Renewable Energy Installation
OSP	Offshore Substation Platform
PEIR	Preliminary Environmental Information Report
PEXA	Military Practice and Exercise Areas
PSR	Primary Surveillance Radar
SAR	Search and Rescue
SSR	Secondary Surveillance Radar

Acronym	Meaning
TJB	Transition Joint Bay
UK	United Kingdom
VFR	Visual Flight Rules

Units

Unit	Description
%	Percentage
km	Kilometres
m	Metre
m^2	Square metre
nm	Nautical mile
£	Pound Stirling

11 Aviation and radar

11.1 Introduction

11.1.1.1 This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) work undertaken for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets. For ease of reference the Morgan and Morecambe Offshore Wind Farms: Transmission Assets are referred to in this chapter as the 'Transmission Assets'. This ES accompanies the application to the Planning Inspectorate for development consent for the Transmission Assets.

11.1.1.2 The purpose of the Transmission Assets is to connect the Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets (referred to collectively as the 'Generation Assets') to the National Grid. A description of the Transmission Assets can be found in Volume 1, Chapter 3: Project description of the ES.

11.1.1.3 This chapter considers the potential impacts and effects of the Transmission Assets on aviation and radar during the construction, operation and maintenance, and decommissioning phases. Specifically, it relates to the onshore and intertidal elements (i.e. landward of Mean Low Water Springs (MLWS)) of the Transmission Assets on Blackpool Airport.

11.1.1.4 In the Preliminary Environmental Information Report (PEIR), some offshore elements of the Transmission Assets were considered within the scope of this chapter. Since this time, the offshore substation platforms have been removed from the Transmission Assets application. This infrastructure now solely sits within the respective Generation Assets applications. In addition, the Morgan offshore booster station is no longer required. The removal of the booster station, along with the removal of the offshore substation platforms, mean that there is no sea surface piercing infrastructure proposed for the Transmission Assets. Therefore, this chapter focuses solely on the onshore elements of the Transmission Assets.

11.1.1.5 This ES chapter:

- identifies the key legislation, policy and guidance relevant to aviation and radar;
- details the EIA scoping and consultation process undertaken to date for aviation and radar;
- confirms the study area for the assessment, the methodology used to identify baseline environmental conditions and sets out the existing and future environmental baseline conditions, established from desk studies, surveys and consultation;
- identifies the scope of the assessment;
- details the mitigation and/or monitoring measures that are proposed to prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process;

- defines the project design parameters used to inform the impact assessment;
- identifies the impact assessment methodology and presents an assessment of the likely impacts and effects in relation to the construction, operation and maintenance and decommissioning phases of the Transmission Assets on aviation and radar (and, where relevant, the impacts and effects of aviation and radar on the Transmission Assets); and
- identifies any cumulative, transboundary and/or inter-related effects in relation to the construction, operation and maintenance and decommissioning phases of the Transmission Assets on aviation and radar.

11.1.1.6 This chapter also draws upon additional information to support the assessment contained within the following annexes:

- Volume 3, Annex 11.1: Outline Wildlife Habitat Attractant Risk Assessment of the ES.

11.2 Legislation, policy and guidance

11.2.1 Legislation

11.2.1.1 Relevant legislation includes the Civil Aviation Authority (CAA) Civil Aviation Publication (CAP) 393: The Air Navigation Order (CAA, 2022) which sets out the provisions of the Air Navigation Order, as amended, together with regulations made under the Order. It is prepared for those concerned with day-to-day matters relating to air navigation that require an up-to-date version of the air navigation regulations and is edited by the legal advisers' department of the CAA. CAP 393 also includes legislation applicable to aerodromes and their operation.

11.2.2 Planning policy context

11.2.2.1 The Transmission Assets will be located in English offshore waters (beyond 12 nautical miles (nm) from the English coast) and inshore waters (within 12 nm from the English coast), with the onshore infrastructure located wholly within England. As set out in Volume 1, Chapter 1: Introduction, of this ES, the Secretary of State for the Department for Business, Energy and Industrial Strategy (BEIS) (the department which preceded the Department for Energy Security and Net Zero) has directed that the Transmission Assets are to be treated as development for which development consent is required undersection 35 of the Planning Act 2008, as amended.

National Policy Statements

11.2.2.2 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to offshore wind development and the associated Transmission Assets, specifically:

- overarching NPS for Energy (NPS EN-1) which sets out the United Kingdom (UK) Government's policy for the delivery of major energy infrastructure (Department for Energy Security & Net Zero 2023a);
- NPS for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy Security & Net Zero 2023b); and
- NPS for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security & Net Zero 2023c).

11.2.2.3 **Table 11.1** sets out a summary of the policies within the current NPSs, relevant to aviation and radar. The assessment presented within this chapter is based primarily on current policy set out within the designated NPSs but takes into account any material changes emerging in the draft NPSs as a relevant consideration. The policies generally address above ground infrastructure regarding aviation interests; however, the Transmission Assets are primarily underground cabling or low height above ground substations.

11.2.2.4 The policies within the current NPSs relevant to all topics in the ES can be viewed in the National Policy Statement tracker (document reference J26) and Planning Statement (document reference J28), submitted with the application.

Table 11.1: Summary of the NPS EN-1, NPS EN-3 and NPS EN-5 requirements relevant to this chapter

Summary of NPS provision	How and where considered in the ES
NPS EN-1	
[5.5.1] All aerodromes, covering civil and military activities, as well as aviation technical sites, meteorological radars and other types of defence interests (both onshore and offshore) can be affected by new energy development.	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets have been assessed in **section 11.11**.
[5.5.5] UK airspace is important for both civilian and military aviation interests. It is essential that new energy infrastructure is developed collaboratively alongside aerodromes, aircraft, air systems and airspace so that safety, operations and capabilities are not adversely affected by new energy infrastructure. Likewise, it is essential that aerodromes, aircraft, air systems and airspace operators work collaboratively with energy infrastructure developers essential for net zero. Aerodromes can have important economic and social benefits, particularly at the regional and local level, but their needs must be balanced with the urgent need for new energy developments, which bring about a wide range of social, economic, and environmental benefits.	A summary of consultation undertaken to date is presented in **section 11.3** and **Table 11.5**.
[5.5.10] Areas of airspace around aerodromes used by aircraft, including taking off or on approach and landing are described as "Obstacle Limitation Surfaces" (OLS). All civil aerodromes licensed by the CAA and all military aerodromes must comply with the OLS. These are defined according to criteria set out in relevant CAA guidance for licensed civil aerodromes and according to Ministry of Defence (MOD) criteria, as set by the Military Aviation	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets on OLS have been assessed in **section 11.11**.

Summary of NPS provision	How and where considered in the ES
Authority (MAA), which is part of the Defence Safety Authority, for military aerodromes.	
[5.5.11] Aerodromes that are officially safeguarded will have officially produced plans that show the OLS. Care must be taken to ensure that new developments do not infringe these protected OLS except where an aerodrome operator has considered the development and either determined there to be no adverse impact or agreed an acceptable mitigation can be put in place, as these encompass the critical airspace within which key air traffic associated with the aerodrome operates.	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets on OLS have been assessed in **section 11.11**.
[5.5.34] Other operational defence assets may be affected by new development, for example non-aviation technical equipment such as: the Seismological Monitoring Station at Eskdalemuir; maritime acoustic facilities; communications installations including satellite ground stations; and range control radars.	Defence assets have been assessed in **section 11.11**.
[5.5.37] Where the proposed development may affect the performance of civil or military aviation CNS, meteorological radars and/or other defence assets an assessment of potential effects should be set out in the ES.	Civil and defence assets have been assessed in **section 11.11**.
[5.5.39] The Applicants should consult the MOD, Met Office, CAA, NATS and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation, meteorological or other defence interests.	A summary of consultation undertaken to date is presented in **section 11.3** and **Table 11.5**.
[5.5.40] Any assessment of effects on aviation, meteorological or other defence interests should include potential impacts of the project upon the operation of CNS infrastructure, flight patterns (both civil and military), generation of weather warnings and forecasts, other defence assets (including radar) and aerodrome operational procedures. It should also assess the demonstratable cumulative effects of the project with other relevant projects in relation to aviation, meteorological and defence.	Impacts arising from the construction, operations and maintenance phases of the Transmission Assets on aerodrome operational procedures have been assessed in **section 11.11** and cumulative impacts within **section 11.12**.
[5.5.44] Mitigation for infringement of OLS may include: • agreed changes to operational procedures of the aerodromes in accordance with relevant guidance, provided that safety assurances can be provided by the operator that are acceptable to the CAA where the changes are proposed to a civilian aerodrome. Applicants should engage airport operators at an early stage of the planning process to understand the potential impacts of development on aviation operations and develop mitigations if appropriate; or • installation of obstacle lighting and/or by notification in Aeronautical Information Service (AIS) publications.	Mitigation is discussed in **paragraph 11.11.3.9**. The requirement for approved marking and lighting post consent has been embedded in the project (**section 11.3.3** and **Table 11.5**).
[5.5.49] The Secretary of State should be satisfied that the effects on meteorological radars, civil and military aerodromes, aviation technical sites and other defence assets or operations have been addressed by the	Impacts on civil and military radar, and aviation and defence interests are assessed in **section 11.11**.

Summary of NPS provision	How and where considered in the ES
Applicants and that any necessary assessment of the proposal on aviation, National Severe Weather Warning Service or defence interests has been carried out.	
[5.5.53] If there are conflicts between the Government's energy and transport policies and military interests in relation to the application, the Secretary of State should expect the relevant parties to have made appropriate efforts to work together to identify realistic and pragmatic solutions to the conflicts. In so doing, the parties should seek to protect the aims and interests of the other parties as far as possible, recognising simultaneously the evolving landscape in terms of the UK's energy security and the need to tackle climate change, which necessitates the installation of wind turbines and the need to maintain air safety and national defence and the national weather warning service.	Consultation activity is included within **Table 11.5**, mitigation is provided in **paragraph 11.11.3.9**.
NPS EN-3	
[2.8.50] The applicant will also need to consider impacts on civil and military radar and other aviation and defence interests (Section 5.5 of EN-1).	Civil and military aviation infrastructure of relevance is assessed in **section 11.11**.
[2.8.240] Aviation and navigation lighting should be minimised and/or on demand (as encouraged in EN-1 Section 5.5) to avoid attracting birds, taking into account impacts on safety.	Marking and lighting for aviation will be agreed post consent with Blackpool Airport. The requirement for approved marking and lighting post consent has been embedded in the project (**section 11.8**).
NPS EN-5	
[2.11.14] In order to avoid unacceptable adverse impacts of Electro-magnetic Fields (EMFs) from electricity network infrastructure on aviation, the Secretary of State will take account of statutory technical safeguarding zones defined in accordance with (sic) the Department for Transport (DfT)/Office of the Deputy Prime Minister (ODPM) circular 01/2003., or any successor, when considering recommendations for Development Consent Order (DCO) applications. More detail on this issue can be found in Section 5.5 of EN-1.	Impacts on civil aviation, associated with EMF are assessed in **section 11.11.**

The National Planning Policy Framework

11.2.2.5 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019, 2021 and 2023 (Department for Levelling Up, Housing and Communities, 2023). The NPPF sets out the Government's planning policies for England.

11.2.2.6 **Table 11.2** sets out a summary of the NPPF policies relevant to this chapter.

11.2.2.7 The Government has published proposed reforms to the NPPF for consultation on 30 July 2024, with the consultation period ending on 24 September 2024 (Ministry of Housing, Communities and Local Government, 2024). Following consultation, the NPPF will be updated.

Table 11.2: Summary of NPPF requirements relevant to this chapter

Policy	Key provisions	How and where considered in the ES
217 b)	Ensure that there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality.	Impacts on civil and military radar, and aviation and defence interests are assessed in **section 11.11**.

11.2.2.8 The consultation draft includes similar provisions as the designated NPPF. The consultation draft NPPF has been reviewed and there are no material updates for aviation and radar.

11.2.2.9 The Planning Practice Guidance (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2023) supports the NPPF and provides guidance across a range of topic areas. All relevant policy is already covered in the NPS and NPPF sections above and particular Department for Transport (DfT) requirements are set out in **Table 11.3**.

Table 11.3: Summary of the Department for Transport (DfT) requirements relevant to this chapter

Summary of DfT requirement	How and where considered in the ES
DfT/Office of the Deputy Prime Minister circular 1/2003	
Advice to Local Planning Authorities on safeguarding aerodromes and military explosives storage areas. The circular: • provides details of the system of safeguarding; • lists the civil aerodromes which are officially safeguarded; and • lists the local planning authority areas containing civil en-route technical sites for which separate official safeguarding maps have been issued. If a local planning authority proposes to grant permission for the development of land forming the site of or in the neighbourhood of an aerodrome, technical site or military explosives storage area, or to grant permission subject to conditions, contrary to the advice of the consultee, they shall notify; a) both the Civil Aviation Authority and the consultee; or b) the Secretary of State for Defence as the case may be.	Mitigation is discussed in **paragraph 11.11.3.9**. The requirement for approved marking and lighting post consent has been embedded in the project (**section 11.8**). Fylde and Blackpool Councils as interested parties are considered, but it should be noted that there are no known plans to develop any new additional aerodrome, technical site or military explosives storage area locally at the time of writing.

Marine policy

UK Marine Policy Statement

11.2.2.10 No policy relevant to aviation and radar.

North West Inshore and North West Offshore Marine Plan 2021

11.2.2.11 No policy relevant to aviation and radar.

Local planning policy

11.2.2.12 The policy context for the Transmission Assets is set out in Volume 1, Chapter 2: Policy and legislation context of the ES. The onshore elements of the Transmission Assets are located within the administrative areas of Fylde Council, Blackpool Council, South Ribble Borough Council, and Preston City Council (and Lancashire County Council at the County level).

11.2.2.13 The relevant local planning policies applicable to aviation and radar based on the extent of the study areas (see **section 11.4**) for this assessment are summarised in **Table 11.4**.

Table 11.4: Summary of local planning policy relevant to this chapter

Policy	Key provisions	How and where considered in the ES
Fylde Council		
Fylde Local Plan to 2032	Policy T2 Warton Aerodrome • The Aerodrome at Warton is a key piece of strategic infrastructure. The Council places great importance on the retention and development of its aviation capabilities, particularly in relation to military aerospace and information. • Development proposals within the defined safeguarded area at Warton Aerodrome will not be permitted, unless the Applicants can demonstrate that there would not be any potential for adverse impacts on aviation operations, or on defence navigation systems and communications. • Development proposals within the wider area surrounding Warton Aerodrome will be assessed for potential for adverse impacts on aviation operations, and on defence navigation systems and communications. Where such impact is identified, planning permission will be refused. • Development proposals that could compromise the security of the Warton Aerodrome and wider BAE Systems site at Warton will not be permitted.	The Morgan and Morecambe Offshore Windfarms: Transmission Assets Order Limits – Onshore (hereafter referred to as the Onshore Order Limits) and the Intertidal Infrastructure Area lie beyond the Communication, Navigation and Surveillance (CNS) and the runway safeguarded area of BAE Systems Warton Aerodrome; over 2.5 km from the runway strip. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Warton Aerodrome OLS Inner Horizontal Surface but construction equipment (in the Construction Phase) and remaining, low height, above surface infrastructure (in the operation and maintenance phase) will not penetrate the surface ceiling. Therefore, BAE Systems Warton (Aerodrome) has been scoped out.

Policy	Key provisions	How and where considered in the ES
Fylde Local Plan to 2032	Policy T3 Blackpool Airport • The Council will support improvements to surface access (public transport) to Blackpool Airport from surrounding areas and other transport nodes. • Blackpool Airport, including Centrica's heliport will be consulted on all developments within the Airport Safeguarding Zone. NOTE: Certain civil aerodromes including Blackpool Airport are officially safeguarded through Circular 1/2003 – 'Safeguarding Aerodromes, Technical Sites and Military Explosive Storage Areas'. This is necessary to ensure that their operations and development are not inhibited by buildings, structures, erections or works which would infringe on protected surfaces, obscure runway approach lights or have the potential to impair the performance of aerodrome navigation aids, radio aids or telecommunication systems; by lighting which has the potential to distract pilots; or by developments which have the potential to increase the number of birds or the bird hazard risk. The maps showing the safeguarded areas are certified by the CAA.	**Table 11.5** provides consultation activities completed to the date of the submission of this document, further engagement with Blackpool Airport and Centrica continues. Mitigation, through current required engagement with Blackpool Airport, is discussed in **section 11.8.** The requirement for approved marking and lighting post consent has been embedded in the project (**section 11.8**).
Fylde Local Plan to 2032	Policy CL3 Renewable and Low Carbon Energy Generation – excluding onshore wind turbines. Proposed developments will be assessed in relation to the following criteria. • Impacts on aviation and defence navigation systems and communications, particularly Blackpool Airport, Warton Aerodrome and the Defence Communication Services Agency (DCSA) Inskip radio communication facility. The avoidance of impacts on these strategically important facilities should be given great weight in decision-making.	Applicable civil and defence assets have been assessed in **section 11.11, paragraph 11.11.2** et seq. The Onshore Order Limits and Intertidal Infrastructure Area are beyond/outside the DCSA Inskip safeguarded areas and lie beyond the CNS and the runway safeguarded area of BAE Systems Warton Aerodrome; over 2.5 km from the runway strip. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Warton Aerodrome OLS Inner Horizontal Surface but construction equipment (in the Construction Phase) and remaining above surface infrastructure (in the operation and maintenance phase) will not penetrate the surface ceiling. Therefore, DCSA Inskip and BAE Systems Warton (Aerodrome) have been scoped out.

11.2.3 Relevant guidance

11.2.3.1 The following documents provide aviation guidance.

- CAA CAP 032 UK Integrated Aeronautical Information Package (IAIP): Contains information, updated every 28 days, which contains information of lasting (permanent) character essential to air navigation.

  - Appropriate information about the site construction and any associated lighting (where applicable), for example the height and temporary location of construction cranes, should be provided to the NATS Aeronautical Information Service (for promulgation in CAP 032, the UK IAIP).

- CAA CAP 168 Licensing of Aerodromes: Sets out the standards required at UK licensed aerodromes relating to their management systems, operational procedures, physical characteristics, assessment and treatment of obstacles and visual aids.
- CAA CAP 670 Air Traffic Services Safety Requirements: Sets out the safety regulatory framework and requirements associated with the provision of an Air Traffic Service (ATS).
- CAA CAP 738 Safeguarding of Aerodromes: Sets out the safety regulatory framework and requirements, advice and guidance to operators involved in the process of 'aerodrome safeguarding' and assist Aerodrome Operator's understanding of, and compliance with the requirements laid down in:
  - International Civil Aviation Organisation (ICAO) Annex 14 Volume I, Aerodrome Design and Operations;
  - European Union (EU) Regulation (EU) 2018/1139, Regulation (European Commission (EC) No 1108/2009, COMMISSION REGULATION (EU) No 139/2014; and
  - UK CAP 168 Licensing of Aerodromes.
- CAA CAP 785B Implementation and Safeguarding of Instrument Flight Procedures (IFP) in the UK: IFPs are regulated in the UK through the oversight of Approved Procedure Design Organisations and the approval of IFP design before their implementation in the UK Aeronautical Information Publication (AIP). The specific requirements for the development and approval of IFP designs, and the delivery of safeguarding services are published in this publication.
- CAA CAP 791 Procedures for Changes to Aerodrome Infrastructure: Guidance on the procedures to be used to notify the CAA of changes at an aerodrome, covering both infrastructure and management system changes in accordance with EU and National Regulations.
- MOD Military Aeronautical Information Publication (MilAIP): The main resource for information and flight procedures at all military aerodromes as well as airspace, en-route procedures, charts and other air navigation information.
- Maritime and Coastguard Agency (MCA) Maritime Guidance Note (MGN) 654 Safety of Navigation Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response: Contains information for operators and developers in formulating their emergency response plans and site safety management.

- Airport Operators Association (AOA) Aerodrome Safeguarding (2016) – Advice Notes 1, 2, 4 and 5.
- RenewableUK suggests that information regarding construction should be passed to the Defence Geographic Centre (at dvof@mod.gov.uk) at least 10 weeks in advance of the obstacle type(s) erection detailing position, height (tip of arc) and type of aviation lighting. Once reported, all will be included in the Defence Geographic Centre Obstruction database and all that meet aviation chart inclusion criteria will be published for broader awareness.

11.2.3.2 Additional guidance includes the following.

- CAA Visual Flight Rules (VFR) Charts (2022) Sectional aeronautical charts which are designed for visual navigation of slow to medium speed aircraft. The topographic information featured consists of a judicious selection of visual checkpoints used for flight under VFR.
- MOD MilAIP En Route Low Altitude (Flight Information) Chart UK(L)2.

11.3 Consultation

11.3.1 Scoping

11.3.1.1 On 28 October 2022, the Applicants submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operations and maintenance, and decommissioning phases of the Transmission Assets to the onshore and offshore aviation and radar environment.

11.3.1.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 8 December 2022.

11.3.2 Statutory consultation responses

11.3.2.1 The preliminary findings of the EIA process were published in the PEIR in October 2023. The PEIR was prepared to provide the basis for formal consultation under the Planning Act 2008. This included consultation with statutory and non-statutory bodies under section 42 and 47 of the Planning Act 2008 as presented in **Table 11.5**.

11.3.3 Summary of consultation responses received

11.3.3.1 A summary of the key items raised specific to aviation and radar is presented in **Table 11.5**, together with how these have been considered in the production of this chapter. It should however be noted that formal responses are provided for all consultation responses received and can be accessed in the Consultation Report (document reference: E1).

