NORTH FALLS

Offshore Wind Farm

Outline Project Environmental Management Plan

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Contents

Glossary of Acronyms

AEZ	Archaeological Exclusion Zones
AICs	Aeronautical Information Circulars
ANO	The Air Navigation Order
BWM	Ballast Water Management
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CoCP	Code of Construction Practice
CRA	Chemical Risk Assessment
CTVs	Crew Transfer Vessels
DCO	Development Consent Order
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPCI	Engineering, Procurement, Construction and Installation
EPS	European Protected Species
ERCoP	Emergency Response Co-operation Plan
ES	Environmental Statement
Five Estuaries	Five Estuaries Offshore Wind Farm
FLCP	Fisheries Liaison and Coexistence Plan
FLO	Fisheries Liaison Officer
GASCo	General Aviation Safety Council
GGOW	Greater Gabbard Offshore Wind Farm
HOCI	Habitats of Conservation Importance
HSE	Health Safety and Environment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IMCA	International Marine Contractors Association
IMO	International Maritime Organisation
INNS	Invasive Non Native Species
IPMP	In Principle Monitoring Plan
Km	Kilometre
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Maritime Coastguard Agency
MMMP	Marine Mammal Mitigation Protocol
MoD	Ministry of Defence
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
NOTAMs	Notices to Airmen
NFOW	North Falls Offshore Wind Farm Limited
OCP	Offshore Converter Platform
OPEMP	Outline Project Environmental Management Plan

OSP	Offshore Substation Platform
PEMP	Project Environmental Management Plan
SAC	Special Area of Conservation
SAR	Search and Rescue
SIP	Site Integrity Plan
SNS	Southern North Sea
UK	United Kingdom
UXO	Unexploded Ordnance
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generators

Glossary of Terminology

Array area	Infrastructure required to connect the Project to the national grid connection point.
Array cables	Cables which link the wind turbine generators with each other, the offshore substation platform(s) and/or the offshore converter platform.
Landfall	The location where the offshore export cables come ashore at Kirby Brook.
National Grid connection point	The grid connection location for the Project. National grid are proposing to construct new electrical infrastructure (a new substation) to allow the Project to connect to the grid, and this new infrastructure will be located at the national grid connection point. .
Offshore cable corridor	The corridor of seabed from the array area to the landfall within which the offshore export cables will be located.
Offshore converter platform	Should an offshore connection to a third party HVDC cable be selected, an offshore converter platform would be required. This is a fixed structure located within the array area, containing HVAC and HVDC electrical equipment to aggregate the power from the wind turbine generators, increase the voltage to a more suitable level for export and convert the HVAC power generated by the wind turbine generators into HVDC power for export to shore via a third party HVDC cable.
Offshore export cables	The cables which bring electricity from the offshore substation platform(s) to the landfall.
Offshore project area	The overall area of the array area and the offshore cable corridor.
Offshore substation platform(s)	Fixed structure(s) located within the array area, containing HVAC electrical equipment to aggregate the power from the wind turbine generators and increase the voltage to a more suitable level for export to shore via offshore export cables.
Onshore cable route	Onshore route within which the onshore export cables and associated infrastructure would be located.
Onshore export cables	The cables which take the electricity from landfall to the onshore substation. These comprise High Voltage Alternative Current (HVAC) cables, buried underground.
Onshore project area	The boundary within which all onshore infrastructure required for the Project will be located (i.e. landfall; onshore cable route, accesses, construction compounds; onshore substation and cables to the national grid substation).
Onshore substation	A compound containing electrical equipment required to transform and stabilise electricity generated by the Project so that it can be connected to the national grid.
Platform interconnector cable	Cable connecting the offshore substation platforms (OSP) or the OSP and offshore converter platform (OCP)
Scour protection	Protective materials to avoid sediment being eroded away from the base of the wind turbine generator foundations and offshore substation platform (OSP) or / and offshore converter platform (OCP) foundations as a result of the flow of water.
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project Or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.
The Project Team	A multi-disciplinary team consisting of individuals from NFOW, supported by a wider group of contractors and sub-contractors, as required to deliver the environmental management required by the PEMP.
Wind turbine generator (WTG)	Power generating device that is driven by the kinetic energy of the wind.

1 Introduction

1.1 Project background

1. North Falls Offshore Wind Farm Limited (NFOW) ('the Applicant') has submitted a Development Consent Order (DCO) Application for the North Falls Offshore Wind Farm (hereafter 'North Falls').