Table 11.5: Summary of key consultation comments raised during consultation activities undertaken for the Transmission Assets relevant to aviation and radar

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
May 2022	Noordzee Helikopters Vlaanderen (NHV) – Pre-Scoping (email)	NHV provide helicopter support to both Spirit Energy (including Harbour Energy) and ENI, who stated to NHV that impacts of varying degrees will be experienced by helicopter operations, completed in poor weather conditions, to their offshore hydrocarbon platforms due to the creation of any obstacles.	The Applicants acknowledge the impact and are continuing to engage with those offshore hydrocarbon industries impacted. The OSPs and Morgan offshore booster station have been removed from the application and clarified in **section 11.11**.
12 August 2022	Planning Inspectorate – Scoping	Potential disruption to Helicopter Main Routes (HMRs) due to the presence of the Offshore Substation Platforms (OSPs) and the Morgan offshore booster station: *In the absence of information confirming the location of OSPs and the Morgan offshore booster station in relation to the three HMRs that overlap with the scoping boundary, the Inspectorate considers that the ES should provide an assessment of potential significant effects and disruption on HMRs.*	The OSPs and Morgan offshore booster station have been removed from the application as clarified in **section 11.11.**
12 August 2022	Planning Inspectorate – Scoping	Impacts of increased helicopter traffic on availability of airspace for other users: *The Applicants propose to scope out impacts of increased helicopter traffic on availability of airspace for other users on the basis that the Transmission Assets will be located within Class G (uncontrolled) airspace and that air traffic services will be available in the area. The Inspectorate agrees that significant effects are unlikely and is content for this matter can be scoped out.*	Noted. Scoped out as per comment received.
12 August 2022	Planning Inspectorate – Scoping	Potential disruption to military Practice and Exercise Area (PEXA): *Given the information in the Scoping Report demonstrating the absence of PEXAs within the study area, the Inspectorate is content that no impact pathway exists. The*	Since publication of the PEIR no change to Practice and Exercise Areas has been notified by the MOD. Noted. Scoped out as per comment received.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		Inspectorate agrees to scope potential disruption to military practice and exercise areas out of the ES, subject to any changes to Practice and Exercise Areas that may occur as the EIA is refined.	
12 August 2022	Planning Inspectorate – Scoping	Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR) systems: *The Scoping Report does not describe the location of any PSR and SSR systems in relation to the Proposed Development. The ES should set out the location of any PSR and SSR systems including an assessment of potential impacts to these radar systems or information demonstrating the absence of likely significant effects and agreement with relevant consultation bodies.*	Impacts on civil and military radar, and aviation and defence interests are assessed in **section 11.11**. This ES sets out the location of PSR and SSR systems including an assessment of potential impacts to these radar systems or information demonstrating the absence of likely significant effect. The statutory consultation response from NATS anticipated no impact to the St Anne's PSR and therefore has been scoped out of assessment. (NATS response, 16 October 2023 below).
12 August 2022	Planning Inspectorate – Scoping	Mitigation measures: *It is noted that the measures listed include appropriate lighting and marking of the OSPs and the Morgan offshore booster station. Unless otherwise agreed with relevant stakeholders, including the MOD, the ES should explain how the Proposed Development would be fitted with MOD accredited aviation safety lighting in accordance with the Civil Aviation Authority Air Navigation Order 2016.*	The OSPs and Morgan offshore booster station have been removed therefore this is no longer required. Measures to address appropriate lighting and marking of OSPs is included within the Morecambe Offshore Windfarm: Generation Assets ES and the Morgan Offshore Wind Project: Generation Assets ES.
12 August 2022	NATS – Scoping	As noted in the Scoping Report, the NATS radar station at St. Annes lies within the Transmission Area Scoping Boundary. NATS is pleased to note that the developer has identified this as a risk and is committed to working with us to manage the construction process in particular.	Noted. Scoped out (NATS response, 16 October 2023, below).

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
12 August 2022	MOD – Scoping	The Proposed Development site occupies the statutory height and technical safeguarding zones of Warton Aerodrome that ensure air traffic approaches and the line of sight of navigational aids and transmitters/receivers are not impeded. The airspace above and around aerodromes is safeguarded to maintain an assured, obstacle free environment for aircraft manoeuvre.	Impacts on civil and military OLS and CNS are assessed in **section 11.11**. The Onshore Order Limits and Intertidal Infrastructure Area lie beyond the CNS and the runway safeguarded area of BAE Systems Warton Aerodrome; over 2.5 km from the runway strip. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Warton Aerodrome OLS Inner Horizontal Surface but construction equipment (in the Construction Phase) and remaining above surface infrastructure (in the Operation and Maintenance Phase) will not penetrate the surface ceiling. Therefore, BAE Systems Warton (Aerodrome) has been scoped out (**Table 11.10**).
8 December 2022	Blackpool Council – Scoping	Blackpool Airport lies to the south of Blackpool and straddles Blackpool and Fylde Borough Council's administrative boundaries. As such, in terms of Aerodrome and Air Navigation Safety, the following matters require further details. • Details are required on possible electro-magnetic interference on the navigation aids at the Airport from the cables and other equipment which may impact these sensitive navigation aids. • Height of all structures and construction equipment to consider impact on airspace.	Potential EMF interference and structure height impacts on civil CNS are assessed in **section 11.11**. The Applicants are discussing and closely engaged with Blackpool Airport. Further work will be undertaken at detailed design, including as a part of the CAP 791 process (CoT105). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate or avoid potential impacts. This would be a pre-requisite to any CAP 791 approvals relating to any airside construction activities within Blackpool Airport.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
			Hazard identification and risk assessment is in line with the guidance within CAP 791.
8 December 2022	Blackpool Council – Scoping	The ES should provide further details considering the potential impact upon future development at the Enterprise Zone and Blackpool Airport.	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets have been assessed in **section 11.11**. Further work will be undertaken at detailed design, including as a part of the CAP 791 process (CoT105). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate or avoid potential impacts. This would be a pre-requisite to any CAP 791 approvals relating to any airside construction activities within Blackpool Airport Further details considering the potential impact upon future developments at the Enterprise Zone and Blackpool Airport can be found in Volume 3, Chapter 6: Land use and recreation of the ES, and Volume 4, Chapter 2: Socio-economics of the ES.
8 December 2022	MCA – Scoping	Particular consideration will need to be given to the implications of the location of the booster station on Search and Rescue (SAR) resources and Emergency Response Co-operation Plans .	The OSPs and Morgan offshore booster station have been removed from the scope of the Transmission Assets application.
8 December 2022	Isle of Man (IoM) Government – Scoping Response	We would request that the impact on infrastructure aviation interests, including airport radar issues are also fully considered.	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets have been assessed in **section 11.11**.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
			The Applicants are fully engaged with IoM Government through the Territorial Sea Committee.
8 December 2022	Isle of Man (IoM) Government – Scoping Response	SAR Helicopter Operations to be considered. SAR within the UK is coordinated by the MCA, with other organisations providing declared assets to undertake SAR operations. The MCA provides a coordination service for SAR, The Caernarfon SAR helicopter base is the closest to the Transmission Assets.	The OSPs and Morgan offshore booster station have been removed from the application; helicopter SAR operations have been scoped out (**Table 11.10**). The Applicants are fully engaged with IoM Government through the Territorial Sea Committee.
8 December 2022	Isle of Man (IoM) Government – Scoping Response	It is noted that in this instance, with the specific project relating only to the transmission assets, Ronaldsway Airport has not been included in the list of impacted parties in Table 9.7 on page 331. As most of the transmission assets would be under water or on land on the mainland, this should not affect Ronaldsway, however, the specification of the offshore substation platforms (see page 46) are significant with the main structure to a height of 75 m and top of antenna structure to 125 m. As the sites for these are not yet confirmed, the Territorial Sea Committee would request that Ronaldsway Airport continued to be engaged as this project progresses to ensure there is to be no detrimental impact to the radars from the substations.	Ronaldsway (IoM) Airport to be kept informed, particularly regarding siting of infrastructure. The OSPs and Morgan offshore booster station have been removed from the application (**Table 11.10**). The Applicants are fully engaged with IoM Government through the Territorial Sea Committee.
16 October 2023	NATS (Safeguarding Office) – s42 Response	We refer to the consultation below. NATS owns and operates the St. Annes radar station. This site is part of the national critical infrastructure and supports the provision of Air Traffic Services to various users in the UK. NATS notes that the site has been scoped out of the DCO. Accordingly, other than raising awareness and advising due care in respect of the power connection to the site, NATS	The Applicants acknowledge this response and NATS St Annes radar station has been scoped out.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		anticipates no impact from the proposal and has no comments on the DCO application.	
22 November 2023	Fylde Council – s42 Response	There is also potential for impacts from Electromagnetic Fields to adversely impact upon air navigation aids. It is noted that the proposed cable route runs in close proximity to both Blackpool Airport and Warton Aerodrome and the proposed substations sit beneath the approach to the main runway at Blackpool Airport and are relatively close to BAE System's Warton site. Both airfields contain active runways where such navigation aids are critical to their safe continued operation. In turn these sites provide a significant economic benefit to the borough and so any potential impact on air navigation and air safety must be ruled out to the satisfaction of the operators of those facilities.	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets have been assessed in **section 11.11**. Further work will be undertaken at detailed design, including as a part of the CAP 791 process (CoT105). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate or avoid potential impacts. This would be a pre-requisite to any CAP 791 approvals relating to any airside construction activities within Blackpool Airport. BAE Systems Warton (Aerodrome) has been scoped out. The Onshore Order Limits and Intertidal Infrastructure Area lay beyond the CNS safeguarded areas and beyond the runway safeguarded area. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Aerodrome OLS Inner Horizontal Surface but construction equipment (in the Construction Phase) and remaining above surface infrastructure (in the Operation and Maintenance Phase) will not penetrate the surface ceiling.
23 November 2023	Cllr Michelle Norris (of Fylde Council) – s42 Response	The impact from the electromagnetic fields would affect both Blackpool airport which is looking to reintroduce commercial flights and Warton Aerodrome used by BAE. Both these airfields bring a huge economic benefit to the area and air safety is the utmost priority for both these sites. BAE are	EMF interference effects arising from the operations and maintenance phases of the Transmission Assets have been assessed in **section 11.11**.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		expanding their workforce at a significant rate and many of their staff live not only in Warton but nearby Freckleton an area you want to dig up to lay your cables.	Further work will be undertaken at detailed design, including as a part of the CAP 791 process (CoT105). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate or avoid potential impacts. This would be a pre-requisite to any CAP 791 approvals relating to any airside construction activities within Blackpool Airport. BAE Systems Warton (Aerodrome) has been scoped out. The Onshore Order Limits and Intertidal Infrastructure Area lay beyond the CNS safeguarded areas and beyond the runway safeguarded area. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Aerodrome OLS Inner Horizontal Surface but construction equipment (in the Construction Phase) and remaining above surface infrastructure (in the Operation and Maintenance Phase) will not penetrate the surface ceiling.
23 November 2023	Ørsted Burbo Bank – s42 Response	Helicopter activity It is difficult to quantify the level of impact of helicopter usage during the construction and operation of the Morgan and Morecambe Transmission Assets. It is noted that the PEIR highlights that there may be three helicopter supports completing 180 return trips during installation works. No heliport site(s) or transit route(s) have been identified within the PEIR documentation. We request that more information on this is provided so we can properly understand and respond to the potential impacts and mitigations being proposed.	Volume 1 Chapter 3: Project Description of the ES anticipates that during the offshore Morgan Transmission Assets construction phase (over 18 months in a concurrent scenario or 30 months in a sequential scenario) there will be a maximum of one helicopter on site at any one time involving 20 return supply flights. The offshore Morecambe Transmission Assets construction phase will not employ helicopter support.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
			The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).
23 November 2023	Ørsted Burbo Extension Ltd – s42 Response	Helicopter activity It is difficult to quantify the level of impact of helicopter usage during the construction and operation of the Morgan and Morecambe Transmission Assets. It is noted that the PEIR highlights that there may be three helicopter supports completing 180 return trips during installation works. No heliport site(s) or transit route(s) have been identified within the PEIR documentation. We request that more information on this is provided so we can properly understand and respond to the potential impacts and mitigations being proposed.	Volume 1 Chapter 3: Project description of the ES anticipates that during the offshore Morgan Transmission Assets construction (over 18 months in a concurrent scenario or 30 months in a sequential scenario) there will be a maximum of one helicopter on site at any one time involving 20 return supply flights. The offshore Morecambe Transmission Assets construction phase will not employ helicopter support. The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).
23 November 2023	Walney (UK) Offshore Windfarms Ltd – s42 Response	Helicopter activity It is difficult to quantify the level of impact of helicopter usage during the construction and operation of the Morgan and Morecambe Transmission Assets. It is noted that the PEIR highlights that there may be three helicopter supports completing 180 return trips during installation works. No heliport site(s) or transit route(s) have been identified within the PEIR documentation. We request that more information on this is provided so we can properly understand and respond to the potential impacts and mitigations being proposed.	Volume 1 Chapter 3: Project Description of the ES anticipates that during the offshore Morgan Transmission Assets construction phase ((over 18 months in a concurrent scenario or 30 months in a sequential scenario) there will be a maximum of one helicopter on site at any one time involving 20 return supply flights. The offshore Morecambe Transmission Assets construction phase will not employ helicopter support. The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
22 November 2023	Ørsted West of Duddon Sands Ltd – s42 Response	Helicopter activity It is difficult to quantify the level of impact of helicopter usage during the construction and operation of the Morgan and Morecambe Transmission Assets. It is noted that the PEIR highlights that there may be three helicopter supports completing 180 return trips during installation works. No heliport site(s) or transit route(s) have been identified within the PEIR documentation. We request that more information on this is provided so we can properly understand and respond to the potential impacts and mitigations being proposed.	Volume 1 Chapter 3: Project description of the ES anticipates that during the offshore construction phase for the Morgan Offshore Wind Project: (over 18 months in a concurrent scenario or 30 months in a sequential scenario) there will be a maximum of one helicopter on site at any one time involving 20 return supply flights. The offshore construction phase for the Morecambe Offshore Windfarm: Transmission Assets will not employ helicopter support. The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).
22 November 2023	Marine Management Organisation (MMO) – s42 Response	Volume 4 Chapter 2: Aviation and Radar 16.1. MMO defers to and supports the Civil Aviation Authority and Ministry of Defence regarding the potential impacts on shipping and navigation that may occur because of the Projects.	The Applicants welcome the MMOs engagement and response.
23 November 2023	Spirit Energy – s42 Response	Further work is required between parties to ensure Spirit can undertake safe helicopter operations in all environmental conditions throughout the proposed development. The development in such proximity to the platforms could result in compromised ability to access the offshore installations and/or an inability to meet regulatory requirements for safe platform approach.	The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).
23 November 2023	Spirit Energy – s42 Response	Of the two proposed Morgan Booster Station sites, the site proposed to the East of the Morecambe Wind Farm could introduce less impact risk on the Spirit Energy Production UK Limited ("Spirit") infrastructure and the aviation and	The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		operational interactions between South Morecambe, DP6 and Calder platforms, however both proposed locations introduce risks given proximity to Spirit's existing operations which will need to be understood and considered.	
23 November 2023	Spirit Energy – s42 Response	There has been limited engagement and consultation with Spirit to date on bpEnBW transmission asset plans in order for Spirit to determine if the offshore booster locations will have an additional impact on aviation operations.	The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).
23 November 2023	Spirit Energy – s42 Response	En-route obstacles, such as a booster platform, to the CPP1 and Calder platforms may result in inability to operate flights in Instrument Meteorological Conditions with the Airborne Radar Approach approach to the CPP1 platform helidecks. This will result in only VFR operations for the CPP1 and Calder platforms, which will result in a significant reduction of available flights per year. Close proximity of the offshore booster station to the CPP1 platform may result in the additional restrictions imposed for the platform helidecks approach sectors over and above those introduced as a result of the proposed Morecambe Offshore Windfarm: Generation Assets. This will restrict platform operations and some approach sectors will be prohibited. Offshore booster station exact location is crucial to understand the impact.	The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).
23 November 2023	Spirit Energy – s42 Response	Spirit Energy Production UK Limited ("Spirit") has a lease in place with Blackpool Airport Properties Limited which is scheduled to run until 31 October 2035. Pursuant to the lease, Spirit leases a terminal building, an aircraft maintenance hangar and car parking facilities (the "Leased Facilities") at Blackpool Airport all of which it uses to facilitate helicopter flights for its workforce, and occasional emergency spare parts, to its petroleum production assets located offshore in Morecambe Bay (the "Morecambe Fields"). It is noted that the Leased Facilities, and also the	The Leased Facilities are outside the Order Limits except for the normal aerodrome access route that runs across the Leased Facilities, which will be utilised only during the operation and maintenance phase by one vehicle per week. The effect is scoped out. Engagement with the helicopter operator facilitating support to petroleum production assets, from the Leased Facilities, located

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		wider airport facilities surrounding the Leased Facilities, are included within Morgan/Morecambe Transmission Corridor. Should Spirit's ability to use and/or access (whether by vehicle, foot or flying/taxiing aircraft) either: (i) any of the Leased Facilities; or (ii) the wider Blackpool Airport Facility (particularly the air traffic control tower, runway and taxiways between the Leased Facilities and the airport runway); be restricted, either temporarily or permanently, this will impact Spirit's ability to use helicopters to access the Morecambe Fields and may prevent Spirit operating the Morecambe Fields in a safe and economic manner.	offshore in Morecambe Bay will be through Blackpool Airport Operations Ltd.
23 November 2023	Spirit Energy – s42 Response	Spirit Energy Production UK Limited ("Spirit") has undertaken some initial work, along with Harbour Energy, the owner of the nearby Calder platform, and it has been determined that would be a requirement for a minimum of 3.3 nautical mile radius of unobstructed airspace around each offshore facility/platform to ensure safe helicopter operations. Each facility/platform would also require a straight unobstructed 2 nautical mile wide corridor and this would need to be taken into consideration when designing and locating the offshore substations and booster stations. It is a requirement for Spirit to fly between the CPP1 platform and the nearby Normally Unmanned Installations ("NUIs") to maintain operations on a daily basis with flights being able to operate in all environmental conditions between: (i) the mainland to offshore installations; and (ii) offshore installation to offshore installation. Helicopter access is required at all times when personnel are on board as a primary means of escape in the event of an emergency. Further work would be required between parties to develop a layout plan that wouldn't impact Spirits ability to conduct safe commercial aircraft transport operations to and from offshore helidecks ensuring full compliance with the Health	The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**).

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		and Safety Executive Prevention of fire and explosion, and emergency response on offshore installations ("PFEER") regulations. An impact assessment on Offshore SAR operations will also be required. Spirit will need to ensure that bpEnBW plans for offshore substations and booster stations take into account aviation requirements as to not impede safe Morecambe Hub asset operations, including future decommissioning requirements. Spirit requests that bpEnBW consult with Spirit directly regarding to proposed booster station location plans due to the proximity of the existing infrastructure helidecks to both the proposed booster station search areas.	
23 November 2023	Spirit Energy – s42 Response	Aviation operations between CPP1 and Calder platforms are performed on the direct ,straight line route and if the offshore booster platform proposed to be located West of the CPP1 platform, operations between the CPP1 platform and the Calder platform will have to be re-assessed. Flying operations in Instrument Meteorological Conditions in the close proximity of turbines is not permitted under UK Civil Aviation Authority regulations and UK aviation providers operations manuals.	This comment is no longer considered to be relevant to this application. The requirement for the Morgan offshore booster station has been removed from the application.
23 November 2023	Spirit Energy – s42 Response	Emergency Response: As development progresses, Spirit Energy Production UK Limited ("Spirit") would like to understand the emergency response impact due to increased activities and infrastructure in the area and how Spirit's existing emergency response plans and safety case are impacted by the introduction of these new activities. It will also be necessary for Spirit to have sight of the developers' emergency response plans in order that all parties have clarity regarding plans to co-exist together in proximity. Emergency escape and evacuation from the Spirit assets needs to be considered to understand any impacts there could be on the ability of the and Emergency Rescue and	The OSPs and Morgan offshore booster station have been removed from the application; helicopter operations have been scoped out (**Table 11.10**). This comment is no longer considered to be relevant to this application.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		Recovery Vessels (""ERRVs"") to provide direct assistance in coordinating escape and evacuation, including potential retrieval of personnel. The area in and around where it is proposed to construct the transmission assets is already congested with emergency evacuation of existing installations via Lifeboats to a safe haven restricted due to the number of windfarms already in the surrounding area and this should be taken into consideration in determining final location for the transmission assets.	
23 November 2023	Spirit Energy – s42 Response	With this increased level of activity in the area there will be considerable simultaneous operation planning required between existing infrastructure owner activities and wind farm development activities. Spirit has been engaging with OWL on their generation and transmission plans for several years now. Spirit will continue to work openly with OWL to share information and extends this invitation to bpEnBW regarding transmission asset development.	The Applicants welcome Spirit's engagement and proactive approach to the Transmission Assets regional planning and development and is continuing to engage with offshore hydrocarbon industries.
23 November 2023	BAE Systems – s42 Response	Subject: Representations to the Morgan and Morecambe Offshore Wind Farms: Transmission Assets Consultation We act for BAE Systems and would like to take the opportunity to submit the following important representations to the consultation. BAE Systems also requests that the Applicants continue to involve the company as the project is developed. The representations relate to the potential for impacts on the operations of BAE Systems at Warton Aerodrome. The impacts could arise at the operational and construction stages of the project when there is potential to affect air safety. They could also arise following incidental aspects of the project such as changes to habitats near to the Aerodrome.	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets have been assessed in **section 11.11**. The Applicants welcome BAE Systems' engagement and proactive approach to the Transmission Assets planning and development and will engage with both the MOD and BAE Systems where required. BAE Systems Warton (Aerodrome) has been scoped out. The Onshore Order Limits and Intertidal Infrastructure Area lay beyond the CNS safeguarded areas and beyond the runway safeguarded area. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Aerodrome OLS Inner Horizontal Surface but construction equipment (in the

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		Before explaining the potential for impacts on the operation of the Aerodrome it is important to understand the significance of the facility. Warton Aerodrome Warton Aerodrome is a UK strategic asset supporting the UK and international partners with national and international defence. The Aerodrome is licensed by both the CAA and Military Aviation Authority. Under the terms of the license the Aerodrome must be regulatory compliant. The aerodrome complies with the following CAA publications: CAP 168, 772, 738. These are specific in relation to planning in and around the Aerodrome and the management of habitat and wildlife. In addition to these (and other regulatory articles), the Aerodrome is technically safeguarded by the MOD, Defence Infrastructure Organisation. The MOD/Defence Infrastructure Organisation are governed by statute with regards to the technical safeguarding of Warton Aerodrome and are a mandatory consultee for any matters that may affect the safe operation of flying aircraft/platforms. Statutory and Offshore Team Considerations MOD safeguarding involves the MOD as a statutory consultee in the UK planning system to ensure designated zones around key operational defence sites such as aerodromes, explosive storage sites, air weapon ranges, technical sites and meteorological radar sites are not adversely affected by development outside of the MOD estate. The MOD is also a consultee for the licensing of marine developments and the extraction of hydrocarbon resources in the UK continental shelf area, to ensure that offshore developments and activities do not affect strategic defence interests or inhibit the use of designated danger and exercise areas supporting military training and weapon trials.	Construction Phase) and remaining above surface infrastructure (in the Operation and Maintenance Phase will not penetrate the surface ceiling.