2. North Falls is a Nationally Significant Infrastructure Project, located in the southern North Sea, c. 40km from the East Anglian coast, and is an extension to the west of the existing Greater Gabbard Offshore Wind Farm.

3. The following three grid connection options are included in the Project design envelope.

   - Option 1: Onshore electrical connection at a national grid connection point within the Tendring peninsula of Essex, with a project alone onshore cable route and onshore substation infrastructure;
   - Option 2: Onshore electrical connection at a national grid connection point within the Tendring peninsula of Essex, sharing an onshore cable route and onshore duct installation (but with separate onshore export cables) and co-locating separate project onshore substation infrastructure with the neighbouring Five Estuaries Offshore Wind Farm (Five Estuaries); or
   - Option 3: Offshore electrical connection supplied by a third-party.

4. The North Falls project area comprises:

   - The offshore project area:
     - The offshore wind farm area (hereafter the 'array area') - within which the wind turbine generators, offshore substation platform(s), offshore converter platform (if required), platform interconnector cable and array cables will be located;
     - Offshore cable corridor (for Options 1 and 2 only) - the corridor of seabed from array area to the landfall within which the offshore export cables will be located; and
   - The onshore project area (not applicable to this document).

1.2 Purpose of this document

5. The North Falls Environmental Statement (ES) (Document Reference: 3.1) reports the findings of the Environmental Impact Assessment (EIA). The EIA process identifies embedded mitigation adopted through the project design and where necessary, any additional mitigation to be adhered to during the construction and operation phases. A Schedule of Mitigation (Document Reference: 2.6) is submitted with the DCO application which provides a summary of the commitments made by the Applicant.

6. The Project Environmental Management Plan (PEMP) provides a key mechanism, through which the relevant regulatory authorities can be assured that environmental management required during the construction and operation

of the offshore infrastructure will be formally controlled. The PEMP must be approved in writing by the Marine Management Organisation (MMO), in consultation with relevant stakeholders, prior to construction.

7. The PEMP also aids communication during construction, operation and maintenance works, as well as during the planning of these works, to ensure staff and contractors are clear on the environmental management measures required for the Project, to ensure the works are undertaken in an environmentally responsible manner.

8. The PEMP is secured by the Draft DCO (Document Reference: 6.1) which states that:

> *"a project environmental management plan covering the period of construction for the relevant stage to include details of— the PEMP will include the following:*
>
> *(i) a marine pollution contingency plan to address the risks, methods and procedures to deal with and report any spills and collision incidents of the authorised development in relation to all activities carried out;*
>
> *(ii) a chemical risk register to include information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance;*
>
> *(iii) a marine biosecurity plan detailing how the risk of introduction and spread of invasive non-native species will be minimised; and*
>
> *(iv) waste management and disposal arrangements….."*

9. This Outline PEMP is provided by the Applicant, as part of the DCO application to provide a framework for the PEMP, outlining the measures proposed to manage the environmental risks associated with the construction and operation of the offshore components of North Falls. This document is based on the North Falls ES, industry good practice and relevant legislation (at the time of preparation) and will inform the content of the PEMP which will be prepared following post-consent detailed design.

10. An equivalent mechanism is provided by the Code of Construction Practice (CoCP), in accordance with the Outline CoCP (Document Reference: 7.13) for the onshore infrastructure. Therefore, the onshore components of North Falls are not included within the PEMP.

2 Project description

11. ES Chapter 5 Project Description (Document Reference: 3.1.7) outlines the project description based on a design envelope and a summary is provided in Table 2.1. The North Falls offshore infrastructure includes:

- Options 1 and 2:
  - Up to 57 wind turbine generators (WTG)s and their associated foundations;
  - Up to two offshore substation platforms (OSP) and their associated foundations to aggregate electricity from the wind turbine generators

and facilitate the export of electricity via the Project's offshore export cables;

- Subsea cables:
  - Array cables between the WTGs and between the WTGs and the OSP(s);
  - Platform interconnector cable between the OSPs, if required.
  - Offshore export cables between the OSP(s) and landfall;
- Scour protection around foundations, where required; and
- Surface laid cable protection, where required.