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		The statutory and offshore team assesses development proposals in consultation with relevant defence stakeholders and formulates the MOD's position. Wherever impacts on defence interests are identified, the team seeks mitigation measures to overcome them so that the development can proceed. The statutory and offshore team also engage in the preparation of development plans governing both onshore and offshore development to ensure MOD safeguarding interests are appropriately recognised and taken into account. Generally, both construction activity and operational development within a six-kilometre radius of the Aerodrome will need to be assessed so as to demonstrate the degree of impact on the assets at the Aerodrome (a safeguarding assessment). This will need to include all aspects of construction, including the use of high cranes. Aerodrome Safeguarding is in place to ensure the safety of aircraft manoeuvring on the ground, taking off, landing or flying in the vicinity of the Aerodrome. BAE Systems needs to be assured that no aspect of the project will affect the safe operation and development of Warton Aerodrome. This includes a demonstration that the substations will not affect the Aerodrome OLS or radar and transmitter/receiver aerial surfaces. There is also a 13 km radius wildlife zone. The Aerodrome at Warton needs to be consulted on any developments that have the potential to attract wildlife. Birds are the main concern, particularly large, over-wintering birds. In relation to this, BAE Systems have initial concerns about the proposal to develop an '*Onshore and Intertidal Net Gain Enhancement Plan*' to identify areas where biodiversity net gain is proposed. This will include details of the measures proposed, including details of any enhancement measures proposed for waterbirds." (Preliminary Environmental	

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		Information Report Non-Technical Summary, October 2023). BAE Systems is particularly concerned about any enhancement measures in the wildlife zone that will increase the attractiveness of the area for birds (including new areas of standing water) as this has significant potential to negatively affect air safety."	
23 November 2023	Blackpool Airport – s42 Response	Consultation on Morgan and Morecambe Offshore Wind Farms: Transmission Assets Introduction We act on behalf of Blackpool Airport Enterprise Zone and Blackpool Council (the owners of Blackpool Airport) and have been instructed to provide a formal response to the Consultation on Morgan and Morecambe Offshore Wind Farms: Transmission Assets. In doing so we have reviewed the consultation documents provided to us. In making these comments it should be noted that the Airport and all of its safety assurance processes must take priority in any decisions made in respect to a proposed route across the site. In this respect, this includes but is not limited to an understanding that the airport cannot be closed for any period of time to accommodate the transmission assets of the windfarm development. Background to the Enterprise Zone In November 2015, Enterprise Zone status was approved for the wider Airport site, coming into force from April 2016. The Enterprise Zone status is valid for 25 years and in line with national policy on Enterprise Zones, business incentives are available. Following operational commencement of the Enterprise Zone, a Memorandum of Understanding (MoU) was agreed between the then Secretary of State for Communities and Local Government, Blackpool Borough Council, Fylde Borough Council and the Lancashire Local Enterprise	Impacts arising from the construction, operations and maintenance and decommissioning phases of the Transmission Assets have been assessed in **section 11.11**. The Applicants welcome Blackpool Airport's engagement. The Applicants are working closely with Blackpool Airport and the Enterprise Zone to address their concerns in reducing the potential adverse effects to flight operations and to find a workable solution for all parties. Further work will be undertaken at detailed design, including as a part of the CAP 791 process (CoT105). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate or avoid potential impacts. This would be a pre-requisite to any CAP 791 approvals relating to any airside construction activities within Blackpool Airport

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		Partnership (LEP). The MoU states that with respect to capital expenditure which can be funded by retained business rates growth this will include: • relocation of critical Operational Airport Infrastructure – including control tower, apron, fire station, taxiway, fuel farm facilities and radar. The Enterprise Zone is also looking to target a wide range of sectors, including food and drink manufacturers, energy, aviation, creative and digital, advanced manufacturing and professional services. It is envisaged within the Enterprise Zone Delivery Plan that the Enterprise Zone status will attract over 280 no. new businesses and create circa. 5,000 no. new jobs over its lifespan, in addition to the existing businesses and employees already based on the site. 55% of the Enterprise Zone is located within Fylde and 45% in Blackpool. Blackpool Council is the major freehold landowner at the Airport and Enterprise Zone following the purchase of the Airport in September 2017. In total, the Enterprise Zone extends to 144 hectares of land. Over its lifetime, it is expected that it will: • support 5,000 no. new jobs; • attract £300 million + of private sector investment; • generate a cumulative Gross Value Added total over the first five years of £232 million and £2.08 billion over the Enterprise Zone's lifetime; • assist in the diversification of the local economy, which relies heavily upon tourism and the public sector; and • seek a sustainable future for Blackpool Airport.	
23 November 2023	Harbour Energy – s42 Response	Figure 4.19 of Volume 1 of the PEIR sets out the current search areas for the Morgan Offshore Substation. Section 4.9.3.2 of Volume 1, Chapter 4 of the PEIR identifies that the location of an offshore booster station (if required) within	The OSPs and Morgan offshore booster station have been removed from the

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
		the search areas will be determined during the design phase (typically post-consent). Figure 4 below shows the location of the search areas relative to the Calder platform. Some locations within the west search areas would place the offshore substation within 6.1 km (3.3 nm) of the Calder platform. Depending on the height of the offshore substation this may not impose any restrictions on helicopter operations to/from Calder but further consultation and appropriate protective provisions will be required.	application; helicopter operations have been scoped out (**Table 11.10**).
11 June 2024	Blackpool Airport Operations Ltd (BAOL) – In Person Meeting (Blackpool Council Offices)	Discussion of works on the aerodrome. Including: • construction methodology; and • potential impacts to Navigation Aids (NAVAID). •	The Applicants welcome BAOL's engagement and is setting in place processes and procedures, in line with the CAAs regulatory expectation (CAP 791: *Procedures for changes to aerodrome infrastructure*) for on-aerodrome works and the Airport's Safety and Airport's Safety Management System (SMS). The Applicants are working closely with Blackpool Airport and the Enterprise Zone to address their concerns. Further work will be undertaken at detailed design, including as a part of the CAP 791 process (CoT105). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate or avoid potential impacts. This would be a pre-requisite to any CAP 791 approvals relating to any airside construction activities within Blackpool Airport
27 June 2024	BAOL – Virtual Meeting	Discussion of potential effects to NAVAID.	The Applicants welcome BAOL's engagement and is setting in place processes and procedures, in line with the CAAs regulatory expectation (CAP 791: *Procedures for*

Date	Consultee and type of response	Comments raised	Response to comment raised and/or where considered in this chapter
			changes to aerodrome infrastructure) for on-aerodrome works and the Airport's Safety and Airport's SMS.
3 July 2024	BAOL Engineering - In Person Meeting (Blackpool Airport)	Preliminary discussion regarding Blackpool Airport SMS risk review and CAP791 process for the on-aerodrome works.	The Applicants welcome BAOL's engagement; and alignment of Volume 1 Chapter 3: Project description of the ES activity with Blackpool Airport's SMS and CAA requirements in CAP791.
15 July 2024	BAOL - In Person Meeting (Blackpool Airport)	Construction works overview workshop.	The Applicants welcome BAOL's engagement.
30 July 2024	BAOL - Virtual Meeting	CAA CAP791 Co-ordination	The Applicants welcome BAOL's engagement and is setting in place processes and procedures, in line with the CAAs regulatory expectation (CAP 791: *Procedures for changes to aerodrome infrastructure*) for on-aerodrome works and the Airport's Safety and Airport's SMS.
12 August 2024	BAOL - Virtual Meeting	CAA CAP791 Co-ordination	The Applicants welcome BAOL's engagement and is setting in place processes and procedures, in line with the CAAs regulatory expectation (CAP 791: *Procedures for changes to aerodrome infrastructure*) for on-aerodrome works and the Airport's Safety and Airport's SMS.

11.3.3.2 Following scoping, engagement with interested parties specific to aviation and radar is continuing.

11.3.3.3 A summary of the key comments raised during engagement activities undertaken to date is presented in **Table 11.5**, together with how these issues have been considered in the production of the ES chapter.

11.4 Study area

11.4.1.1 The scope of this chapter relates to the onshore and intertidal elements of the Transmission Assets including the following.

- Transmission Assets Order Limits: Onshore: The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning. Also referred to in this report as the Onshore Order Limits, for ease of reading.
- Intertidal Infrastructure Area: The temporary and permanent areas between MLWS and MHWS.

11.4.1.2 As set out in **paragraph 11.1.1.4**, no sea piercing offshore elements are proposed as part of the final application.

11.4.1.3 The study area includes all land within the Onshore Order Limits, the Intertidal Infrastructure Area and the airspace encompassing an area of 15 km from this boundary. Flight operations are vulnerable to disruption by obstacles of vertical extent, within 15 km (CAPs 168, 738 and 764) of an Aerodrome Reference Point; however, the Transmission Assets are primarily construction works, direct pipe, underground cabling or low height above ground substations.

11.4.1.4 The above study area is presented on Figure 11.1 of Volume 3, Figures of the ES.

11.5 Baseline methodology

11.5.1 Methodology for baseline studies

Desk studies

11.5.1.1 A comprehensive desk-based review was undertaken to inform the baseline for aviation and radar. The existing studies and datasets referred to as part of the desk-based review are summarised in **Table 11.6** below.

Table 11.6: Summary of desk study sources used

Title	Source	Year	Author	Notes
CAP 032 – UK IAIP	CAA	2024	CAA	Contains information, updated every 28 days, of lasting (permanent) character essential to air navigation. • Appropriate information about the site construction and any associated lighting (where applicable), for example the height and temporary location of construction cranes, should be provided to the NATS Aeronautical Information Service (for promulgation in CAP 032, the UK IAIP).
CAP 168 – Licensing of Aerodromes	CAA	2022	CAA	Sets out the standards required at UK licensed aerodromes relating to their management systems, operational procedures, physical characteristics, assessment and treatment of obstacles and visual aids.
CAP 670 – Air Traffic Services Safety Requirements	CAA	2019	CAA	Sets out the safety regulatory framework and requirements associated with the provision of an ATS.
CAP 738 – Safeguarding of Aerodromes	CAA	2020	CAA	Sets out the safety regulatory framework and requirements, advice and guidance to operators involved in the process of 'aerodrome safeguarding' and assist Aerodrome Operator's understanding of, and compliance with the requirements laid down in: • ICAO Annex 14 Volume I, Aerodrome Design and Operations; • EU Regulation (EU) 2018/1139, Regulation (EC) No 1108/2009, COMMISSION REGULATION (EU) No 139/2014; and • UK CAP 168 Licensing of Aerodromes.
CAP 764 – Policy and Guidelines on Wind Turbines	CAA	2016	CAA	Aids aviation stakeholders to help understand and address wind energy related issues thereby ensuring greater consistency in the consideration of the potential impact of proposed wind farm developments.
CAP 785B – Implementation and Safeguarding of IFP in the UK	CAA	2022	CAA	IFPs are regulated in the UK through the oversight of Approved Procedure Design Organisations and the approval of IFP design before their implementation in the UK AIP. The specific requirements for the development and approval of IFP designs, and the delivery of safeguarding services are published in this publication.
CAP 791 – Procedures for Changes to Aerodrome Infrastructure	CAA	2016	CAA	Guidance on the procedures to be used to notify the CAA of changes at an aerodrome, covering both infrastructure and management system changes in accordance with EU and National Regulations.

Title	Source	Year	Author	Notes
MOD – MilAIP	MOD	2024	Military Aviation Authority	The main resource for information and flight procedures at all military aerodromes as well as airspace, en-route procedures, charts and other air navigation information.
MCA – MGN 654	MCA	-	MCA	Safety of Navigation OREIs. • Guidance on UK Navigational Practice, Safety and Emergency Response: Contains information for operators and developers in formulating their emergency response plans and site safety management.
AOA – Aerodrome Safeguarding	AOA	2016	AOA	Advice Notes 1, 2, 4 and 5.

11.6 Baseline environment

11.6.1 Desk study

11.6.1.1 In addition to the review of existing datasets (**section 11.2**); other sources are summarised at **Table 11.7**.

Table 11.7: Summary of other desk study sources used

Title	Source	Year	Author	Notes
CAA VFR – Charts	NATS	2022	CAA/NATS	VFR Low Altitude (Flight Information) Chart
CAP 772 – Wildlife Hazard Management at Aerodromes	CAA	2017	CAA	Provides guidance to assist aerodrome operators in establishing and maintaining an effective Bird Control Management Plan, including the measures necessary to assess the birdstrike risk at the aerodrome, and the identification of appropriate action to minimise that risk. The management of the risk of birdstrikes defined in an aerodrome Bird Control Management Plan should be an integral part of that aerodrome's safety management culture and its Safety Management System (SMS).
MOD – En Route Low Altitude	MOD	2024	Military Aviation Authority	MilAIP En Route Low Altitude (Flight Information) Chart UK(L)2.
Blackpool Airport Enterprise Zone (BAEZ) Masterplan	Blackpool, Fylde and Wyre Economic Development Company	2018	BE Group	This report serves as the final Masterplan document, which explains the process which has been undertaken in constructing the Masterplan, and the decisions and areas of consideration which have been included in the development.

Title	Source	Year	Author	Notes
BAEZ Masterplan - Summary	Lancashire Enterprise Partnership	-	Abridged version of the Baseline Study and Masterplan published by Mott MacDonald	

11.6.1.2 The Transmission Assets will be located within the study area as shown in Figure 11.1 (see Volume 3, Figures), within Class G uncontrolled airspace. The following paragraphs describe the baseline environment within, and around, the Transmission Assets Order Limits, within which the onshore export cable corridor, 400 kV grid connection cable corridor, and onshore substations would be located (Figure 11.2, Volume 3, Figures).

Civil aviation

11.6.1.3 HMRs support the transport of personnel and equipment to offshore oil and gas installations. HMRs are routes typically and routinely flown by helicopters operating to and from offshore destinations and are promulgated for the purpose of signposting concentrations of helicopter traffic to other airspace users. HMRs have no airspace status and assume the background airspace classification within which they lie (Class G for the Transmission Assets).

11.6.1.4 In order to maintain a safe operating environment, the CAA CAP 764 Policy and Guidance on Wind Turbines (CAA, 2016) recommends a consultation zone of 9 nm radius around offshore installations serviced by helicopters. This consultation zone is not considered a prohibition on development, but a trigger for consultation between offshore helicopter operators, the operators of existing installations and developers of proposed offshore wind farms, in order to determine a solution that maintains safe offshore helicopter operations.

Civil and military radar

11.6.1.5 Onshore elements of the Transmission Assets comprise stationary low height, surface infrastructure (or below ground cables). There is no sea surface piercing infrastructure associated with the offshore elements of the Transmission Assets.

Aerodromes

11.6.1.6 The Onshore Order Limits include Blackpool Airport and are approximately 15 km to the boundary of Warton Aerodrome, Figure 11.1 (see Volume 3, Figures).

Airborne search and rescue operations

11.6.1.7 The SAR helicopter force provides constant SAR cover in the UK from ten bases located across the UK with the closest SAR base to the study area being at Caernarfon Airport, Gwynedd, at range of approximately 70 km.

Military aviation

Military Practice and Exercise Areas (PEXA)

11.6.1.8 There is no Military PEXA in the study area.

11.6.2 Future baseline conditions

11.6.2.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 require that '*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*' is included within the ES. This section provides an outline of the likely future baseline conditions in the absence of the Transmission Assets.

11.6.2.2 It is difficult to define what the likely future evolution of the aviation interests in the Irish Sea and Lancaster coastal plain will be either with, or in the absence of, the Transmission Assets. The airspace structure is unlikely to change significantly, as are operations at Blackpool Airport. The Blackpool Airport Enterprise Zone (BAEZ) Masterplan sets out the vision and future baseline for the Blackpool Airport which forms the west end of the BAEZ. The BAEZ Masterplan highlights that commercial passenger numbers are low and are unlikely to increase significantly due to the close proximity to three major regional airports and the main potential for future growth lies around offshore helicopter operations, aviation training, pleasure flying/general aviation, and private aircraft. The runway is excluded from the BAEZ, so as not to preclude future development of this for larger commercial aircraft.

11.6.2.3 Blackpool Airport operations might shift in focus to support offshore helicopter operations and greater business aviation support. Fundamentally, the aviation baseline and the vision for an operational shift in focus at Blackpool Airport, and associated BAEZ development, is unlikely to be affected or alter significantly.

11.6.3 Key receptors

11.6.3.1 **Table 11.8** identifies the receptors taken forward into the assessment and agreed with stakeholders through the consultation process, as presented in **section 11.3**. **Table 11.10** identifies the receptors, with reasoning, scoped out of the assessment.

Table 11.8: Key receptors taken forward to assessment

Receptor	Description	Sensitivity/value
Blackpool Airport	Airport of regional significance	Medium

11.7 Scope of the assessment

11.7.1.1 The scope of this ES has been developed in consultation with relevant consultee responses as detailed in **Table 11.5**. The scope of the assessment

considered the following in identifying the aviation and radar receptors relevant to the onshore and intertidal elements within the Transmission Assets study area (the study area is shown in Figure 11.1 (see Volume 3, Figures) and **Section 11.4)**. As stated in section **11.1.1.4**, the removal of the booster station, along with the removal of the offshore substation platforms, mean that there is no sea surface piercing infrastructure proposed for the Transmission Assets. Therefore, offshore receptors and impacts are scoped out of the assessment.

- Aerodromes, including flight procedures, within 15 km of the study area (in accordance with guidance within CAP 764):
  - other onshore aviation CNS infrastructure within 5 km of the study area (in accordance with guidance in CAP 738 and CAP 791).
- HMR (Indicator) within the study area (scoped out, **Table 11.10**).
- Low flying operations including Helicopter SAR activities (scoped out, **Table 11.10**).

11.7.1.2 Taking into account the scoping and consultation process, **Table 11.9** summarises the potential impacts considered as part of this assessment.

Table 11.9: Matters considered within this assessment

Activity	Impacts scoped into the assessment
Onshore	
Construction phase	
Impacts to Blackpool Airfield: Onshore construction activity (including temporary above surface structures (construction compounds and construction bays) at/near Blackpool Airport (impacts to airfield)	Effect upon airport OLS, runway protected surfaces, Instrument Landing System (ILS) and the DME. These effects could temporarily suspend flight operations over short periods, only when the weather is below visual flight minima, to a small number of commercial flight operations (Business Aviation and Offshore helicopter support at Blackpool Airport.
Operation and maintenance phase	
EMF effect of the onshore export cable (impacts to communication, navigation and surveillance as well as airfield infrastructure)	Effect upon NAVAIDs at Blackpool Airport that could interfere with the aids signal in space and provide erroneous flight guidance to aircraft.
Decommissioning	
Removal of cables (reversal of construction phase)	Decommissioning is likely to occur within construction working areas and to require no greater amount or duration of activity than assessed for construction.

11.7.1.3 Impacts that are not likely to result in significant effects have been scoped out of the assessment. A summary of the impacts scoped out, together with justification for scoping them out and whether the approach has been agreed with key stakeholders through either scoping or consultation, is presented in **Table 11.10.**

Table 11.10: Impacts scoped out of the assessment

Issue	Justification
Onshore	
NATS St Anne's PSR/SSR systems	
Onshore construction activity near NATS St. Anne's PSR/SSR systems (effect upon associated safeguarded areas and interruption to PSR/SSR operation)	See NATS (Safeguarding Office) response (16 October 2023) consultation table (**Table 11.5**) NATS owns and operates the St. Annes radar station. NATS anticipates no impact from the proposal and has no comments on the DCO application. Accordingly, other than raising awareness and advising due care in respect of the power connection to the site. Therefore, this onshore receptor is scoped out.
DCSA Inskip	
Onshore construction activity near DCSA Inskip (effect upon associated safeguarded areas and interruption to transmitter/receiver aerial operations)	The Onshore Order Limits and Intertidal Infrastructure Area are beyond/outside the DCSA Inskip safeguarded areas. Therefore, this onshore receptor is scoped out.
Onshore construction activity near BAE Systems Warton (effect upon associated safeguarded areas, OLS and CNS equipment)	The Onshore Order Limits and Intertidal Infrastructure Area lie beyond the CNS safeguarded areas and beyond the runway safeguarded area; over 2.5 km from the runway strip. The Onshore Order Limits and Intertidal Infrastructure Area lie below the Aerodrome OLS Inner Horizontal Surface but construction equipment (in the Construction Phase) and remaining above surface infrastructure (in the Operation and Maintenance Phase) will not penetrate the surface ceiling. Therefore, this onshore receptor is scoped out. However, an outline wildlife habitat attractant risk assessment has been prepared as part of the wildlife hazard management plan and is contained in Annex 11.1
Woodvale Aerodrome	
Construction activity.	The aerodrome is located more than 15 km away from the Onshore Order Limits and Intertidal Infrastructure Area, the limit of the safeguarded Outer Horizontal Surface of the safeguarded OLS for an aerodrome with a runway of 1,100 m (CAP 738), and thus, beyond any aerodrome protected surfaces. The aerodrome does not have safeguarded CNS assets. Therefore, this onshore receptor is scoped out.
Offshore	
Helicopter Activity	
Potential disruption to HMRs due to the presence of the OSPs and the Morgan offshore booster station.	The OSPs and Morgan offshore booster station have been removed from the application. The Transmission Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. Volume 1, Chapter 3:

Issue	Justification
Increased helicopter traffic within the Transmission Assets Order Limits may affect available airspace for other users.	Project description of the ES anticipates that during the offshore elements of the Morgan Transmission Assets construction phase there will be a maximum of one helicopter on site at any one time involving 40 return supply flights; a negligible amount in the Irish Sea airspace over that time period. The offshore element of the Morecambe Transmission Assets construction phase will not employ helicopter support. The Planning Inspectorate agrees the scope out within the Scoping Opinion. See Planning Inspectorate response (12 August 2022) consultation table (**Table 11.5**) Therefore, these offshore receptors are scoped out.
PEXA	
Potential disruption to military Practice and Exercise Area.	There are no aeronautical PEXAs overlapping the Transmission Assets Order Limits. The Planning Inspectorate agrees the scope out within the Scoping Opinion. See Planning Inspectorate response (12 August 2022) consultation table (**Table 11.5**) Therefore, this offshore receptor is scoped out.

11.8 Measures adopted as part of the Transmission Assets (Commitments)

11.8.1.1 For the purposes of the EIA process, the term 'Measures adopted as part of the Transmission Assets' is used to include the following types of mitigation measures (adapted from the Institute of Environmental Management and Assessment (IEMA), 2016). These measures are set out in the Commitments Register (Volume 1, Annex 5.3: Commitments register of the ES).

- Embedded mitigation. This includes the following.
  - Primary (inherent) mitigation - measures included as part of the project design. IEMA describes these as 'modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project and do not require additional action to be taken'. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the DCO and/or marine licences. For example, a reduction in footprint or height.
  - Tertiary (inexorable) mitigation. IEMA describes these as '*actions that would occur with or without input from the EIA feeding into the design process.* These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects'. It may be helpful to secure such measures through a Code of Construction Practice or similar.
- Secondary (foreseeable) mitigation. IEMA describes these as '*actions that will require further activity in order to achieve the anticipated outcome'*. These include measures required to reduce the significance of

environmental effects (such as lighting limits) and may be secured through an environmental management plan.

11.8.1.2 In addition, where relevant, measures have been identified that may result in enhancement of environmental conditions. Such measures are clearly identified within Volume 1, Annex 5.3: Commitments register of the ES. The measures relevant to this chapter are summarised in **Table 11.11**.

11.8.1.3 Embedded measures that will form part of the final design (and/or are established legislative requirements/good practice) have been taken into account as part of the initial assessment presented in **section 11.11** below (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures that the Applicants are committed to are taken into account in the assessment of effects.

11.8.1.4 Where an assessment identifies likely significant adverse effects, further or secondary mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by IEMA as actions that will require further activity in order to achieve the anticipated outcome and may be imposed as part of the planning consent, or through inclusion in the ES (referred to as secondary mitigation measures in IEMA, 2016). For further or secondary measures, both pre-mitigation and residual effects are presented.

Table 11.11: Measures (commitments) adopted as part of the Transmission Assets

Commitment number	Measure adopted	How the measure will be secured
Embedded measures		
CoT105	No construction works within the operational (i.e. airside) boundary of Blackpool Airport will commence until Civil Aviation Publication (CAP) 791 Parts 1 & 2 approval has been obtained from the Civil Aviation Authority (CAA) in connection with those works. Part 3 will be finalised on the CAA inspection of the completed works.	In consultation with Blackpool Airport and secured outside of the DCO process.

11.9 Key parameters for assessment

11.9.1 Maximum design scenario

11.9.1.1 The Maximum Design Scenarios (MDS) identified in **Table 11.12** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The project design encompasses two construction scenarios, for trenching or drilling activity along two cable routes across Blackpool Airport for the Morgan Offshore Wind Project: Transmission Assets and Morecambe Offshore Windfarm: Transmission Assets, to take place at the same time or over different time periods; concurrent or sequential scenarios. These scenarios are detailed in Volume 1, Chapter 3: Project description of the ES.

11.9.1.2 The MDS is one of sequential construction of Morgan Offshore Wind Project: Transmission Assets and Morecambe Offshore Windfarm: Transmission Assets on Blackpool Airport. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within Volume 1 Chapter 3: Project description of the ES (e.g., different infrastructure layout), to that assessed here be taken forward in the final design.

Table 11.12: Maximum design scenario considered for the assessment of impacts

Impact	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
Onshore trenching activity (impacts to airfield): Resulting in a physical obstruction within Class G (uncontrolled) airspace, potentially affecting aerodrome flight operations (technical safeguarded areas), OLS, and other protected surfaces.	✓	✓	✓	**Construction phase** **Landfall: Transition Joint Bays (TJBs)** • Entry pits for the direct pipe will be situated within the transition joint bay area within Blackpool Airport: The maximum number of entry pits will be six. The total duration of entry pit works which is included within the overall transition joint bay construction works is 29 months assuming a sequential construction scenario. • There will be two transition joint bay compounds (10,000 m^2 for Morgan and 10,000 m^2 for Morecambe) within Blackpool Airport to facilitate construction works, to be active for up to 29 months over a 45 month period. • Maximum working area of the transition joint bay: 4,900 m^2 for Morgan and 2,800 m^2 for Morecambe. Total working area: 7,700 m^2. **Landfall: Direct pipe** • The offshore export cables between the transition joint bay working area within Blackpool Airport and the beach will be installed using the direct pipe trenchless technique for a maximum length of 1,500 m. • There will be up to four compounds required west of the transition joint bays to MLWS: – Compound 1 (welfare): 300 m^2 to be active for 36 weeks; – Compound 2: 2,500 m^2 to be active for 48 weeks; – Compound 3: 510 m^2 to be active for 48 weeks; and – Compound 4: 600 m^2 to be active for 36 months (in a sequential constriction scenario).	Greatest number of structures (compounds, bays and equipment) and sequential trenching of either of the cable routes resulting in greatest extent of operational interference. Blackpool Airport • Daytime works open cut open trench would have the maximum effect to concurrent runway/aerodrome operations with regard to flight safety. • Nighttime works would have no effect to concurrent runway/aerodrome operations (2130 – 0600 local time) with regard to flight safety. The sequential construction scenario is included as the maximum design scenario as this results in the longest duration of impact.

Impact	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
				• Direct pipe (drill) has the potential to require night-time works. **Onshore export cables (in the vicinity of Blackpool Airport)** • The maximum number of cable circuits will be six (across Blackpool Airport and across open space south of Blackpool Airport). Duration: 5.5 months over 6 months. **Onshore export cables east of Blackpool Airport** • The maximum number of trenches will be six (one per cable circuit) with a typical trench depth of 1.8 m (indicative 1.2 m to the top of the protective tile). Trenches will be excavated using a mechanical excavator or trenchers. Cable circuits could be installed by open cut, HDD or other trenchless techniques. • Construction corridor width 100 m. Duration of installation by sequential trenching of up 66 months in a sequential construction scenario (inside, below OLS). **Onshore substations (outside OLS)** • Maximum height 15 m. **400 kV grid connection corridor** • The maximum number of trenches will be four (one per cable circuit) with a typical trench depth of 1.8 m (indicative 1.2 m to the top of the protective tile). Trenches will be excavated using a mechanical excavator or trenchers. Cable circuits could be installed by open cut, Horizontal Direction Drilling (HDD) or direct pipe techniques. • Construction corridor width 76 m. Duration of installation up 66 months in a sequential construction scenario.	

Impact	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
				Operation and maintenance phase • Operational duration of 35 years. **Decommissioning phase** • Decommissioning is likely to operate within the parameters identified for construction (i.e., any activities are likely to occur within construction working areas and to require no greater amount or duration of activity than assessed for construction).	
Operational electrical current of the onshore export cables creating an EMF with the potential to interfere with aviation associated systems their associated power infrastructure (impacts to airfield).	×	✓	×	**Operation and maintenance phase** • Operational duration of 35 years. • The maximum number of cable circuits is six. • The indicative trench depth to top of the protective tile will be 1.2 m (with a typical trench depth of 1.8 m). • The maximum voltage will be 400 kV.	Maximum length of cable in proximity to CNS infrastructure resulting in greatest extent of operational interference.

[a] C=construction, O=operations and maintenance, D=decommissioning

11.10 Assessment methodology

11.10.1 Overview

11.10.1.1 The approach to determining the significance of effects is a two-stage process that involves defining the magnitude of the impact and the sensitivity of the receptor. This section describes the criteria applied in this chapter to assign values to the magnitude of impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on relevant guidance, including the Design Manual for Roads and Bridges (DMRB) methodology (Highways England *et al.,* 2020) where appropriate as described in further detail in Volume 1, Chapter 5: Environmental assessment methodology of the ES.

11.10.2 Receptor sensitivity/value

11.10.2.1 The criteria for defining sensitivity in this chapter are outlined in **Table 11.13** below.

Table 11.13: Sensitivity criteria

Sensitivity	Definition	Aerodrome example
Very High	International scale and very limited potential for substitution or recoverability is long-term or not possible.	Heathrow Airport
High	National scale and limited potential for substitution or recoverability is slow and/or costly.	BAES Warton
Medium	Regional scale, limited potential for substitution and/or has moderate to high levels of recoverability.	Humberside Airport
Low	Local scale and/or has high recoverability.	Cotswold Airport (Kemble)
Negligible	Local scale.	Burn Aerodrome (Selby)

11.10.3 Magnitude of impact

11.10.3.1 The criteria for defining magnitude in this chapter are outlined in **Table 11.14** below.

Table 11.14: Magnitude of Impact criteria

Magnitude of impact		Definition
High	Adverse	Total loss of ability to carry on activities and/or impact is of extended physical extent and/or long-term duration (total life of project and/or frequency of repetition is continuous and/or effect is not reversible for project phase).
	Beneficial	Large scale or major improvement of resource quality; major improvement of attribute quality.
Medium	Adverse	Loss or alteration to significant portions of key components of current activity and/or physical extent of impact is moderate and/or of medium-term duration (operational period, six to ten years) and/or frequency of repetition is medium to continuous and/or effect is not reversible for project phase.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Minor shift away from baseline, leading to a reduction in level of activity that may be undertaken and/or physical extent of impact is low and/or of short to medium-term duration (construction period, one year to six years) and/or frequency of repetition is low to continuous and/or effect is not reversible for project phase.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very slight change from baseline condition and/or physical extent of impact is negligible and/or of short-term duration (less than one year) and/or frequency of repetition is negligible to continuous and/or effect is reversible.
	Beneficial	Very minor benefit to, or positive addition of one or more characteristics, features or elements.
No change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

11.10.4 Significance of effect

11.10.4.1 The significance of the effect upon aviation and radar has been determined by correlating the sensitivity of the receptor and the magnitude of the impact. The method employed for this assessment is presented in **Table 11.15**. Where a range of significance levels is presented, the final assessment for each effect is based upon expert judgement.

11.10.4.2 In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional aviation judgement and is underpinned by narrative to explain the conclusions reached.

11.10.4.3 For the purpose of this assessment, any effects with a significance level of minor or less are not considered to be significant in terms of the Infrastructure Planning (EIA) Regulations 2017.

Table 11.15: Assessment matrix

Sensitivity of receptor	Magnitude of impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Minor	Minor or Moderate	Moderate or Major	Major
Very High	Minor	Moderate or Major	Major	Major

11.10.4.4 Where the magnitude of impact is 'no change', no effect would arise.

11.10.4.5 The definitions for significance of effect levels are described as follows.

- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category as well as a long-term duration (total life of project). Effects upon human receptors may also be attributed this level of significance.
- Moderate: These beneficial or adverse effects have the potential to be important and may influence the key decision-making process as well as a medium-term duration (six to ten years). The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse or beneficial effect on a particular resource or receptor.
- Minor: These beneficial or adverse effects are generally, but not exclusively, raised as local factors, as well as a duration short-term duration (less than one year). They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation (in dimension or time (short-term duration (less than one year)) or within the margin of forecasting error.

11.10.5 Assumptions and limitations of the assessment

11.10.5.1 The data sources used in this chapter are detailed in **Table 11.7**. The data used in this chapter is the most up to date publicly available information which can be obtained from the data sources as cited. Data has also been provided through consultation as detailed in **section 11.3** above. The data is limited by what is available and by what has been made available at the time of writing the ES.

11.10.5.2 Given the base level of aviation activity in the east Irish Sea is fully transparent and lacking complexity, it is considered that the data employed in

the assessment is of a robust nature and is sufficient for the purposes of the impact assessment presented.

11.11 Assessment of effects

11.11.1 Introduction

11.11.1.1 The impacts arising from the construction, operation and maintenance, and decommissioning phases of the Transmission Assets are listed in **Table 11.12**, along with the maximum design scenario against which each impact has been assessed.

11.11.1.2 A description of the likely effect on receptors caused by each identified impact is given below.

11.11.2 Onshore construction activity (including temporary above surface structures) at/near Blackpool Airport (impacts to airfield)

11.11.2.1 Excavation, construction equipment (plant), construction compound berms, construction of fencing associated with the excavation and backfill of the trench have the potential to create multiple barriers to and aeronautical ground-based NAVAIDs.

11.11.2.2 Excavation and backfill of a trench can affect the suitability of the area to birds/wildlife; birdstrikes are a cause of damage to aircraft and have the potential to cause accidents.

11.11.2.3 The maximum effect would arise due to the maximum area of the onshore export cable corridors, within Blackpool Airport, the longest duration (sequential) construction scenario and open cut technique rather than trenchless resulting in greatest extent of operational interference.

Construction phase

Sensitivity of the receptor

11.11.2.4 Blackpool Airport is of regional importance, as it is owned by Blackpool Council, considered a key part of the local economy (along with the encompassing nationally successful BAEZ, and operated as an important aviation hub supporting oil and gas recovery, business aviation and General Aviation. Its flight operation is vulnerable to disruption by construction activity within 15 km (CAPs 168, 738 and 764) of the Aerodrome Reference Point . The greatest impact is likely to be experienced closest to the Aerodrome Reference Point and has limited potential for substitution/replacement and recoverability.

11.11.2.5 The sensitivity of the Blackpool Airport receptor is, therefore, considered to be **medium**.

Magnitude of impact

Blackpool Airport

11.11.2.6 The offshore export cables make landfall along the north west coast of England to the north of Lytham St. Anne's near Blackpool Airport, Lancashire.

11.11.2.7 Landfall refers to the area where the offshore export cables come ashore (i.e. make landfall) and are jointed to the onshore export cables via the TJBs. This will be undertaken by direct pipe installation. The direct pipe trenchless technique is a hybrid method between micro-tunnelling and HDD that allows for installation under sensitive features.

11.11.2.8 Relevant to this chapter, the works from the TJBs within Blackpool Airport and east towards Queensway (B5261) to install the onshore export cables include the following:

- the temporary construction compounds associated with the onshore export cable corridor and TJBs within Blackpool Airport;
- the onshore export cable corridor installation within Blackpool Airport;
- the onshore export cable corridor installation within Blackpool Airport and Blackpool Road Playing Fields; and
- onshore export cable installation within the eastern section of Blackpool Airport.

11.11.2.9 Sequential construction activity within the obstacle limitation surface would have a total active construction duration of up to 11 months within 12 months, for both Morgan OWL and Morecambe OWL. Work at the TJBs within the Airport would have a duration of up to 29 months over a 45 month period. Installation of the onshore export cables east of the Airport would have a total active construction duration of up to 5.5 months over a period of six months.

11.11.2.10 This work will directly affect concurrent Blackpool Airport flight operations and the worst-case scenario is interference with operational protected surfaces, or volumes (including ILS and DME), by construction activity and/or vertical extent of the construction within compounds.

11.11.2.11 The impact to Blackpool Airport protected surfaces (or volumes) will be short/medium-term (dependent upon type of trenching/drilling activity) and continuous and there potentially would be an alteration to significant portions of key flight activity in poor weather conditions of low cloud or visibility (impacts to the operation of the ILS or DME) during this period, incurring loss or frequent alteration to runway operations. This impact would be periodically reversible during the construction phase; construction or vehicle movements suspended/delayed for a period of time (a few hours to a day in duration) and being cognisant of the Blackpool Airport weather conditions and forecast. These impacts will be managed through operationally sensitive construction techniques (HDD, direct pipe or open cut) and cable route planning along in line with the CAA CAP791 process (see CoT105, **Table 11.11**). This will be expanded upon and assessed following further engagement with Blackpool Airport.

11.11.2.12 The impact to Blackpool Airport is predicted to affect elements of flight operations for a medium-term duration with a medium to continuous frequency of repetition and fully reversible after the construction phase. The magnitude is therefore considered to be **medium adverse**.

Significance of the effect

Blackpool Airport

11.11.2.13 Embedded measures are adopted in CoT105.

11.11.2.14 Overall, the sensitivity of the receptor is **medium** and the magnitude of the impact to Blackpool Airport is **medium**. The effect will, therefore, be of **moderate adverse** significance, which is significant in EIA terms.

Further (secondary) mitigation and residual effect

Blackpool Airport

11.11.2.15 Construction works mitigation protocol will be produced through engagement with the Blackpool Airport Air Traffic Control Safeguarding and Engineering Team and in line with the CAAs regulatory expectation (CAP 791 process and procedures (CoT105). This will operationally and contemporaneously address the works requirements (HDD and/or trenching, TJB position, route, techniques and operational management) and magnitude (extent) of the effects within the flight operations environment of Blackpool Airport.

11.11.2.16 Recent or current on-aerodrome works (i.e., lighting on export cable associated above surface construction equipment) at Blackpool Airport would also be briefed to flight operators and broadcast on Blackpool Air Traffic Control channels, in line with CAP 738 guidance.

11.11.2.17 Overall, with the implementation of further (secondary) mitigation, the magnitude of the impact to Blackpool Airport is reduced to **low**. The residual effect following application of a works plan is therefore, considered to be of **minor adverse** significance, which is not significant in EIA terms.

Operation and maintenance phase

Sensitivity of receptor

11.11.2.18 The sensitivity of the Blackpool Airport receptor is considered to be **medium** as detailed in **paragraphs 11.11.2.4** and **11.11.2.5**.

Magnitude of impact

11.11.2.19 Effects will be managed through the CAA CAP791 process (including operational access for cable route inspection) to minimise impact to operations and in maintenance of the safe operations (see CoT105, **Table 11.11**).

11.11.2.20 All construction works, including installation of the landfall and all onshore cable route works will have been completed and the land restored (including the construction compounds) by this stage. There is likely a requirement for

routine inspections to take place on an annual basis. for inspection of cable route and serviceability.

Blackpool Airport

11.11.2.21 The direct impact on Blackpool Airport would require a very slight change from baseline., Routine inspections can expect to take place on an annual basis, requiring entry to cable route access points at Blackpool Airport. These effects will be managed operationally in line with the CAA CAP791 process (see CoT105, **Table 11.11**). As this would constitute a very slight change from the baseline condition, the physical extent of impact is negligible.

11.11.2.22 The individual impact to Blackpool Airport, is predicted to be of long term/permanent duration (total life of project) and continuous, local spatial extent. These effects will be managed operationally in line with the CAA CAP791 process access and required visits will be agreed with the airport prior to each event (see CoT105, **Table 11.11**).

11.11.2.23 The magnitude is therefore considered to be **low adverse**.

Significance of effect

Blackpool Airport

11.11.2.24 Embedded measure adopted is CoT105.

11.11.2.25 Overall, the sensitivity of the receptor is **medium** and the magnitude of the impact to Blackpool Airport is **low**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Decommissioning phase

11.11.2.26 The onshore export cables will either remain *in situ* or be removed via link boxes and joint bays. No new trenching or drilling is anticipated. Link boxes will be removed. The effects are thus likely to be less than during construction and up to **minor adverse** significance, which is not significant in EIA terms, as outlined above.

11.11.3 Electro-Magnetic Fields (EMF)

11.11.3.1 The operational electrical current of the onshore export cables under Blackpool Airport could create an EMF when in operation. An EMF has the potential to interfere with aviation associated CNS (ILS and DME). The onshore infrastructure will comply with the guidelines discussed within Volume 1, Annex 3.4: EMF Compliance Statement of the ES.

11.11.3.2 The likelihood of impact is proportionate to the proximity of a CNS system (and the systems electrical supply and data communication cables) to the export cable. Detailed design works including sensitive export cable routing, micro-siting and appropriate construction techniques (cable depth, shielding, ducting and physical separation from CNS systems and power and data communications cables) will provide mitigation from impacts from EMF. Detailed design and routing of the export cables will be undertaken in consultation with Blackpool Airports Authorised Electrical person and will

consider any potential impacts upon Blackpool Airports CNS systems. Actual construction works mitigation will be addressed in, and be in line with the CAAs regulatory expectation (CAP 791 process and procedures) i.e. CoT105.

Operations and maintenance phase

Sensitivity of receptor

11.11.3.3 The sensitivity of the Blackpool Airport receptor is considered to be **medium** as detailed in **paragraphs 11.11.2.4** and **11.11.2.5**.

Magnitude of impact

11.11.3.4 The direct impact of EMF interference on Blackpool Airport CNS safeguarded areas would be long-term with potential continuous electrical interference of or alteration to key elements resulting in erroneous operational flight operations data. The physical extent of impact would be moderate and potentially not reversible for project phase.