- Option 3
  - Up to 57 WTGs and their associated foundations;
  - Up to one OSP and associated foundation and associated foundation to aggregate electricity from the wind turbine generators;
  - One OCP and associated foundation to increase the voltage of electricity for export and convert the HVAC power generated by the wind turbine generators into High Voltage Alternating Current (HVDC) power for export via an High Voltage Direct Current (HVDC) cable supplied by a third party;
  - Array cables between the WTGs and between the WTGs and OSP(s)/OCP;
  - Platform interconnector cable between the OSP and OCP;
  - Scour protection around foundations, where required; and
  - Surface laid cable protection, where required.

Table 2.1 Offshore project characteristics

Feature	Worst case parameters
All grid connection options	
Number of WTGs	57
Array area	95km^2
Approximate array area distance to shore (closest distance)	40km
Maximum WTG rotor diameter	337m
Maximum rotor tip height	377.4m above Mean High Water Springs (MHWS)
Minimum rotor tip clearance above sea level	27m above MHWS
Minimum separation between WTGs	1,180m in the downwind direction; and 944m in the crosswind direction.
Maximum array cable length	170km
Maximum platform interconnector cable length	20km
Array cable and platform interconnector cable target minimum burial depth (where buried)	0.6m

Feature	Worst case parameters
Options 1 and 2 only	
Offshore cable corridor length	57km
No. of cable circuits	2
Offshore export cable target minimum burial depth (where buried)	0.6m
No. of offshore substation platforms (OSP)	2
Option 3 only	
No. of offshore converter platforms (OCP)	1
No. of OSP	1

12. Following final detailed design of North Falls, the Project Description section of the PEMP will set out information with regard to the detailed design.

2.1 Marking and lighting

13. During construction, the array area will be marked by buoyage as required and directed by Trinity House.

14. Throughout the life of the Project, North Falls WTGs would be lit in accordance with the requirements of relevant guidance, including:

- WTGs will be lit with a medium intensity (2000 candela (cd)) steady red light on the top of each nacelle and requires for some downward spillage of light (Air Navigation Order (ANO) 2016 (as amended) Article 222; Civil Aviation Authority (CAA) Policy (CAP) 764);
- With the permission of the CAA, only WTGs on the periphery/boundary of the WTG array need be fitted with the above lighting (ANO Article 223; Marine Guidance Note (MGN) 654);
- WTGs which are not permanently lit will be equipped with 200cd red / infra-red lights on the nacelles, to be operated on demand during search and rescue (SAR) operations (MGN 654).
- Appropriate lighting would be utilised to facilitate heli-hoisting if undertaken within the North Falls array area, as outlined in Civil Aviation Publication (CAP) 437: Standards for Offshore Helicopter Landing Areas (CAA, 2023a).
- WTG blade tips will be marked in red, together with markings down the blade, to provide a SAR helicopter pilot with a hover reference point as set out in MGN 654 Annex 5.

15. The colour scheme for nacelles, blades and towers is typically RAL 7035 (light grey). Foundation steelwork is generally in RAL 1023 (traffic light yellow) up to the Highest Astronomical Tide (HAT) +15m or to Aids to Navigations, whichever is the highest.

16. A Lighting and Markings Management Plan must be agreed and implemented in consultation with the CAA, as secured through the Draft DCO (Document Reference: 6.1).

2.1.1 Search and rescue

17. In addition to the temporary SAR lighting described above, a WTG shutdown protocol must applied during rescue situations. An Emergency Response Cooperation Plan (ERCoP) will be developed in the required MCA format and structure and as required under MGN 654, and will be implemented for all phases of the Project as secured through the draft DCO (Document Reference: 6.1).

3 Personnel, roles and responsibilities

3.1 The Project Team

18. Delivery of the PEMP will involve a multi-disciplinary team (hereafter referred to as 'the Project Team'). Likely roles in the Project team include:

- Individuals from NFOW, e.g. Project Manager, Consents Manager, Operations Manager and Project Health, Safety and Environmental Manager(s);
- a Principal Contractor who would be responsible for environmental management on site, including the preparation of environmental documentation;
- Engineering, Procurement, Construction and Installation (EPCI) contractors;
- Consent compliance contractors;
- Environmental specialists such as Environmental Liaison Officer, Fisheries Liaison Officer (FLO), Ornithologists, Marine Mammal Observers and/or Archaeologists.