11.11.3.5 These effects will be managed through operationally sensitive trench route planning; avoiding the CNS safeguarded areas and/or providing distance from each CNS component as essential mitigation to minimise the effect. This will be expanded upon and assessed through constant engagement with Blackpool Airport in line with the Blackpool Airport SMS and CAA CAP 791 regulatory process.

11.11.3.6 The magnitude is therefore, considered to be **medium adverse**.

Significance of effect

Blackpool Airport

11.11.3.7 The embedded measures adopted in CoT105 will significantly contribute to the mitigation of this effect.

11.11.3.8 Overall, the sensitivity of the receptor is **medium** and the magnitude of the impact to Blackpool Airport is considered to be **medium**. The effect is therefore, considered to be of **moderate adverse** significance, which is significant in EIA terms.

Further mitigation and residual effect

11.11.3.9 Further work will be undertaken at detailed design, in line with the CAA approved CAP 791 Part 1 (Compliance), as a part of the CAP 791 process (CoT105). The CAA assesses the Part 1 submission and when satisfied that change (works) meets regulatory requirements, it issues an approval for the change (works). During detailed design, consideration will be given to construction installation techniques and to the micro-siting of permanent and temporary infrastructure, amongst a range of other factors, in to order to mitigate, avoid or reduce effects to the CNS by the export cable and any potential EMF to agreed acceptable levels. This would be a pre-requisite to

any CAP 791 approvals relating to any airside construction activities within Blackpool Airport.

Blackpool Airport

11.11.3.10 Overall, the magnitude of the impact to Blackpool Airport would be reduced to **low adverse** and the sensitivity of the receptor would remain **medium**. The expected residual effect following application CoT105 therefore, considered to be of **minor adverse** significance, which is not significant in EIA terms.

11.12 Cumulative effect assessment methodology

11.12.1 Introduction

11.12.1.1 The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Transmission Assets together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see Volume 1, Annex 5.5: CEA screening matrix and location plan). Each project has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

11.12.1.2 The cumulative assessment has been undertaken as follows.

- Scenario 1: Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets.
- Scenario 2: Transmission Assets together with Morgan Offshore Wind Project: Generation Assets.
- Scenario 3: Transmission Assets together with Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets.
- Scenario 4: Scenario 3 together with Tier 1, Tier 2 and Tier 3 projects, plans and activities.
- defined as follows.
  - Scenario 4a: Scenario 3 and Tier 1 projects, plans and activities which are:
    - under construction;
    - permitted application;
    - submitted application; or
    - those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact.
  - Scenario 4b: Scenario 4a and Tier 2 projects, plans and activities which a:
    - scoping report has been submitted in the public domain.

- Scenario 4c: Scenario 4b and Tier 3 projects (no Tier 3 projects have been identified), plans and activities which are:
  - where a scoping report has not been submitted and it is not in the public domain;
  - identified in the relevant Development Plan; or
  - identified in other plans and programmes.

11.12.1.3 The Generation Assets are inherent to Scenarios 1- 3 and the cumulative assessment of offshore activity near Blackpool Airport (impacts to airfield) for these scenarios is presented in **Table 11.18.**

11.12.1.4 Scenarios 4a-4c include other offshore plans and developments scoped into the assessment within 40 km of the Transmission Assets Order Limits: Offshore, and these are presented in **Table 11.19**.

11.12.1.5 No onshore developments have been identified to have a cumulative effect on Blackpool Airport directly, either by height or proximity to the airport, and therefore no onshore developments are scoped into the CEA assessment. There will also be no cumulative effect to the BAEZ.

11.12.1.6 The specific projects, plans and activities scoped into the CEA, are outlined in **Table 11.16**.

Table 11.16: List of other projects, plans and activities considered within the CEA

Project/Plan	Status	Distance from the Transmission Assets (nearest point, km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Transmission Assets (airspace)
Morecambe Offshore Windfarm: Generation Assets	Submitted	0.0	480 MW Offshore wind farm (generating assets). Maximum of 35 wind turbines and indicative minimum spacing between rows of wind turbines of 1,400 m. Area: 87 km^2.	Proposed 2026	2030	Yes
Morgan Offshore Wind Project: Generation Assets	Submitted	0.0	1.5 GW Offshore wind farm (generating assets). Proposed offshore wind farm. Maximum of 96 wind turbines and four OSPs, with indicative minimum spacing between wind turbines of 1,400 m. Area: 280 km^2.	Proposed 2026	2030	Yes
Tier 1						
Awel y Môr Offshore Wind Farm	Submitted but not yet determined	23.1	Proposed offshore wind farm to the west of Gwynt y Môr. Maximum of 50 wind turbines and array area of 78 km^2.	Proposed 2025-2029	2030	Yes
Mona Offshore Wind Project	Submitted but not yet determined	34.4	Proposed offshore wind farm. Maximum of 96 wind turbines and four OSPs, with minimum spacing between wind turbines of 1,400 m. Area: 300 km^2.	Proposed 2026	2030	Yes
Tier 2						
Mooir Vannin Offshore Wind Farm	Scoping report published	2.6	Proposed offshore wind farm. Maximum of 100 wind turbines. Array area: 253 km^2.	Proposed 2023	2032	Yes
Tier 3– None applicable						

11.12.2 Scope of cumulative effects assessment

11.12.2.1 The impacts identified in **Table 11.17** have been selected as those having the potential to result in the greatest cumulative effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been based on information provided in Volume 1, Chapter 3: Project description of the ES as well as the publicly available information available on other projects and plans. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within Volume 1 Chapter 3: Project description of the ES, to that assessed here, be taken forward in the final design scheme.

Table 11.17 Scope of assessment or cumulative effects

Potential cumulative effect	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
Offshore activity near Blackpool Airport (impacts to airfield)	✓	✓	✓	MDS as described for the Transmission Assets (**Table 11.12**) assessed cumulatively with the following other projects/plans: • Morecambe Offshore Windfarm: Generation Assets. • Morgan Offshore Wind Project: Generation Assets. **Tier 1** • Awel y Môr Offshore Wind Farm. • Mona Offshore Wind Project **Tier 2** • Mooir Vannin Offshore Wind Farm (Generation Assets) **Tier 3** • There are no applicable Tier 3 projects.	The outcome of the CEA will be greatest when the greatest number of other plans and projects are considered in-combination. This therefore includes the presence of other developments which will have the potential to create a cumulative offshore aviation obstacle within a representative 40 km buffer of the Transmission Assets Order Limits: Offshore.

[a] C=construction, O=operation and maintenance, D=decommissioning

11.13 Cumulative effects assessment

11.13.1 Introduction

11.13.1.1 A description of the significance of cumulative effects upon aviation and radar receptors arising from each identified impact is given below.

11.13.1.2 The cumulative study area which is shown in Figure 11.2 (see Volume 3, Figures) includes the 'Tiered' wind farm developments listed in **Table 11.17**.

11.13.1.3 The CEA is presented in a series of tables (one for each potential cumulative impact) and considers the following.

- Scenario 1: Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets.
- Scenario 2: Transmission Assets together with Morgan Offshore Wind Project: Generation Assets.
- Scenario 3: Transmission Assets together with Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets.
- Scenario 4a to 4c: Transmission Assets together with Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets and other relevant projects and plans.

11.13.2 Aviation and radar

11.13.2.1 There are aviation and radar cumulative effects in Scenarios 1 to 4.

Table 11.18: Offshore activity near Blackpool Airport (impacts to airfield) (Scenarios 1–3)

	Scenario 1: Transmission Assets + Morecambe Offshore Windfarm: Generation Assets	Scenario 2: Transmission Assets + Morgan Offshore Windfarm: Generation Assets	Scenario 3: Transmission Assets + Morecambe Offshore Windfarm: Generation Assets and Morgan Offshore Windfarm: Generation Assets
Construction phase			
Sensitivity of receptor	• Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 1 Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 1 Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.
Magnitude of impact	• The cumulative effects assessment for Scenario 1 considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. The cumulative effect is predicted to be of local spatial extent, long-term duration (operations and maintenance phases), continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.	The cumulative effects assessment for Scenario 2 considers the following: Similar to Scenario 1. Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morgan Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area The cumulative effect is predicted to be of local spatial extent, long-term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.	The cumulative effects assessment for Scenario 2 considers the following: Similar to Scenario 1. Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. The cumulative effect is predicted to be of local spatial extent, long-term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.

	Scenario 1: Transmission Assets + Morecambe Offshore Windfarm: Generation Assets	Scenario 2: Transmission Assets + Morgan Offshore Windfarm: Generation Assets	Scenario 3: Transmission Assets + Morecambe Offshore Windfarm: Generation Assets and Morgan Offshore Windfarm: Generation Assets
Significance of effect	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	Similar to Scenario 1 Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	Similar to Scenario 1 Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.
Further mitigation and residual significance	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.
Operation and maintenance phase			
Sensitivity of receptor	Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 1. Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 1 Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.
Magnitude of impact	The cumulative effects assessment for Scenario 1 considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area.	Similar to Scenario 1. Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morgan Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area.	Similar to Scenario 1. Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area.

	Scenario 1: Transmission Assets + Morecambe Offshore Windfarm: Generation Assets	Scenario 2: Transmission Assets + Morgan Offshore Windfarm: Generation Assets	Scenario 3: Transmission Assets + Morecambe Offshore Windfarm: Generation Assets and Morgan Offshore Windfarm: Generation Assets
	The cumulative effect is predicted to be of local spatial extent, long-term duration (operations and maintenance phases), continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.	The cumulative effect is predicted to be of local spatial extent, long-term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.	The cumulative effect is predicted to be of local spatial extent, long-term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.
Significance of effect	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.
Further mitigation and residual significance	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.

Table 11.19: Offshore activity near Blackpool Airport (impacts to airfield) (Scenarios 4a-4c)

	Scenario 4a: Scenario 3 (Transmission Assets and Generation Assets) + Tier 1	Scenario 4b: Scenario 3 (Transmission Assets and Generation Assets) + Tier 2	Scenario 4c: Scenario 3 (Transmission Assets and Generation Assets) + Tier 3
Construction phase			
Sensitivity of receptor	Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 4a. Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 4a. Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.
Magnitude of impact	The cumulative effects assessment for Scenario 4a considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. No loss or alteration of characteristics, features or elements; no observable impact in either direction.	The cumulative effects assessment for Scenario 4b considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. Similar to Scenario 4a. No loss or alteration of characteristics, features or elements; no observable impact in either direction.	The cumulative effects assessment for Scenario 4c considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. Similar to Scenario 4a. No loss or alteration of characteristics, features or elements; no observable impact in either direction.
Significance of effect	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significan**t in EIA terms.	Similar to Scenario 4a. Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be	Similar to Scenario 4a. Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore,

	Scenario 4a: Scenario 3 (Transmission Assets and Generation Assets) + Tier 1	Scenario 4b: Scenario 3 (Transmission Assets and Generation Assets) + Tier 2	Scenario 4c: Scenario 3 (Transmission Assets and Generation Assets) + Tier 3
		Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	be of minor adverse significance, which is **not significant** in EIA terms.
Further mitigation and residual significance	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.
Operation and maintenance phase			
Sensitivity of receptor	Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 4a. Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.	Similar to Scenario 4a. Blackpool Airport is deemed to be of medium vulnerability, high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be **Medium**.
Magnitude of impact	The cumulative effects assessment for Scenario 4a considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. The cumulative effect is predicted to be of local spatial extent, long-term duration (operations and maintenance phases), continuous and high reversibility. It is predicted that the impact will affect	The cumulative effects assessment for Scenario 4b considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. Similar to Scenario 4a.	The cumulative effects assessment for Scenario 4c considers the following: Increased helicopter air traffic in concurrent construction and operations and maintenance phases. The Transmission Assets together with Morecambe Offshore Windfarm: Generation Assets will be located within Class G (uncontrolled) airspace and ATS will be available in the area. Similar to Scenario 4a. The cumulative effect is predicted to be of local spatial extent, long-term duration, continuous and high reversibility. It is

	Scenario 4a: Scenario 3 (Transmission Assets and Generation Assets) + Tier 1	Scenario 4b: Scenario 3 (Transmission Assets and Generation Assets) + Tier 2	Scenario 4c: Scenario 3 (Transmission Assets and Generation Assets) + Tier 3
	the receptor indirectly. The magnitude is therefore, considered to be **Low**.	The cumulative effect is predicted to be of local spatial extent, long-term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.	predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **Low**.
Significance of effect	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.	Overall, the magnitude of the cumulative impact is deemed to be Low and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be of minor adverse significance, which is **not significant** in EIA terms.
Further significance	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.	Assuming compliance with regulatory requirements and national procedures, the significance of effect to aircraft operators in the vicinity of the windfarm site has been assessed to be **not significant** in EIA terms.

11.14 Transboundary effects

11.14.1.1 A screening of transboundary impacts has been carried out (see Volume 1, Annex 5.4: Transboundary screening of the ES) and has identified that there was no potential for significant transboundary effects with regard to aviation and radar from the Transmission Assets upon the interests of other states.

11.15 Inter-related effects

11.15.1.1 Inter-relationships are the impacts and associated effects of different aspects of the Transmission Assets on the same receptor. These are as follows.

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Transmission Assets (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases (e.g., onshore construction activity, presence of onshore substation and decommissioning disturbance).
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on aviation and radar, such as interaction or creation of an aviation obstacle, may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.

11.15.1.2 There are no inter-related effects that are of greater significance than those assessed in isolation. A description of the likely interactive effects arising from the Transmission Assets is provided in Volume 4, Chapter 3: Inter-relationships of the ES.

11.16 Summary of impacts, mitigation measures and monitoring

11.16.1.1 Information on aviation and radar within the study area was collected through desktop review and stakeholder engagement.

11.16.1.2 **Table 11.20** presents a summary of the impacts, measures adopted as part of the Transmission Assets and residual effects in respect to aviation and radar. The impacts assessed include:

- trenching activity; and
- EMF.

11.16.1.3 Overall, it is concluded that, without secondary mitigations, there will be the following significant effects at Blackpool Airport arising from the Transmission Assets during the construction, operation and decommissioning phases:

- effect upon airport OLS and runway protected surfaces; and
- effect upon CNS NAVAIDs at Blackpool Airport (ILS and DME).

11.16.1.4 Overall, it is concluded that, with secondary mitigations as provided within **Table 11.20**, there will be no significant effects arising from the Transmission Assets during the construction phase.

11.16.1.5 Overall, it is concluded that, without secondary mitigations, there will be the following significant effects arising from the Transmission Assets during the operations and maintenance phase.

- EMF creation at Blackpool Airport.

11.16.1.6 Overall, it is concluded that, with secondary mitigations as provided within **Table 11.20**, there will be no likely significant effects arising from the Transmission Assets during the operation and maintenance phase.

11.16.1.7 **Table 11.21** presents a summary of the potential cumulative impacts, mitigation measures and residual effects.

11.16.1.8 Overall, it is concluded that there will be no significant cumulative effects from the Transmission Assets alongside other projects/plans.

11.16.1.9 No potential transboundary impacts have been identified in regard to effects of the Transmission Assets.

Table 11.20: Summary of environmental effects, mitigation and monitoring

Description of impact	Phase[a]			Commitment number	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
Trenching activity - Creation of an onshore aviation obstacle	✓	✓	✓	CoT 105	C: Blackpool - Medium O: Blackpool - Low D:Blackpool - Medium	C:Blackpool - Medium O:Blackpool - Medium D:Blackpool - Medium	C:Blackpool - Moderate O:Blackpool - Minor D:Blackpool - Moderate	CoT 105	C: Blackpool - Minor O:Blackpool - Negligible D: Blackpool - Minor	None required.
EMF	×	✓	×	CoT 105	O:Blackpool – Medium	O:Blackpool – Medium	O:Blackpool – Moderate	CoT 105	O:Blackpool – Minor	None required.

[a] C=construction, O=operations and maintenance, D=decommissioning

Table 11.21: Summary of cumulative environmental effects, mitigation and monitoring

Description of effect	Phase[a]			Commitment number	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
Scenario 1										
Cable/trenching activity at/near Blackpool	✓	✓	✓	None.	C:Blackpool – Low C:Blackpool - Low	C:Blackpool - Medium O:Blackpool - Medium	C: Blackpool - Minor O:Blackpool - Minor	None.	C: Blackpool - Negligible O: Blackpool - Negligible	None required.
Scenario 2										
Cable/trenching activity at/near Blackpool	✓	✓	✓	None.	C: Blackpool – Low C: Blackpool - Low	C: Blackpool - Medium	C: Blackpool - Minor O: Blackpool - Minor	None.	C: Blackpool - Negligible	None required.

Description of effect	Phase[a]			Commitment number	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
						O: Blackpool - Medium			O: Blackpool - Negligible	
Scenario 3										
Cable/trenching activity at/near Blackpool	✓	✓	✓	None.	C:Blackpool – Low C:Blackpool - Low	C:Blackpool - Medium O:Blackpool - Medium	C:Blackpool - Minor O:Blackpool - Minor	None.	C: Blackpool - Negligible O: Blackpool - Negligible	None required.
Scenario 4a										
Cable/trenching activity at/near Blackpool	✓	✓	✓	None.	C: Blackpool – Low C: Blackpool - Low	C: Blackpool - Medium O: Blackpool - Medium	C: Blackpool - Minor O: Blackpool - Minor	None.	C: Blackpool - Negligible O: Blackpool - Negligible	None required.
Scenario 4b										
Cable/trenching activity at/near Blackpool	✓	✓	✓	None.	C: Blackpool – Low C: Blackpool - Low	C: Blackpool - Medium O: Blackpool - Medium	C: Blackpool - Minor O:Blackpool - Minor	None.	C: Blackpool - Negligible O: Blackpool - Negligible	None required.
Scenario 4c										
Cable/trenching activity at/near Blackpool	✓	✓	✓	None.	C: Blackpool – Low O: Blackpool - Low	C: Blackpool - Medium O: Blackpool - Medium	C: Blackpool - Minor O: Blackpool - Minor	None.	C: Blackpool - Negligible O: Blackpool - Negligible	None required.

[a] C=construction, O=operations and maintenance, D=decommissioning

11.17 References

Airport Operators Association (AOA) Aerodrome Safeguarding – Advice Notes 1, 2, 4 and 5.

Civil Aviation Authority (CAA) (2024) Aviation Publication (CAP) 032 UK Integrated Aeronautical Information Package (IAIP). (June 2024)

CAA (2024) Visual Flight Rules (VFR) Charts Sectional aeronautical charts which are designed for visual navigation of slow to medium speed aircraft. The topographic information featured consists of a judicious selection of visual checkpoints used for flight under VFR.

CAA (2022) CAP 785B Implementation and Safeguarding of Instrument Flight Procedures (IFP) in the UK. (August 2022)

CAA (2022) CAP 393: The Air Navigation Order (2016 as amended 2022).

CAA (2022) CAP 168 Licensing of Aerodromes. (January 2022)

CAA (2020) CAP 738 Safeguarding of Aerodromes. (October 2020)

CAA (2019) CAP 670 Air Traffic Services Safety Requirements. (June 2019)

CAA (2017) CAP 772 Wildlife Hazard Management at Aerodromes. (October 2017)

CAA (2016) CAP 764 Policy and Guidelines on Wind Turbines. (February 2016)

CAA (2016) CAP 791 Procedures for Changes to Aerodrome Infrastructure. (August 2016)

Department for Transport (DfT)/Office of the Deputy Prime Minister (ODPM) circular 1/2003. Online source: https://www.gov.uk/government/publications/safeguarding-aerodromes-technical-sites-and-military-explosives-storage-areas.

Department for Energy Security & Net Zero (2023a) Overarching National Policy Statement for Energy (NPS EN-1). Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147380/NPS_EN-1.pdf. Accessed September 2024.

Department for Energy Security & Net Zero (2023b) National Policy Statement for Renewable Energy Infrastructure (NPS EN-3). Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147382/NPS_EN-3.pdf. Accessed September 2024.

Department for Energy Security & Net Zero (2023c) National Policy Statements for Electricity Networks Infrastructure (NPS EN-5). Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147384/NPS_EN-5.pdf. Accessed September 2024.

Department of Energy and Climate Change (DECC) (2011a) Overarching National Policy Statements for Energy (NPS EN-1). Available: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf].

Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework. Available at: https://www.gov.uk/national-planning-policy-framework

EU Regulation (EU) 2018/1139, Regulation (EC) No 1108/2009, COMMISSION REGULATION (EU) No 139/2014.International Civil Aviation Organisation (ICAO) Annex 14 Volume I, Aerodrome Design and Operations.

Fylde Local Plan to 2032 (adopted December 2021). Available: https://new.fylde.gov.uk/wp-content/uploads/2021/12/Fylde-Local-Plan-to-2032-incorporating-Partial-Review-adopted.pdf. Accessed September 2024.

Highways England, Transport Scotland, Welsh Government, Department for Infrastructure (2020) Design Manual for Roads and Bridges (DMRB) LA 104, Environmental assessment and monitoring, Revision 1, Available:

IEMA (2016) Environmental Impact Assessment. Guide to Delivering Quality Development. Available: https://www.iema.net/download-document/7014. Accessed: October 2022. Accessed January 2024.

Maritime and Coastguard Agency (MCA) Maritime Guidance Note (MGN) 654 Safety of Navigation Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response. (December 2023).

Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework: Consultation Draft. Available at: Proposed reforms to the National Planning Policy Framework and other changes to the planning system - GOV.UK (www.gov.uk) Accessed September 2024.

Ministry of Defence (MOD) Aeronautical Information Publication (AIP). Accessed: June 2024

The Planning Inspectorate (2017) Advice Note Ten, Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects. Version 8. Available: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/. Accessed: April 2024.

Appendix A: Draft Wildlife Habitat Attractants Risk Assessment

Appendix A: Draft Wildlife Habitat Attractants Risk Assessment

1 ~~Outline~~Draft Wildlife Habitat Attractants Risk Assessment

~~1.1.1~~1.1 Introduction

1.1.1.1 In response to BAE Systems' submissions at ISH 2 and 3 (REP4-128) the Applicants have prepared ~~an outline~~a draft Wildlife Habitat Attractants Risk Assessment. This document~~-~~ follows on from section 1.3 (Wildlife Attractants Risk Assessment) of the outline Wildlife Hazard Management Plan (S_D3_8~~/F02~~/F03) and takes into consideration the approach set out in CAP 795 guidance. ~~Specifically,~~

1.1.1.2 The draft Wildlife Habitat Attractant Risk Assessment has been updated at Deadline 6 to include the ~~outline~~following:

- minor amendments to the structure of the risk assessment
- removal of baseline data (to avoid duplication with information provided in the Outline Wildlife Hazard Management Plan)
- updates to reflect ongoing discussions with BAE Systems and DIO (on behalf of the MoD).

1.2 Purpose and scope

1.2.1.1 The draft Wildlife Habitat Attractants Risk Assessment considers those elements of the Transmission Assets, as identified in

~~1.1.1.1~~1.2.1.2Table 1.1, with the potential to cause a change in the abundance, species and patterns of use of birds within Warton Aerodrome's 13 km ~~safeguarding~~wildlife hazard management zone. It also considers construction activities associated with the Transmission Assets as set out in Table 1.4.

~~1.1.1.2~~1.2.1.3The ~~outline~~draft Wildlife Habitat Attractants Risk Assessment focuses on the bird species that are at risk of collision (highlighted in Table 1.3), as agreed with BAE Systems. The Transmission Assets comprise environmental~~/ecological~~ mitigation and biodiversity benefit areas, as well as the construction activities ~~associated with the~~and infrastructure features required for the Transmission Assets. The environmental~~/ecological~~ mitigation and biodiversity benefit areas are identified in the Outline Ecological Management Plan (oEMP) (document reference J6) and the Outline Biodiversity Benefit ~~Statement~~Management Plan (document reference J11/~~F05~~F06) and the construction activities are described in Volume 1, Chapter 3: Project Description (document reference F1.3).

Table 1-.1: Areas and Features Considered

:Transmission Assets areas/features considered within the draft Wildlife Habitat Attractant Risk Assessment

AreaTransmission Assets Areas/ Feature/ Construction Design Feature*
Fairhaven Saltmarsh Mitigation Area (Work AreaNo 49A/49B)
Newton- with-Scales (Work AreaNo 49A/49B)
Pond creation at Morgan onshore substation (Work AreaNo 49A)
Pond creation at Moss Side (Work AreaNo 49AB)
Lytham Moss (Work AreaNo 35A/35B)
Lea Marsh Biological Heritage Site (BHS)
Lea Marsh Fields Biodiversity Benefit Area (Work No 44A/44B)
Onshore Substationsubstations (Work No 21A/21B)
Attenuation ponds at Substationsonshore substations (Work Nos 20A/20B and 21A/21B)
Landscape planting at onshore substations (Work Nos 20A/20B and 21A/21B)

**further detail on each feature contained in table 1.4*

1.1.1.31.2.1.4 Post consent, the Applicants will prepare a detailed Wildlife Habitat Attractants Risk Assessment(s) to reflect the detailed design of the Transmission Assets. The detailed Wildlife Habitat Attractants Risk Assessment(s) will be in accordance with the Outlinedraft Wildlife Habitat Attractants Risk Assessment and will form part of the detailed Wildlife Hazard Management Plan(s) for Warton Aerodrome.

1.1.1.4 The detailed Wildlife Habitat Attractants Risk Assessment will include the results of pre-construction surveys reflecting the existing baseline (at the time of construction). The surveys will be undertaken in accordance with the Outline Breeding Bird Protection Plan of the oEMP (document reference J6) and will be aligned with existing monitoring undertaken by BAE and DIO to ensure comparative results and to maximise efficiencies in monitoring.

1.3 Approach

1.3.1 Definitions

1.1.1.51.3.1.1 This Outlinedraft Wildlife Habitat Attractants Risk Assessment uses the definitions listed in Table 1.2 for the likelihood of the feature increasing the number of the target species, attracting other species or changing patterns of use of birds (listed within Table 1.3)1.3) within Warton Aerodrome's 13 km wildlife hazard management (safeguarding) area. A qualitative approach has been used rather than assigning a numerical value.

Table 1-.2: ~~Outline~~Draft Wildlife Habitat Attractants Risk assessment definitions

Rating	Description
1 - Unlikely	Bird species are unlikely to be attracted, or change, in numbers exceeding the existing baseline.
2 - Possible	Bird species may be attracted, or change, in numbers slightly above the existing baseline.
3 - Likely	Bird species are likely to be attracted, or change, in numbers noticeably above the existing baseline.
4 - Almost Certain	Bird species will almost certainly be attracted, or change, in significantly greater numbers than the existing baseline.

~~1.1.2~~1.3.2 Species ~~at risk of collision with aircraft~~considered within ~~Warton Aerodrome's 13km safeguarding area~~the draft Wildlife Habitat Attractant Risk Assessment

1.3.2.1 ~~Table 1-3 sets out~~The draft Wildlife Habitat Attractant Risk Assessment focuses on the bird species ~~at risk of collision~~ with ~~aircraft~~potential to increase bird strike within Warton Aerodrome's 13km ~~safeguarding area. These~~wildlife hazard management zone. The species have been agreed with BAE~~. The~~ Systems and the Applicants have presented data on these species with the Baseline Bird Technical Report (S_D3_5).

1.3.2.2 The Baseline Bird Technical Report compiles national, regional, and site-specific data (2022–2024) from multiple sources, including Wetland Bird Survey (WeBS), Fylde Bird Club, and the Applicants' survey data to establish baseline bird abundance and trends.

~~1.1.2.1~~1.3.2.3 The species at risk of collision will be kept under review in discussion with ~~Warton Aerodrome~~BAE Systems/DIO and will be based on monitoring results and will be reflected in the detailed Wildlife Habitat Attractants Risk Assessment and detailed Wildlife Hazard Management Plan(s).~~-~~ In addition to the detailed trends outlined within the Baseline Bird Technical Report (S_D3_5), the Applicants have summarised the distribution and ecology of these species in the Outline Wildlife Hazard Management Plan (S_D3_8/F03).

Table 1-.3: Species ~~at~~with the potential to increase the birdstrike risk ~~of collision with aircraft~~ within Warton Aerodrome's 13km wildlife hazard management (safeguarding-) area

Group	Species
~~Swan~~	~~Bewick's swan~~
Swan	Whooper swan
	Mute swan
Geese	Canada goose
	Greylag goose

Group	Species
	Pink-footed goose
Ducks	Shelduck
	Mallard
	Wigeon
	Teal
Waders	Oystercatcher
	Golden plover
	Lapwing
	Redshank
	Black-tailed godwit
	Curlew
Gulls	Black-headed gull
	Common gull
	Herring gull
	Lesser black-backed gull
	~~Great black-backed gull~~
Corvids	~~Magpie~~Jackdaw
	~~jackdaw~~
	Rook
	Carrion crow
Pigeons	Woodpigeon
	Feral pigeon
Starling	Starling
Winter thrushes	Redwing
	Fieldfare
Raptors	Buzzard
	~~Marsh harrier~~
	~~Red kite~~
	~~Sparrowhawk~~
	Kestrel
	~~Peregrine~~
	~~Merlin~~
	Barn owl

1.1.3 Baseline Summary

Introduction

1.1.3.1 The following section provides a summary of the general ecology and local distribution of bird species (listed in Table 1-3) recorded within Warton's 13km safeguarding area. The summary is based on the Applicants' bird survey data. More detailed information (including maps) on the local distribution, and national and regional trends, for these species are provided in the Baseline Bird Technical Report (S_D3_5).

Geese

Distribution

1.1.3.2 The distribution of geese is skewed toward the pink-footed goose, which is the most numerous species of geese in the area. Pink-footed geese were primarily located around Lytham Moss, with scattered flocks observed in arable fields between Lytham and Kirkham. Canada and greylag geese were generally found within the estuary, on Newton Marsh SSSI adjacent to Warton Aerodrome, or on Lea Marsh.

Ecology

1.1.3.3 Of the three abundant goose species present within the area, pink-footed geese are a fully wild and migratory species that breed in Iceland, whereas Canada geese are fully naturalised and sedentary and breed locally. Whilst there may be some wild migratory greylag geese that overwinter in the area, the majority of greylag geese in the Ribble Estuary are also sedentary.

1.1.3.4 The pink-footed geese generally start to arrive in the area during the months of September/October and leave again in March/April, and numbers fluctuate wildly during these migratory periods. However, during the winter months between November and March numbers are more stable. Pink-footed geese generally roost on the intertidal and saltmarshes areas within the estuary at night, and fly out from there to forage during the day. Despite this species being recorded making long daily foraging trips, most birds will forage on productive farmland as close to the roost site as possible in order to save energy. Within the Fylde area the most productive foraging area is the reclaimed arable land at Lytham Moss where the birds feed on crop waste such as potatoes, moving from field to field as food sources become depleted.

1.1.3.5 The sedentary Canada and greylag geese have completely different foraging habits. With greatly reduced daily movement patterns, compared to the wild geese, and are normally loafing, roosting and grazing on grassy habitats in the same area without undertaking energetically expensive daily flights to foraging grounds. This may be in part due to their lack of need to build up sufficient fat reserves in order to undertake long migratory movements, unlike the wild pink-footed geese.

1.1.3.6 Geese must rely upon flapping flight and do not soar; this comes at a high energetic cost. Therefore, although in the case of pink-footed geese they do fly long distances, they only fly if there is a good reason to do so, such as a rich and abundant food source or a perceived threat, but it means that geese generally fly from A – B, although they can be wary on approach.

Swans

Distribution

1.1.3.7 Whooper swans were the most abundant species recorded during the Applicants' site specific surveys, resulting in a biased distribution. Most whooper swans were found around Lytham Moss with additional records from the area south of the River Ribble. The remaining distribution consists of mute swans, which were present around deeper watercourses and scattered water bodies throughout the survey area.

Ecology

1.1.3.8 Similarly to the geese, the Ribble estuary swan population comprises of two species of both migratory and sedentary birds, with most of the migratory whooper swans breeding in Iceland. Like the pink-footed geese, whooper swans generally migrate in September/October and again in March/April, with the Ribble population being more stable during the November – March period. They also roost in safe areas within the estuary and make daily foraging trips out to productive farmland to feed on crops and grass shoots.

1.1.3.9 Conversely, the mute swan is largely sedentary with many birds breeding in the local area. Mute swans are generally found in pairs or family groups, however on larger lakes and estuaries they can be found in larger groups. Mute swans do not normally venture far from water where they feed on plant material in the water or along the banks.

1.1.3.10 Like geese, swans rely upon flapping flight and do not soar so flights are undertaken only when necessary.

Ducks

Distribution

1.1.3.11 Wigeon was recorded as the most numerous duck species and, therefore, the distribution of ducks is heavily skewed toward this species, although teal were often present alongside them. Key areas for ducks include Newton Marsh SSSI and the River Ribble corridor. Significant numbers of ducks were also observed within the proposed mitigation area at Newton with Scales. Mallard were found across all sizes of watercourses and water bodies throughout the survey area and shelduck also had a scattered distribution with a bias towards areas close to the estuary.

Ecology

1.1.3.12 The identified duck species have various life histories and ecology.

1.1.3.13 Shelduck are a large duck that primarily feed upon marine gastropods in the estuary muds during the non-breeding period, in years when there is extensive flooding they will also exploit flooded fields for invertebrates. Despite being migratory, shelduck are also sedentary and both overwinter and breed in the Ribble estuary. Non-breeding birds will form larger flocks but breeding birds will split into pairs and breed in secretive locations such as tree root cavities and abandoned mammal burrows. After the breeding period shelduck move back into the estuaries. The higher numbers of shelduck recorded in 2024 by the Applicants probably represents birds exploiting the largely flooded landscape following an exceptionally wet winter in 2023/24.

1.1.3.14 Wigeon are fully migratory and do not breed in the Ribble estuary. They are present from September/October to March/April during which time they form large flocks. Wigeon feed extensively on grasses, and often at night, creating neatly cropped lawns in areas where they regularly feed. Like the geese they make movements between foraging grounds and roosting/loafing areas which are normally located on water. However, they will not travel far (a few km) and often choose areas where they can safely rest on water and feed along the banks. Wigeon can also dabble for submerged vegetation by upending themselves in shallow water.

1.1.3.15 Teal are often found with wigeon and are migratory as well, however low numbers of teal do also breed in the Ribble estuary. They form much smaller flocks than wigeon and mostly feed on the water by dabbling to reach vegetation and molluscs. As teal are a small duck they generally forage in very shallow waters.

1.1.3.16 Mallard are present in the Ribble estuary all year round, however numbers increase during winter with northern migrants. Mallard are usually found in small groups but migratory birds will form larger groups in the winter. Mallard feed extensively on plant matter that they obtain by dabbling for submerged vegetation. Although mallard are larger than wigeon and teal, they are also constrained by water depth when foraging.

1.1.3.17 Ducks are reliant upon flapping flight and do not soar.

Waders

Distribution

1.1.3.18 Lapwings were the most numerous wader species, and the areas that supported them also hosted other terrestrial feeding wader species. Key hotspots for wader activity included Lytham Moss, Newton Marsh SSSI, and the Ribble Estuary.

Ecology

1.1.3.19 The waders of the Ribble estuary can be broadly split into two groups with similar ecological traits. The intertidal waders that spend most of their time within the intertidal, and the terrestrial waders that are reliant upon terrestrial habitats.

1.1.3.20 Those intertidal waders primarily feed, roost and loaf within the estuary. These are birds of vast open expanses and accordingly avoid areas where their field of view is broken such as sand dunes and tall vegetation. These birds will mostly fly between their roost site and foraging areas by following the tideline and generally fly at low heights (often only skimming the sand or waves) to avoid detection by aerial predators. Whilst these birds behave differently to waders in terrestrial habitats, some species are reliant upon both intertidal and terrestrial environments. For example, certain wader species, such as curlew and black-tailed godwit, may prefer feeding in terrestrial habitats near estuaries under specific conditions. Additionally, some individuals may be forced to do so due to increased competition and reduced food availability in intertidal areas. As a result, these birds might be excluded from the intertidal zone and forced to rely on terrestrial habitats to meet their daily energy requirements. Some species such as black-tailed godwit will also switch to foraging inland as the spring migration period advances.

1.1.3.21 Waders found exploiting terrestrial habitats are generally, oystercatcher, golden plover, lapwing, redshank, ruff, snipe, jack snipe, woodcock, curlew and black-tailed godwit.

1.1.3.22 Snipe, jack snipe and woodcock are usually found singly or in small groups, they are commonly referred to as being cryptic species due their heavily camouflaged plumage and their habit of not flushing until almost stepped upon. These birds do not form flocks and generally roost and forage in the same area, with most foraging activity occurring at night.

1.1.3.23 Golden plover and lapwing are the two species that are only found in terrestrial habitats. Both are migratory, however only lapwing breed in the Ribble estuary with golden plover breeding on bog habitats at higher altitudes and/or latitudes. During the breeding season lapwing are found in pairs over a wider area. Due to their short (for waders) bills, both species are reliant upon invertebrates found within wet grassland, and both species will forage at night when earthworms are more likely to be found on the surface (mostly during full moon periods for lapwing).

1.1.3.24 The other species, oystercatcher, redshank, ruff, curlew and black-tailed godwit can be found inland in varying numbers throughout the year, although generally in very low numbers during the breeding season. Of these redshank and ruff are normally only found in very small groups, and they are quite small birds. Oystercatcher, curlew and black-tailed godwit are the larger waders (curlew are the largest at 632 – 1000 g and black-tailed godwit the smallest at 240 – 360 g) and may be found in wet grassland habitats. Oystercatcher and curlew are generally found in small flocks in terrestrial habitats with black-tailed

godwits forming larger flocks, particularly as they switch to field feeding pre-spring migration. Some of these birds will move from safe roosting sites to foraging sites on a daily basis, however, if there are safe roosting locations close to food sources then these will be favoured.

1.1.3.25 Waders are reliant upon flapping flight and do not soar.

Gulls

Distribution

1.1.3.26 Gulls were observed loafing, roosting, and foraging throughout the survey area. Being mobile, especially during the non-breeding season, and generalists, they can exploit a wide range of habitats and food sources. As a result, their distribution is likely to change annually based on factors such as farm activity and land use.

Ecology

1.1.3.27 All of the gull species with the exception of common gull can be found in the Ribble estuary year-round, however lesser black-backed gull are more abundant during the breeding season. All of the gull species present are capable of exploiting marine, aquatic and terrestrial habitats; however, the great black-backed gull favours the marine and is only infrequently found inland. Gulls are generalist species that can exploit a wide variety of resources and are increasingly exploiting anthropogenic resources such as buildings for roosting and nesting and waste for food sources. Gulls have large foraging ranges and will move around the country during the non-breeding period, especially during cold snaps when gull numbers will increase at the coast if inland and upland areas are frozen.

1.1.3.28 Gulls are capable of covering large distances in the search for food; they are lightweight for their size, streamlined, and can take advantage of soaring flight. Whilst soaring, gulls are reliant upon thermal uplifts they expend very little energy and combined with their physiology, they are able to stay in the air for long periods of time. This allows them to move over a landscape searching for food in a way that is not possible for birds reliant solely upon flapping flight.

Corvids

Distribution

1.1.3.29 Although corvids were widely distributed throughout the survey area, the Applicants, like Fylde Bird Club, found higher concentrations around Lytham Moss. This is likely due to the presence of a nearby rookery.

Ecology

1.1.3.30 A number of corvid species are widely present in the Ribble estuary throughout the year. Of these, jackdaws and rooks are communal birds, jackdaws roost communally in trees and cliffs during the non-breeding

period whereas rooks nest communally in small copses. Jays, magpies, and carrion crows are solitary, although carrion crows do come together in groups during the non-breeding period.

1.1.3.31 Jays and magpies are mostly birds of woodland and hedgerow, although magpies often feed in fields as well. Jackdaws, rooks and carrion crows can often be found feeding in mixed flocks in fields where they exploit a wide range of vegetable and animal matter (although mostly animal matter) such as seeds and invertebrates. Despite preferring to save energy and loaf where possible, rooks and jackdaws can be quite active in their flights around breeding and roosting colonies.

Pigeons

Distribution

1.1.3.32 Pigeons were widely distributed throughout the survey area with no clear pattern of usage.

Ecology

1.1.3.33 All of the pigeon species found in the Transmission Order limits are sedentary, although there may be an increase in woodpigeon numbers in the winter. During the breeding season, collared dove, stock dove and woodpigeon are solitary, indeed collared dove and stock dove are largely sedentary throughout the year. However, woodpigeon numbers may increase during the non-breeding season when they may also form flocks, and they may feed widely on arable land where they feed on grain and roost communally in trees. The feral pigeons live in colonies all year round and exploit agricultural and urban habitats for food. Their colonies are often situated in roofs and abandoned buildings.

1.1.3.34 Pigeons are reliant upon flapping flight and will save energy where possible, however they are easily spooked and take to the air if threatened.

Starlings

Distribution

1.1.3.35 Starlings were widely distributed throughout the survey area although with higher densities towards the coast.

Ecology

1.1.3.36 Starlings are present in the area year-round. However, during the breeding period they will generally be found in pairs or small family groups in open countryside where they nest in tree cavities, etc. Post breeding, starlings start to come together in flocks which can number tens of thousands of birds. They generally forage in smaller flocks and exploit a wide range of animal and vegetable matter, however they can come together in vast flocks in the evening to roost in communal areas.

These areas can be situated in man-made structures such as piers, but natural features such as reedbeds are also commonly used.

Winter thrushes

Distribution

1.1.3.37 Winter thrushes were concentrated in the area north of Warton likely due to the high availability of berries in the winter of 2023/24. This distribution is expected to vary significantly in the future based on resource availability and Scandinavian winter weather conditions in any given year.

Ecology

1.1.3.38 Both redwing and fieldfare are largely winter migrants arriving in October and leaving in March. The numbers of birds that come depends upon the availability of berries and the weather in Scandinavia. They form flocks and move over wide areas feeding on berry trees and seeds and invertebrates found in fields. They roost communally in woodlands, copses and in mature trees in hedgerows. Neither fieldfare nor redwing are present in the area during the breeding season.

Raptors

1.3.2.4 DistributionThe detailed Wildlife Habitat Attractants Risk Assessment(s) will include the results of pre-construction surveys reflecting the existing baseline (at the time of construction). The surveys will be undertaken in accordance with the Outline Breeding Bird Protection Plan of the oEMP (document reference J6) and will be aligned with existing monitoring undertaken by BAE and DIO to ensure comparative results and to maximise efficiencies in monitoring.

1.3.3 Draft Wildlife Habitat Attractants Risk Assessment

1.3.3.1 The

Table 1.4

1.1.3.39 The site-specific surveys found a number of buzzard, kestrel, sparrowhawk and barn owl holding territory in the area. These were well distributed throughout the area with the kestrel and barn owl generally found in open farmland whereas the buzzard and sparrowhawk territories were centred around woodland. Red kite, marsh harrier, peregrine and merlin were not thought to breed in the area but were recorded infrequently during the non-breeding season.

Ecology

1.1.3.40 The raptor assemblage within the survey area display different behaviours. Red kite and buzzard are both sedentary birds, although red kite are relatively rare in the area, and both use high soaring flight to search the landscape for prey or items to scavenge. Buzzard can hunt

birds and small mammals up to the size of rabbits, they normally take prey from the ground as they are agile enough for aerial pursuit, red kite will also take these prey items but also scavenge a lot on road kill, etc. The smallest prey taken by buzzards are earthworms.