19. This section of the PEMP will provide details of the key contacts involved in delivering the environmental management required by the PEMP, as well as setting out the environmental responsibilities of key staff and how these link with other members of the Project Team.

20. Unless otherwise stated in the PEMP, the North Falls Project Manager will have ultimate responsibility for production of the PEMP and ensuring the commitments secured within it are communicated to the Project Team.

3.2 Regulator and Stakeholders

21. This section will provide details of key stakeholders to be consulted during the development and delivery of the PEMP. This will include:

- The Maritime and Coastguard Agency (MCA);
- Trinity House;
- Natural England; and
- Historic England.

22. Other stakeholders may be consulted, as required.

23. The MMO is the Regulator responsible for approving the PEMP.

4 Training and Awareness

24. The following sections provide an overview of required training. This will be detailed further in the PEMP.

4.1 Project / Vessel Inductions

25. The overarching project induction must include reference to compliance with the relevant requirements and conditions of the Project, including those specific to vessel management practices.

26. A vessel induction must take place with all vessel personnel present. It must include an environmental component. The Contractor's project team should nominate designated personnel to be responsible for the preparation and delivery of site induction and maintaining attendee records.

27. The environmental component of the vessel induction is expected to include reference to environmental management contacts, site specific environmental sensitivities, waste management arrangements, hazardous material management, fuel, oil, and chemical management, environmental emergency response, reporting of incidents and complaints.

4.2 Tool Box Talks

28. A tool box talk will be presented by the contractor to key personnel involved in the work activities.

29. Tool box talks are an effective method for the dissemination of information relating to work activities and an opportunity for the contractor to disclose any other environmental sensitivities that the contractors must be aware of.

30. The contractor must deliver environmental tool box talks to all on-site personnel when required.

31. Tool box talks will consist of a method statement outlining the risks involved and the control measures personnel are expected to comply with.

32. Individuals must sign an attendance record sheet, providing acknowledgment of their presence at the briefing. The contractor will retain these records.

4.3 Emergency Response

33. The Contractor must ensure that all staff, including any sub-contractors, are trained in the North Falls environmental emergency response procedures. This is to ensure that they are able, and prepared, to respond to an incident promptly and effectively.

5 General principles

5.1 Environmental management system

34. The Applicant will operate an Environmental Management System (EMS) based on the requirements of ISO 14001:2015, that describes the processes and

procedures by which the Applicant identifies and manages significant risks associated with its operations and activities. The EMS is a primary mechanism by which environmental policy commitments, such as compliance with relevant legislation and standards, pollution prevention and continual improvement in environmental performance are measured, monitored and delivered.

35. The EMS will provide the preparation and implementation of a programme of environmental monitoring and auditing to ensure that the Applicant's environmental standards are being adhered to.

5.1.1 Environmental Monitoring

36. It is recognised that monitoring is an important element in the management of environmental impacts and effects. Monitoring is outside the scope of the PEMP. An Offshore In-principle Monitoring Plan (IPMP) (Document Reference: 7.10) has been submitted with the DCO application and so monitoring is not discussed further in this document.

5.2 Health and safety principles

37. The Applicant recognises that its decisions and activities have a direct impact on the health, safety and welfare of those working for the Applicant and on their behalf. The Applicant will set specific health and safety goals and monitor performance in relation to the construction and operation of the Project. The PEMP will include a health and safety plan, within which the Applicant will:

- Demonstrate commitment to health and safety by their actions and behaviours;
- Ensure that Health and Safety issues are fully considered as an integral part of project management throughout the life of the Project;
- Require all designers to consider and include the control measures necessary to reduce risks to the health and safety of all those engaged in the Project and others who may be affected;
- Ensure that suitably competent employees and contractors are engaged to undertake the responsibilities associated with the Project;
- Ensure that all products, materials and processes used in construction and operation present no significant risk to the health and safety of persons carrying out those duties or to others who may be affected by that activity;
- Ensure that suitable and sufficient resources, (including labour, materials, time and finances), are made available to effectively manage the health and safety requirements;
- Require that parties involved in the Project have, where appropriate, a readily available, valid, suitable and sufficient Pre- Construction Information document and Health and Safety Plan as defined in the CDM Regulations 2015; and
- Ensure that upon completion of construction a suitable and sufficient Health and Safety File is completed and transferred, where appropriate, to the Applicant.