1.1.3.41 Marsh harrier generally patrol the landscape at a lower level (tens of metres) where they flush birds and mammals which are then pursued. Marsh harrier are present in the area in higher numbers over the winter when birds use communal roost sites in the extensive saltmarshes of the Ribble estuary, they feed on mammals and birds up to the size of rabbits and pheasants. Peregrine are also more abundant in the winter, although do also breed nearby, and merlin are only present in winter moving to the uplands to breed. Peregrine can stoop from a height to catch prey but generally spend more time searching for prey from a vantage point (perch) rather than in flight. Peregrine also use low level dashing flight to chase avian prey, this is the style that merlin use to hunt too. Birds observe from a suitable perch before undertaking low level aerial pursuits. Peregrine and merlin all primarily feed on birds with peregrines capable to take down larger prey such as woodpigeon whereas merlin tend to feed on smaller passerines. Sparrowhawk are also a bird predator although these birds are stealthy hunters of woodland and hedgerow and, although common, are rarely seen.

1.1.3.42 Both kestrel and barn owl primarily feed on small rodents, the kestrel is most active diurnally whereas the barn owl is crepuscular and nocturnal. Both species are sedentary within the area and are often associated with nesting in abandoned buildings or nest boxes, although they will both nest in trees too. Kestrel hover from a relatively short distance above the ground (e.g., less than 100 m) whereas barn owl fly silently closer to the ground using their sensitive hearing to locate prey. Voles make up a large part of the prey items for both these species and voles are more abundant in areas with a well-developed thatch. The thatch is developed when grass is left to grow tall and then dieback at the end of the summer. The next summers' grass grows through this and then continues to add to the thatch. Areas where grass is grazed or hay and silage cuts taken do not build up thatch, so these areas contain lower densities of prey.

1.1.4 Outline Wildlife Habitat Attractants Risk Assessment

1.1.4.1 1.3.3.2 Table 1-4 addresses whether elements of the Transmission Assets are likely to increase the number of birds or change the patterns of use of habitats within Warton Aerodrome's 13km safeguarding area. wildlife hazard management zone . These are shown on Figure 1.3 and Figure 1.4 of the Outline Wildlife Hazard Management Plan (S_D3_8). This Outline Draft Wildlife Habitat Attractants Risk Assessment focuses on the bird species within Table 1.3 1.3 as these represent the species with the greatest risk of collision. The Applicants note that baseline numbers of these species fluctuate both seasonally and annually. The Applicants' Baseline Bird Technical Report (S_D3_5) provides information on the national, regional and local trends, taking into account potential fluctuations. The Applicants note that, if future monitoring identifies that

other species are attracted to the Transmission Assets, the detailed Wildlife Habitat Attractants Risk Assessment (including the management measures) will be updated accordingly.

1.1.4.2 1.3.3.3 The Outline Draft Wildlife Habitat Attractants Risk Assessment sets out a series of design commitments/management measures that will be implemented at each of the areas/features identified in Table 1.4. The Applicants will undertake appropriate monitoring at each of these areas/features to record the implementation of the design commitments/management measures and to identify potential changes in bird number/species of birds/patterns of use of the area. Monitoring frequency and intensity will vary on a case-by-case basis, but all monitoring frequencies and intensities are to be agreed in consultation with BAE Systems/DIO and Natural England.

1.1.4.3 1.3.3.4 The Applicants will also follow an adaptive management approach that will be informed by evidence from monitoring and trigger levels (see below). If any trigger levels are exceeded, the management measures will be escalated in accordance with to next level of measures that will be defined in the detailed Wildlife Attractants Habitat Risk Assessment. These measures may comprise passive habitat management measures and/or active controls and will be specific to the bird species and the element of the Transmission Assets works. Any changes are to be agreed in consultation with BAE Systems/DIO and Natural England.

1.3.3.5 The adaptive management approach comprises the key stages below and described in further detail in the Outline Wildlife Hazard Management Plan (document reference S_D3_8/F03):

1. **Passive Design and Management** – Inbuilt design or management features to reduce attractiveness for numbers/species composition of birds.
2. **Active Management** – Reactive measures designed to immediately control risk.
3. **Monitoring** – Regular monitoring informs of any increase in numbers/species composition of birds.
4. **Adaptive Management** – Alteration of the passive measures based upon changes in numbers/species composition.

1.1.4.4 1.3.3.6 The design commitments/management measures within Table 1.4 are based on the construction management measures within the Outline Code of Construction Practice (oCoCP (document reference J1)) and its supporting appendices, the oEMP (document reference J6) and measures within the CAP 772 guidance. The measures will include habitat management measures and active controls. The measures will be implemented to reduce the likelihood that the Transmission Assets will increase the number of target bird species in the wider area, attract non target bird species or change the pattern of use to an unacceptable level.

1.1.4.5 1.3.3.7 The Applicants will set out in the detailed Wildlife Habitat Attractants Risk Assessment the decision-making procedure for applying the trigger

levels and escalating the management measures that will be implemented. The Applicants will also establish a Communication Protocol, based on the principles identified in the oWHMP (section 1.4.2) with BAE Systems/DIO to communicate when the management measures are escalated. As part of the procedure, no measures to disperse birds will be implemented without express permission from Warton Aerodrome. Conversely, there will also be an emergency protocol whereby Warton Aerodrome can communicate with the Applicants if there is the need for emergency active measures to be employed.

Trigger levels

~~1.1.4.6~~1.3.3.8 Trigger levels are a key element of the Applicants' adaptive management approach and provide an agreed ~~threshold~~trigger level above which additional management measures will be implemented. Data from monitoring of bird species, numbers and patterns of use (e.g. flight lines) will provide the evidence for assessing when the trigger levels are exceeded.

~~1.1.4.7~~1.3.3.9 Trigger levels will be set for each of the areas and species identified in ~~the Outline Wildlife Habitat Attractants Risk Assessment (~~Table 1.4~~)~~ and will include:

- Bird numbers within target species above the agreed baseline
- Change in pattern of use (e.g. flight lines)
- Bird numbers within non-target species above the agreed baseline
- Specific triggers relating to areas/features of the Transmission Assets. These measures include:
  - Detection of nests on the roofs of the onshore substations
  - Birds attracted to areas of standing water in the construction areas, water bodies, attenuation ponds at the onshore substations or vegetation.

~~1.1.4.8~~1.3.3.10 The trigger levels ~~will~~will be determined in consultation with BAE and ~~the~~ DIO ~~(as an operating arm of the MoD)~~ and will be set out in the detailed Wildlife Habitat Attractants Risk Assessment. If any trigger levels are exceeded, an escalation of the management measures (listed in Table 1.4) will be implemented.

Monitoring and review

~~1.1.4.9~~1.3.3.11 The Applicants commit to undertaking ongoing monitoring of all aspects of the onshore Transmission Assets to ensure that the number/species/patterns of use of birds within Warton Aerodrome's 13km safeguarding ~~area~~zone do not increase beyond an acceptable level as a result of the Transmission Assets and to ensure that the passive management and design-based measures are still fit for purpose. This will include monitoring of temporary areas during the construction phase and monitoring of permanent areas during the operational phase of the Project.

~~1.1.4.10~~1.3.3.12 The Applicants will prepare a detailed monitoring strategy prior to construction that will set out the types, location, frequency, and reporting of monitoring. The monitoring strategy will form part of the detailed Wildlife Habitat Attractants Risk Assessment(s) and will be developed in consultation with BAE/DIO to ensure that the Transmission Assets' monitoring aligns with BAE's monitoring. The strategy will also agree procedures for communicating with Warton Aerodrome regarding active management measures and aircraft movements. -The Applicants will fund the monitoring (as set out in the monitoring strategy) via a commercial or cooperation agreement. In addition, the Applicants will also cover the costs associated with the implementation of the design commitments and additional measures.

~~1.1.4.11~~1.3.3.13 The monitoring strategy will set out roles and responsibilities of the Applicants' team for undertaking monitoring, the frequency of monitoring, and the reporting ~~the~~of results and ~~liaising~~liaison with Warton Aerodrome. The strategy will also set out the trigger levels (see paragraphs 1.3.3.8 to 1.3.3.10) and the decision-making process for when additional measures should be implemented.

~~1.1.4.12~~1.3.3.14 The detailed- Wildlife Habitat Attractants Risk Assessment(s) will be subject to regular review to ensure that it reflects that management measures being implemented. The risk assessment will be updated to reflect any changes to the proposed management measures identified from the ongoing monitoring.

Table 1-.4: ~~Outline~~Draft Wildlife Habitat Attractants Risk Assessment

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Fairhaven Saltmarsh (Work Area 49A/49B) **Purpose**: Bird mitigation	SD 33934 27153 Approx. 6.5 km	Reducing disturbance impacts to waders using the existing high tide roost site	Intertidal waders	Passive **Design ~~features~~**and Management Measures The measures at Fairhaven Saltmarsh are designed to reduce disturbance to intertidal waders that use the area as a high tide roost. The proposed measures aim to minimise the time birds spend flying due to disturbance, thereby maximising their roosting time. Since birds pose a risk to aircraft safety only when airborne, reducing their flight time may also help decrease the risk of birdstrike. Measures focus on managing the interaction of the bird roost and recreational users of Fairhaven Saltmarsh (e.g. wardens, soft fencing and education boards). Further information is provided in the oEMP (document reference J6). **Monitoring** The bird abundance and behaviour will be regularly monitored at a frequency to	1 – Unlikely	Primarily this area was chosen as it currently houses large numbers of intertidal waders. The intention of this mitigation area is to reduce recreational disturbance pressures on the birds that are currently ~~using~~present in the area. During the passage period, there is a high turnover of birds moving through the Ribble Estuary, with individuals stopping only briefly. Although reducing disturbance at roost sites benefits the daily energy balance and fitness of individual birds, it is unlikely to influence the overall number of birds passing through the estuary. Therefore, this mitigation is highly unlikely to cause an increase in the number of intertidal waders within the 13 km safeguarding zone. The intertidal waders that use this area are also low flying (often within metres of the ground/sea surface) and are therefore of low risk to aircraft at this distance from the airfield. This area is on the edge of a

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				be agreed with BAE/DIO and Natural England. If ~~bird numbers and behaviours directly attributable to this mitigation are seen to cause an unacceptable increase in risk (~~the agreed trigger levels ~~to be agreed in consultation with BAE and Natural England),~~are reached, then the management measures below may be implemented. **~~Active management measures~~Adaptive Management Measures** Active management measures would aim to further reduce disturbance to the birds using Fairhaven Saltmarsh. This may include more stringent restrictions on public access during particularly sensitive times of the year.		congested urban area and adjacent/partly within a wildlife site. The typical species assemblage currently using this area for roosting is oystercatcher, ringed plover, grey plover, dunlin, knot, sanderling, bar-tailed godwit and curlew. This area is currently used by high numbers of birds with counts of 10,000 – 20,000 waders made during a number of surveys, these numbers fluctuate but are not predicted to increase as a result of the mitigation, this is due to wintering waders being site faithful to roost sites, and the mitigation measures having no influence over the numbers of passage birds moving through. **Changes to bird flight pattern** The mitigation in this area is being proposed to reduce the flight times of the birds already present. In addition, the proposed mitigation will not alter the birds predictable approach paths to this site (along the tideline). Therefore, it is predicted that there would be no significant changes to existing flight patterns to and from the existing intertidal roost. If anything, there would be a reduction in flight activity caused when

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
						birds are flushed by the currently high levels of recreational disturbance events at Fairhaven Saltmarsh.
			Ducks	~~N/A~~	1 – Unlikely	While small numbers of shelduck and pintail forage in the shallow waters, the area is predominantly used by intertidal waders and does not attract ~~large numbers of~~roosting ducks. This is not predicted to change as a result of the proposed mitigations.
			Gulls	~~N/A~~	1 – Unlikely	Gulls, unlike waders, are not dependent upon tidal state for foraging and can utilise a wide number of marine, coastal and terrestrial (frequently urban) habitats and resources. As such they tend not to roost around high water in the same way that waders do~~.~~ but instead roost at night. They are also tolerant of disturbance, so this mitigation measure is unlikely to benefit gulls, and whilst gulls currently use the area for loafing, this area is predominantly used by intertidal waders and the proposed improvements pose no additional risk of attracting gulls.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
			Raptors	N/A	1 – Unlikely	The proposed mitigation at Fairhaven Saltmarsh is not likely to attract ~~new~~problematic terrestrial raptors as there will be no increase in prey abundance for them. ~~The area is currently used occasionally by non-breeding peregrine, there is not predicted to be a change in peregrine activity caused by the proposed mitigations.~~
			All other species (in Table 1.2)	N/A	1 – Unlikely	The proposed mitigation at Fairhaven Saltmarsh is not suitable to benefit the remaining terrestrial species
Newton-with-Scales (Work Area 49A/49B) **Purpose**: Bird mitigation	SD 45388 30064 Approx. 2.6 km	Enhancement and restoration of existing habitat features e.g. stopping up hedgerows, managing water levels within existing ditches, creating mosaic of grassland,	Ducks Waders	**Passive Design ~~Features~~and Management Measures** The scrapes and management of ditches will be designed to enhance and restore existing habitat features which have been affected by recent land management practices and will not seek to provide additional or create new habitat features.	2 – Possible (numbers) 1 – Unlikely (change in pattern of use)	Primarily this area was chosen as it currently houses high numbers of waterbirds, and it is very close the area of impact (onshore substations). The intention of this mitigation is not to increase overall bird numbers in the area, but simply to enhance the area for the birds currently present and provide a safe space for birds displaced at the substation sites.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
		creation of permanent scrapes		Measures to be undertaken include fitting existing drains with a sluice to control water levels within the site to enhance the existing scrapes and wet grassland habitats, reducing livestock levels, and creating heterogenous sward height through selective mowing/grazing to stop scrub or rush encroachment. **Monitoring** The bird abundance and behaviour will be regularly monitored (e.g., monthly) at a frequency to be agreed with BAE and Natural England. If ~~bird numbers and behaviours directly attributable to this mitigation are seen to cause an unacceptable increase in risk (~~the agreed trigger levels ~~to be agreed in consultation with BAE and Natural England),~~are reached, then the agreed management measures ~~below may~~shall be implemented. **Active Management Measures** ~~Monitoring of birds will determine whether additional targeted management measures are needed to~~		Site-specific survey data collected by the Applicants over the last three years indicates that this area has recently been used by high numbers of waterbirds such as wigeon, teal and black-tailed godwit. Recent land management practices have involved draining the area for agricultural purposes. The proposed measures aim to enhance existing habitats to their pre-drained condition to benefit birds using the area and to retain this area for these birds in perpetuity. As the target species are those currently using the area, it is unlikely that there will be an increase in the number of birds, changes to the species assemblage, or changes to existing behaviours in the area. In addition, the appropriate monitoring, active management measures and adaptive management practices are in place to ensure that this risk remains controllable. **Changes to bird flight pattern** Whilst there are unknowns surrounding current flight paths in this area, it is likely that most waterbirds present in the area either overwinter in this area, or switch

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				~~ensure that the bird risk does not exceed acceptable levels. The~~The final active measures are to be agreed in consultation with BAE and Natural England but could include the following in order of escalation: 1. ~~Temporarily reducing~~Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. **Adaptive Management Measures** These would be informed by monitoring and tailored to be species specific where necessary but could include: 1. Reducing water levels. 2. Altering livestock and/or mowing regimes to control sward height. 3. Temporarily increasing hedge height (artificially) to reduce line of sight~~.~~ and shrink the area usable by waterbirds.		between Newton Marsh SSSI and this site. As the proposal's sole aim is to improve the area for the bird species that currently use the site, there are not predicted to be any significant changes in the flight patterns of waders and ducks. It is not predicted that the larger waterbirds such as geese and swans will be attracted to the area. In addition, the appropriate management measures are in place to respond to any increase in risk caused by unexpected increases in bird numbers or changes in species composition and/or behaviour. ~~As the area will be unsuitable for most non-waterbird species, it is unlikely that this would cause an increase in flight activity for non-waterbirds in the area.~~

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
			Pigeons Starlings Winter thrushes	~~**Design Features**~~ **Passive design and management measures** Hedgerow species used for gapping up of hedgerows will avoid fruit bearing species thus reducing attraction to pigeons, starlings and winter thrushes. Habitat management e.g. pruning of hedgerows and trees to ensure they do not exceed 4.5m and 5.5m in height (respectively) **Monitoring ~~and~~, Active Management and Adaptive Management Measures** See above	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area As the area will be unsuitable for most non-waterbird species, it is unlikely that this would cause an increase in flight activity for non-waterbirds in the area.
			Raptors	**Design Features** The area will be designed as favourable for waders and wildfowl, this will include increasing line of site and removing raptor perches, this will make it less favourable for peregrine, marsh harrier and merlin.	1 – Unlikely	The waterlogged nature of the ground will make it unsuitable to support prey such as rabbits, or voles which in turn may attract birds such as buzzard, red kite, barn owl and kestrel. Therefore, it is not predicted that there will be attraction for non-intended species.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Monitoring ~~and~~, Active Management and Adaptive Management Measures See above		As the area will be unsuitable for most non-waterbird species, it is unlikely that this would cause an increase in flight activity for non-waterbirds in the area.
			All other species (in Table 1.2)	N/A	1 – Unlikely	The proposed mitigation at Newton-with-Scales is not suitable to benefit the remaining terrestrial species.
Pond creation at Morgan onshore substation (Work Area 49A) **Purpose:** Aquatic invertebrate mitigation	SD 43685 30564 Approx. 2.1 km	Creation of replacement ponds and planting of marginal vegetation could attract birds to feed or roost	Ducks	**Passive Design ~~Features~~and Management Measures** Ducks may be attracted to the created ponds. To reduce this attraction the ponds will be comparable to those lost and small, and planting around the pond margins would be designed to discourage birds, particularly wigeon, from roosting in the area. Bank profiles will be steep and ongoing weed management will be carried out as appropriate. Despite these measures, small numbers of mallard and teal may still use the ponds. **Monitoring**	1 – Unlikely	These ponds are a replacement for ponds that will be lost as a result of the Morgan onshore substation. The size will be similar to the ponds being lost and will therefore not have the capacity to increase duck numbers in the area. The pond creation is intended to compensate for a loss of ponds in the area. Therefore, while there may be some minor redistribution of mallard and teal, it is unlikely to result in an increase in the number of ducks within the 13 km safeguarding zone. In addition, this area is not required for bird mitigation so can be designed to repel birds. **Changes to bird flight pattern** These ponds simply represent moving a small discrete habitat from one area to another close by. This will not increase carrying capacity for any bird species and

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Regular monitoring **Active Management Measures** 1. Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. **Adaptive Management Measures** If bird numbers associated with this mitigation proved to be a risk, netting could be deployed to deter birds further.		the ponds will be designed ~~as~~to be unattractive to waterbirds. Therefore, there are not predicted to be any significant changes to bird flight patterns in the area.
			Waders Gulls	**Passive Design and Management Measures** These ponds will be permanent and designed specifically to avoid attracting waders and gulls, including the planting of marginal fringing vegetation. Since the ponds to be created serve as mitigation for the loss of existing ponds, they are unlikely to attract additional waders and gulls to the area.	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Monitoring ~~and~~, Active Management and Adaptive Management Measures See above		
			Raptors	N/A	1 – Unlikely	It is not predicted that these ponds will be of value for any raptor species.
			All other species (in Table 1.2)	N/A	1 – Unlikely	The proposed Pond creation at Morgan onshore substation is not suitable to benefit the remaining terrestrial species.
Pond creation at Moss Side (Work Area 49AB) **Purpose**: Aquatic invertebrate mitigation	SD 38758 29607 Approx. 2.4 km	Creation of replacement ponds and planting of marginal vegetation could attract birds to feed or roost	Ducks	**Passive Design ~~Features~~and Management Measures** Ducks may be attracted to the created ponds. To reduce this attraction the ponds will be comparable to those lost and small, and planting around the pond margins would be designed to discourage birds, particularly wigeon from roosting in the area. Bank profiles will be steep and ongoing weed management will be carried out as appropriate.	1 – Unlikely	These ponds are a replacement for ponds that will be lost as a result of the Morecambe onshore substation. The size will be similar to the ponds being lost and will therefore not have the capacity to increase duck numbers in the area. The pond creation is intended to compensate for a loss of ponds in the area. Therefore, while there may be some minor redistribution of mallard and teal, it is unlikely to result in an increase in the number of ducks within the 13 km safeguarding zone. In addition, this area is

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Despite these measures, small numbers of mallard and teal may still use the ponds **Monitoring** Regular monitoring **Active Management Measures** 1. Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. **Adaptive Management Measures** If bird numbers associated with this mitigation proved to be a risk, netting could be deployed to deter birds further.		not required for bird mitigation so can be designed to repel birds. **Changes to bird flight pattern** These ponds simply represent moving a small discrete habitat from one area to another close by. This will not increase carrying capacity for any bird species and the ponds will be designed as unattractive to flocking waterbirds. Therefore, there are not predicted to be any significant changes to bird flight patterns in the area.
			Waders Gulls	~~**Design Features**~~ **Passive design and management measures**	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				These ponds will be permanent and designed specifically to avoid attracting waders and gulls, including the planting of marginal fringing vegetation. Since the ponds to be created serve as mitigation for the loss of existing farm ponds, they are unlikely to attract additional waders and gulls to the area. **Monitoring ~~and~~, Active Management and Adaptive Management Measures** See above		
			Raptors	N/A	1 – Unlikely	It is not predicted that these ponds will be of value for any raptor species.
			All other species (in Table 1.2)	N/A	1 – Unlikely	The proposed Pond creation at Moss Side is not suitable to benefit the remaining terrestrial species.
Lytham Moss (Work Area 35A/35B)	SD 35915 29597 Approx. 4.9 km	Temporary scrape and feeding during the winter months	Geese Swans	~~**Design Features**~~ **Passive design and management measures**	2 – Possible (numbers) 1 – Unlikely (~~numbers and~~	Primarily this area was chosen as it currently houses high numbers of geese and other waterbirds, and it is very close the greatest area of impact (i.e., the highest densities of affected birds). The intention of this mitigation is not to

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Purpose: Bird mitigation				The indicative location and size of the feeding area and scrape has been refined following discussion with Blackpool Airport. Supplementary feeding will be provided at agreed rates and during the winter months only (November to March). Feeding rates will be agreed in consultation with Natural England and BAE (see section B2.5.2 of the oEMP). Agree cropping patterns with landowner during construction period. **Monitoring** ~~Weekly monitoring of the~~ The bird abundance and behaviour ~~in the area~~ will be ~~undertaken during its implementation.~~ ~~If bird numbers and behaviours directly attributable to this mitigation are seen to cause an unacceptable increase in risk (levels~~ regularly monitored (e.g., weekly or when food is provided) at a frequency to be agreed ~~in consultation~~ with BAE and ~~NE),~~Natural England.	change in pattern of use)	increase overall bird numbers in the area, but simply to provide food and safe space for the birds currently present at Lytham Moss that will be temporarily displaced during construction. Whilst this area will see an increase in bird numbers this will not represent an increase in goose and swan numbers within the 13 km safeguarding zone or Lytham Moss but will instead be a redistribution of birds displaced by the Transmission Assets infrastructure during construction. **Changes to bird flight pattern** The majority of these displaced birds currently feed in the vicinity of the proposed mitigation at Lytham Moss, and the current goose and swan feeding scheme is situated in the adjacent field. ~~Therefore,~~As numbers are not predicted to increase, and the area where they feed is only being moved by a few fields distance, the current flight patterns are not predicted to change, and the level of risk will remain predictable with birds transiting north to the feeding site in the morning and south

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				If the agreed trigger levels are reached, then the agreed management measures ~~below may~~shall be implemented. **Active Management Measures** ~~In the case that the mitigation in this area causes Warton Aerodrome's risk level to rise beyond an acceptable level (as defined as red in CAP 772) measures will be undertaken to immediately reduce the risk:~~ 1. The final active measures are to be agreed in consultation with BAE and Natural England but could include the following in order of escalation:Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. In addition: • Reduction /removal of supplementary feeding • Modify design/ infill of scrapes		to the roost site in the evening. This is the same as the existing baseline risk. In addition, the appropriate management measures are in place to respond to any increase in risk caused by unexpected increases in bird numbers or changes in species composition and behaviour.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				~~Following this the targets set will be reviewed with Natural England, Blackpool Airport and Warton Aerodrome.~~ **Adaptive Management Measures** These would be informed by monitoring and tailored to be species specific where necessary but could include: 7. Reducing water levels. 8. Altering the quantity of food provided 9. Altering the type of food provided 10. Altering the frequency that food is provided.		
			Ducks Waders	~~**Design Features**~~ **Passive design and management measures** The temporary scrapes will be designed to attract the target species only (ducks and waders)and will be regularly monitored and managed during their creation.	2 – Possible (numbers) 1 ~~-~~ – Unlikely (change in pattern of use)	Whilst this area will see an increase in bird numbers this will not represent an increase in duck and wader numbers within the 13 km safeguarding zone but will instead be a redistribution of birds displaced by the Transmission Assets infrastructure during construction. The majority of these displaced birds currently feed in the vicinity of the proposed mitigation at Lytham Moss so flight patterns are not predicted to change

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Monitoring ~~and~~, Active Management and Adaptive Management Measures See above.		
			Raptors	~~**Design Features**~~ **Passive design and management measures** The area will be designed as favourable for waders and wildfowl, this will include increasing line of site and removing raptor perches, this will make it less favourable for ~~peregrine, marsh harrier and merlin~~raptors. No long grass or thatch will be provided. **Monitoring ~~and~~, Active Management and Adaptive Management Measures** See above.	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area.
			All other species (in Table 1.2)	N/A	~~2 – Possible~~ 1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Lea Marsh Biological Heritage Site (BHS) **Purpose**: Otter mitigation	SD 47885 29616 Approx. 4.7 km	The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. Existing reed bed habitats and ditches will be enhanced with the planting of marginal vegetation along the spurs of the tributaries. Artificial holt creation. It is not anticipated that the creation of the artificial otter holt would result in any habitat	Geese Swans Ducks Waders Gulls	~~**Design Features**~~ **Passive design and management measures** Implementation of a temporary meadow grassland regime would discourage roosting/ loafing flocks of large waterbird species that currently congregate at times in this habitat at times due to the increased sward height. The sward would be managed with low level grazing and/or an annual hay cut with the arisings removed to prevent thatching. The area of reedbeds will not be increased above existing levels. **Monitoring** Regular monitoring **Active Management Measures** 1. Arm-waving 2. Lure	1 – Unlikely	Habitat enhancements in this area will make this area less suitable for flocking waterbirds due to the longer length of the grass that is proposed, this is to be grazed so that a thatch doesn't build up. The existing birds that are largely composed of naturalised Canada and greylag geese are predicted to move into the main Ribble channel where a significant population already exists. **Changes to bird flight pattern** Whilst there are many unknowns surrounding current flight paths in this area, it is likely that most waterbirds currently present will relocate into the River Ribble corridor, so flight patterns in the general area are predicted to remain at current levels, whereas flight activity within this specific area is likely to decrease.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
		attractants for birds		3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. **Adaptive Management Measures** Monitoring will determine whether additional targeted management measures are needed to ensure that the bird risk does not exceed acceptable levels. The measures are to be agreed in consultation with BAE and NE but could include: If reedbeds start to encroach then management will be undertaken to ensure that these are ~~managed~~returned to baseline levels Grassland management or livestock levels could be ~~adjusted.~~ altered.		
			Raptors	~~**Design Features**~~	1 – Unlikely	There has been some suggestion that discarded fish carcasses could increase

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Passive design and management measures Whilst sward height will be taller, this will be managed by grazing and/or mowing (e.g., hay cut). This will prevent a thatch building up and keep raptor prey populations at a low density. **Monitoring ~~and~~, Active Management and Adaptive Management Measures** See above.		bird scavenging activity in the area. This is highly unlikely as outlined below: Otters are wide ranging carnivorous mammals with male territories being up to 40 linear km of river habitat (females are smaller but still up to 20km). Within this they will have a number of safe resting sites and they will hunt in between as resources dictate. Otters mostly eat fish but will often take crustaceans (e.g., crayfish) and amphibians too. They mostly take small to medium sized prey which are eaten whole with no discards. Only occasionally will half eaten larger fish carcasses be left on the bankside. These occasions will be random occurrences, both spatially and temporally, and in no way represent a reliable or predictable food source for birds. The artificial holt is to be created by an existing shallow pool of water that is unlikely to contain any significant fish numbers. This will mean that any otters

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
						will have to move up or downstream to locate reliable food sources. In addition, the creation of an artificial holt and a safe space for resting otters will not increase the otter population in the area, just mitigate for the potential loss of other safe spaces due to disturbance. Therefore, the risk level of widescale scavenging of fish carcasses by birds will remain extremely low, entirely ~~random~~unpredictable, and completely unchanged from that the level that currently exists. The waterlogged nature of the ground will make it unsuitable to support prey such as rabbits, or voles which in turn may attract birds such as buzzard, ~~red kite,~~ barn owl and kestrel. Therefore, it is not predicted that there will be attractants for non-intended species.
			All other species (in Table 1.2)	N/A	1 – Unlikely	The slight modifications in habitat (increased sward height and marginal vegetation) are unlikely to significantly increase attraction for the flocking species such as corvids, starlings and pigeons. It is therefore not predicted to cause

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
						significant changes in the abundance of these birds using this area or their use of this area.
Lea Marsh Fields Biodiversity Benefit Area **Purpose**: Habitats and plant mitigation	SD 48391 29555 Approx. 5.2 km	These measures involve the removal of the existing cropland and the creation of species-rich grassland, woodland, scrub, ponds and new ditches. These habitats could potentially attract birds to feed or roost.	Starlings Pigeons Winter thrushes Corvids	~~**Design Features**~~ **Passive design and management measures** Seed mixes and tree species will be carefully chosen to limit attraction by starlings and winter thrushes. **Monitoring** Regular monitoring **Active Management Measures** 1. Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. **Adaptive Management Measures**	1 – Unlikely	Whilst the creation of species-rich grassland, woodland, scrub, ponds and new ditches may increase the suitability of the area for small breeding and wintering passerines such as warblers and finches, these species pose a negligible risk to aircraft safety. Corvids, pigeons and starlings tend to show greater attraction to intensive land use and thus may even show increased avoidance of the area. Winter thrush use will be limited due to the lack of berry trees. **Changes to bird flight pattern** There are many unknowns surrounding current flight paths in this area, however it is likely that as this land is not currently used by large numbers of birds, and as the change in management is not predicted to increase attraction, there are not predicted to be any significant changes to bird flight patterns.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				Monitoring will determine whether additional targeted management measures are needed to ensure that the bird risk does not exceed acceptable levels. The measures are to be agreed in consultation with BAE and NE but could include: Grassland management or livestock levels could be ~~adjusted~~altered. Scrub and woodland management. Pond design could be altered.		
			All other species (in Table 1.2)	~~**Design Features**~~ **Passive design and management measures** The proposed Pond creation at mitigation at Lea Marsh Fields are not suitable to support the remaining large flocking waterbird species. This is due to these ponds being created within a matrix of tall grassland and scrub. These habitats provide cover for predators and are generally avoided by	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				waterbirds who prefer more open habitats with a clear line of site. **Monitoring ~~and~~, Active Management and Adaptive Management Measures** See above.		
			Raptors	~~**Design Features**~~ **Passive design and management measures** Whilst sward height will be taller, this will be managed by grazing and/or an annual hay cut with the arisings removed to prevent thatching. This will prevent a thatch building up and keep raptor prey populations at a low density. **Monitoring ~~and~~, Active Management and Adaptive Management Measures** See above	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Onshore Substations Permanent structure		Roofs of onshore substation buildings provide potential roosting sites and perching opportunities, particularly if the design includes flat roofs or sheltered ledges access holes and crevices	All species (in Table 1.2)	~~**Design Features**~~ **Passive design and management measures** Design of the onshore substation to avoid flat roofs, valleys or protruding features, anti-roosting features, allow safe access for checks. **Monitoring** Regular inspections **Active Management Measures** 1. Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Nest and egg removal under licence. (1,2,3 stages) 7. ~~e.g., CAP 772 escalation measures.~~ Shooting.	1 – Unlikely	Birds will be monitored and actively deterred.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Fencing Permanent feature	N/A	Creation of secure open spaces around the substations with areas of short grass or gravel may attract ground-nesting species	All species (in Table 1.2)	**Active Management Measures** Bird management measures (e.g. regular inspection of the site in period leading up to nesting season. **Monitoring** Regular inspections **Active Management Measures** ~~Additional deterrents if early nesting signs observed~~ 1. ~~e.g., CAP 772 escalation measures.~~Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 11. Shooting.	1 - Unlikely	Birds will be monitored and actively deterred.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Attenuations ponds Permanent feature		Attenuation ponds to manage surface water runoff at the onshore substations may attract birds to feed, roost or nest.	All species (in Table 1.2)	~~**Design Features**~~ **Passive design and management measures** The design of the attenuation ponds will principally reflect its function to manage surface water run off (i.e. temporarily store to allow discharge at an agreed rate). Therefore, the ponds will not hold water in the long term. **Monitoring** Regular inspections **Active Management Measures** 1. Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting. **Adaptive Management Measures** Potential netting of the ponds	1 – Unlikely	The proposed attenuation ponds will be designed to deter birds from using the ponds.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				~~e.g., CAP 772 escalation measures.~~		
Landscape planting Permanent feature		Tree and shrub planting can create dense vegetation that may provide roosting opportunities. Berry and fruit bearing species provide additional food source in autumn.	All species (in Table 1.2)	~~**Design Features**~~ **Passive design and management measures** Detailed planting design to avoid the proportion of fruit and berry bearing species and trees with less robust crowns **Monitoring** Regular inspections **Active Management Measures**	1 – Unlikely	No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				1. ~~e.g., CAP 772 escalation measures.~~Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Shooting.		
Vegetation clearance Construction activity	N/A	The exposure of soils following vegetation clearance and stockpiling of soils may attract birds to feed on the invertebrates in the soil. Seeding of the stockpiles may also attract birds to feed.	All species (in Table 1.2)	~~**Design Features**~~ **Passive design and management measures** Soil management (e.g. covering soils, selection of seed type), bird management during seeding. **Monitoring** Regular monitoring during construction **Active Management Measures** 1. ~~e.g., CAP 772 escalation measures.~~Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers	1 – Unlikely	Birds will be monitored and actively deterred.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
				5. Bird-scaring rockets and cartridges 6. Shooting.		
Water and ponding Construction activities	N/A	Areas of standing water within the construction areas may attract birds to feed (from invertebrates brought closer to the surface), drink or bathe.	All species (in Table 1.2)	~~**Design Features**~~ **Passive design and management measures** Management of surface water runoff to avoid accumulation of water. **Monitoring** Regular monitoring during construction **Active Management Measures** 1. ~~e.g., CAP 772 escalation measures.~~Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Nest and egg removal under licence. (1,2,3 stages) 7. Shooting.	1 – Unlikely	Birds will be monitored and actively deterred.

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
Waste management Construction activities	N/A	Discarded food waste or other edible waste, particularly from welfare units at temporary construction compounds may attract birds to feed.	All species (in Table 1.2)	~~Design Features~~ **Passive design and management measures** Secure storage of waste at construction compounds, regular collection of waste, good housekeeping policies. **Monitoring** Regular monitoring during construction **Active Management Measures** 1. ~~e.g., CAP 772 escalation measures.~~Arm-waving 2. Lure 3. Bio-acoustics (e.g. distress calls) 4. Use of bird scaring lasers 5. Bird-scaring rockets and cartridges 6. Nest and egg removal under licence. (1,2,3 stages) 7. Shooting.	1 – Unlikely	These species will be monitored and actively deterred.
General construction activities	N/A	This area will be subject to displacement with	All species (in Table 1.2)	See above areas/features for attractants and management measures.		The greatest numbers of birds to be displaced are made up of waterbirds, this

Area/ feature	National grid reference and distance from Warton Aerodrome[1]	Wildlife attractant	Species	Design commitments/management measures (to control attraction)	Likelihood of attractant	Justification
throughout the corridor		the exception of a few generalist and disturbance tolerant species (e.g., gulls) that are dealt with by vegetation clearance and waste management above.				is the reason why the bird mitigations have been suggested. The bird mitigations suggested above are to house displaced birds and thereby maintain the status quo of bird numbers and distribution in the area. The mitigations have been sited as close to the areas of greatest impact (in this case the areas with the highest densities of birds) in order to minimise disruption to the birds daily and seasonal routines. It is predicted that birds displaced by construction will be able to relocate at the proposed mitigation areas thereby minimising any changes in bird abundance, distribution or activity, therefore there is predicted to be no significant change in bird flight activity other than minor relocation.

*Likelihood considers how likely the feature of the development will attract more birds, change the distribution or alter their behaviour within the 13km safeguarding buffer.

~~1.1.5~~1.3.4 ~~Aerodrome~~ Engagement

~~1.1.5.1~~1.3.4.1 The Applicants will establish an engagement procedure with Blackpool Airport and Warton Aerodrome prior to construction. The procedure will include sharing of monitoring data and identifying the lines of communication with the relevant roles at Blackpool Airport and / or Warton Aerodrome.

~~1.1.5.2~~1.3.4.2 The Applicants will prepare an annual report which will provide a detailed account of all surveillance and active bird control undertaken during the previous year.

1.3.4.3 Communication protocols will be developed for Blackpool Airport and Warton Aerodrome based on the principles in the Outline Wildlife Hazard Management Plan which commits the Applicants to regular communication with Blackpool Airport and / or Warton Aerodrome including results from monitoring and escalation of management measures . within the respective 13km wildlife hazard management zones.

1.3.5 Next Steps

1.3.5.1 The next and final step in this process is to produce a full bird strike risk assessment. This has already been produced for Blackpool Airport in accordance with their existing risk assessment (see Appendix B of S_D3_8/F03 the Outline Wildlife Hazard Management Plan).

1.3.5.2 The Blackpool Airport Wildlife Hazard Risk Assessment and Management Plan follow the guidance set out in CAP772. This calculates risk as a product of the severity of a strike and the likelihood of a strike as shown in Table 1.5 below. All red risks are considered unacceptable, amber is tolerable and needs monitoring with additional measures taken if needed, green is acceptable.

Table 1.5: Risk assessment matrix as taken from CAP772

		Likelihood				
		Very High	High	Moderate	Low	Very Low
Severity	Very High	25	20	15	10	5
	High	20	16	12	8	4
	Moderate	15	12	9	6	3
	Low	10	8	6	4	2
	Very Low	5	4	3	2	1

1.3.5.3 The severity of a strike is fixed in the CAP772 guidance and is based upon the weight or flocking behaviour of the bird, the severity examples as taken from CAP772 are shown below in Table 1.6.

Table 1.6: The severity or damage probability percentages of birdstrike with examples as taken from CAP772

	Very high	High	Moderate	Low	Very low
Probability of damage	>20%	10 - 20%	6 - 10%	2 - 6%	<2%
Species groups	Swans, geese	Large gulls	Waders, small gulls, corvids, pigeons, ducks	Starling, winter thrushes	Other passerines

1.3.5.4 Therefore, the only remaining data needed to run a full risk assessment is the probability of a strike. The CAP772 guidance and Blackpool Airport's risk assessment are clear that the approach needed to estimate the probability of a strike is the airport's own strike rate from the last five years. An example is shown below in Table 1.7.

Table 1.7: The probability of a strike as taken from CAP772

	Very high	High	Moderate	Low	Very Low
Birdstrike per 10,000 flights	>10	3 - 10	1 - 3	0.3 - 1	0 - 0.3

1.3.5.5 The Applicants have not received the strike rate data from BAE Systems and therefore are unable to complete the final step in the risk assessment process. However, the Applicants have provided all of the detail needed in order to carry out a robust risk assessment.

1.3.5.6 As is demonstrated above, the Applicants have identified passive and active control measures that are recognised to be effective in controlling and managing bird numbers and distribution. Whilst the Applicants do not believe that these will all be required to ensure the continued safeguarding at Warton Aerodrome, commitment to implementing the measures (as required) as well as monitoring and reporting are secured through the DCO. This will ensure that any unintended changes to bird populations or distributions can be managed within agreed and acceptable levels and therefore there will be no increase in bird strike risk. As such the Applicants have clearly identified a robust and CAP772 compliant process to monitor and take the necessary measures to reduce bird strike risk in a timely manner in all of the construction and environmental mitigation areas that are proposed as part of the Morgan and Morecambe Transmission Assets.

1.3.5.7 While the Applicants are confident that the Transmission Assets will not lead to an increased risk of bird strike, they acknowledge that the findings of this wildlife habitat attractants risk assessment must be carried through into the aerodrome's own bird strike risk assessment. This approach is demonstrated in the case of Blackpool Airport, as shown in Appendix B of the Outline Wildlife Hazard Management Plan (oWHMP).

1.3.5.8 As can be seen in this assessment, for all species, the bird strike risk, once control measures are implemented, returns to existing baseline levels. Therefore, if Warton Aerodrome applies the same assessment methodology as Blackpool Airport (in line with CAP 772), the commitments made by the Applicants will ensure that bird strike risk remains at current levels, regardless of any operational differences between the two facilities.

1.3.5.9 This will be confirmed once the necessary information to complete the bird strike risk assessment is made available.

~~1.1.6~~1.3.6 Conclusion

~~1.1.6.1~~1.3.6.1 Following on from the Outline Wildlife Hazard Management Plan submitted at Deadline 4 (S_D3_8) the Applicants have undertaken ~~an outline~~a Draft Wildlife Habitat Attractants Risk Assessment for Warton Aerodrome. The risk assessment focuses on the bird species at risk of collision (as set out in ~~Table 1-2)~~Table 1.3) which have been agreed with BAE Systems/DIO. The risk assessment takes into account the Applicants' survey results, and national, regional and local data to establish the patterns of use as reported in the Baseline Bird Technical Report (S_D3_5).

~~1.1.6.2~~1.3.6.2 The Applicants' approach considers the likelihood of the specific elements of the Transmission Assets to potentially cause a change in abundance, species and patterns of use of birds within Warton Aerodrome's 13 km safeguarding area. The approach is in accordance with the CAP 795 guidance.

~~1.1.6.3~~1.3.6.3 The areas of the Transmission Assets set out in Table 1.4 are designed to provide (both temporary and permanent) alternative resources for birds that may be impacted through habitat loss and disturbance as a result of the construction and/or operation of the Transmission Assets. The Baseline Bird Technical Report (S_D3_5) provides evidence that these birds are currently present within Warton Aerodrome's 13km safeguarding area and provides trends of bird populations. The ~~Outline~~Draft Wildlife Habitat Attractants Risk Assessment concludes that with the~~-~~ implementation of design commitments and an adaptive management approach (supported by a detailed monitoring strategy) the Transmission Assets would not cause a ~~significant~~material change in abundance, species and patterns of use by birds within ~~Warton Aerodrome's 13 km~~ the wildlife hazard management (safeguarding) area around Warton Aerodrome.

~~1.1.6.4~~1.3.6.4 Whilst there may be some localised redistribution of birds within the Transmission Assets Order Limits, the Applicants have designed their

mitigations to limit additional movements of birds or alter existing patterns of use.

1.3.6.1 Although the final bird strike risk assessment for Warton Aerodrome is still pending, the Applicants have clearly demonstrated that such an assessment is not essential to confirm that any unintended changes in bird numbers or distribution resulting from the Transmission Asset can be effectively managed to agreed and acceptable levels. As a result, there will be no increase in bird strike risk beyond the current, managed baseline.