38. It is the responsibility of the contractors to have in place method statements and risk assessments approved by NFOW for works being carried out on-site. Where relevant, the method statement should cross reference applicable environmental risk assessments.

39. The risk assessments should identify environmental hazards and outline subsequent control measures. Control measures should be developed, implemented and monitored to ensure that any impact on the environment is avoided or minimised. Approval for these method statements with the relevant authorities may be required.

5.3 Vessel Inspections and Audits

40. Environmental vessel inspections should be based on the International Marine Contractors Association (IMCA) standards, IMCA M189 S004 (Marine Inspection Checklist for Small Boats) or IMCA M149 (Common Marine Inspection Document).

41. A log of all vessel audits and associated close out actions will be maintained.

6 Incident Response

42. This section of the PEMP will detail the incident response procedure(s).

43. It is expected that contractors conducting works on behalf of NFOW shall provide evidence of incident response procedures covering environmental, health and safety incidents which could occur during the works.

6.1 Releases of oil or hazardous substances to the marine environment

44. A Marine Pollution Contingency Plan (MPCP) will be produced to provide guidance to the Project Team on the actions and reporting requirements in the event of spills and collision incidents (including oil, chemical and grout spills) during construction and operation of North Falls.

45. The MPCP will cover the precautionary procedures to be adopted in the unlikely event of the following (tiers in accordance with MMO, 2023):

- Tier 1 spills. small incidents which can be dealt with locally
- Tier 2 spills. Incidents which require the additional aid of a contractor
- Tier 3 spills. Incidents are very large incidents requiring national, cross-boundary or international response resources.

46. The marine pollution contingency plan is secured through Draft DCO (Document Reference: 6.1).

6.2 Dropped Objects in the Marine Environment

47. The Draft DCO (Document Reference: 6.1) states:

> *"(1) All dropped objects within the Order limits must be reported to the MMO using the dropped object procedure form as soon as reasonably practicable following the undertaker becoming aware of an incident. On receipt of the dropped object procedure form, the MMO may require relevant surveys to be*

carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the seabed at the undertaker's expense if reasonable to do so."

48. The PEMP will outline procedures to follow in the case of both floating and non-floating objects. It will detail who to report the incident to, where to document the incident, and methods for recovery. Designated members of the Project Team and the Regulator must review the procedure before contractors may begin work.

6.3 Reporting

49. All environmental incidents (including dropped objects into the marine environment) and near misses must be reported, investigated and recorded to the designated members of the Project Team.

50. Contractors are required to produce monthly reports for the designated members of the Project Team to record health, safety and environmental performance.

6.4 Lessons Learned / Incident Follow-Up

51. If an environmental incident occurs, it must be thoroughly investigated by the relevant contractor to establish the root cause and prevent any recurrence. Dependent on the severity of the incident, the Project Team may wish to manage or assist with the investigation process.

7 Management of key environmental sensitivities

52. This section provides an overview of the controls and procedures to be adopted to mitigate relevant environmental effects associated with North Falls. Further details will be provided in the PEMP following detailed design.

53. This covers the following topics of the ES:

- Marine Water and Sediment Quality (ES Chapter 9, Document Reference 3.1.11);
- Benthic Ecology (including Invasive Non Native Species (INNS)) (ES Chapter 10, Document Reference: 3.1.12);
- Fish Ecology (ES Chapter 11, Document Reference: 3.1.13);
- Marine Mammals (ES Chapter 12, Document Reference: 3.1.14);
- Offshore Ornithology (ES Chapter 13, Document Reference 3.1.15);
- Offshore Archaeology and Cultural Heritage (ES Chapter 16, Document Reference 3.1.18);
- Shipping and Navigation (ES Chapter 15, Document Reference: 3.1.17); and
- Aviation and Radar (ES Chapter 17, Document Reference: 3.1.19).

54. The scope of the PEMP is focused on environmental management during construction, operation and maintenance which is not secured on the DCO or

in other plans. A summary of other documents and commitments in relation to the above topics is provided where relevant in Section 7.

55. A Schedule of Mitigation (Document Reference: 2.6) is provided with the DCO application, which lists all mitigation required by the Project.

7.1 Marine water and sediment quality

7.1.1 Chemical Risk Assessment

56. A Chemical Risk Assessment will be produced for North Falls, with the aim of reducing the risk of pollution incidents occurring by assessing the risks of spills occurring, stating how the chemicals should be stored and transported and ensuring good practice techniques are used when handling all chemicals used at North Falls.

57. It is the responsibility of each contractor to have in place adequate controls for the delivery, storage and use of fuels, oils and chemicals on vessels and other materials as required. The contractors must ensure they are complying with the relevant regulations and good industry practice guidance, including checks that chemicals can be used offshore.

58. Oils and chemicals must be clearly labelled, and each contractor should retain an up-to-date hazardous substance register. Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, should have detailed method statements in place and be undertaken by designated and trained personnel.

59. Oil and fuel storage tanks must be robust and provide adequate secondary containment and be located in designated areas taking into account security, the location of sensitive receptors and pathways, and safe access and egress for plant and manual handling.

60. Spill response materials should be provided nearby and be readily accessible, with local project personnel trained in spill response.

61. The chemical risk assessment is secured through the draft DCO (Document Reference: 6.1).

7.1.2 Marine Pollution Contingency Plan

62. As discussed in Section 6.1, a MPCP will be produced as part of the PEMP, detailing the actions and reporting requirements in the event of spills and collision incidents (including oil, chemical and grout spills) during construction and operation of North Falls.

63. The MPCP is secured through the Draft DCO (Document Reference: 6.1).

7.1.3 Waste Management and Disposal

64. Prior to disposal, any waste should be considered for reuse, recycle or recovery where practicable.

65. Each contractor is responsible for the collection, storage and disposal of any waste produced during construction and operation of North Falls. Vessel operators are required to liaise with port operators to facilitate appropriate storage, transfer, segregation and disposal of waste.

66. The waste management and disposal plan is secured through DML Condition 12(1)(d)(iv), Part 2 of Schedule 11 (Generation Assets) and DML Condition 13(1)(d)(iv), Part 2 of Schedule 12 (Transmission Assets).

7.1.3.1 Waste Water Discharges

67. Controls for any waste water discharges (such as effluent discharges, ballast waters, bilge waters, and deck runoff) will be included in the PEMP, in accordance with applicable legislation, regulatory limits and good practice.

68. Records in relation to the disposal of foul water, bilge water or ballast water during the construction phase must be retained.

69. The International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Ballast Water Management (BWM) Convention) provides global regulations which must be followed where applicable.

7.2 Benthic ecology

7.2.1 Pre-construction surveys and micrositing

70. Pre-construction surveys will be undertaken to determine if Annex I[1] and/or Habitats of Conservation Importance (HOCI)[2] are present within the proposed wind turbine locations or offshore cable routes (offshore export cables, array cables and/or platform interconnector cables). Should any Annex I habitats or HOCI be identified in the proposed wind turbine locations and/or cable routes during the pre-construction surveys, micro-siting would be undertaken where practicable, to reduce the requirements for seabed preparation prior to foundation and cable installation and potential impacts to sensitive benthic species. In the case that *Sabellaria spinulosa* reef is identified, a *S. spinulosa* reef mitigation plan will be followed (Appendix A).

7.2.2 Invasive Non Native Species

71. The risk of spreading INNS will be mitigated by the following relevant regulations and guidance:

- International Convention for the Prevention of Pollution from Ships (MARPOL). The MARPOL sets out appropriate vessel maintenance;
- The Environmental Damage (Prevention and Remediation (England) Regulations 2015, which set out a polluter pays principle where the operators who cause a risk of significant damage or cause significant damage to land, water or biodiversity will have the responsibility to prevent damage occurring, or if the damage does occur will have the duty to reinstate the environment to the original condition; and
- The BWM Convention provide global regulations to control the transfer of potentially invasive species which must be followed.

[1] As defined by Annex I of the Habitats Directive
[2] in accordance with section 41 (biodiversity lists and action (England)) of the Natural Environment and Rural Communities Act 2006;

72. A marine biosecurity plan detailing how the risk of introduction and spread of invasive non-native species will be minimised is secured through the Draft DCO (Document Reference: 6.1).

7.3 Fish Ecology

7.3.1 Winter piling restriction

73. In order to reduce impacts to Downs herring, the Applicant is committed to restrict piling activities during a suitable period of time between 1 November and 31 January, the duration of which will be discussed with the MMO and their advisors.

7.3.2 Electromagnetic Fields

74. The Applicant is committed to burying offshore cables where practicable to a target minimum burial depth of 0.6m. Cable burial reduces the strength of EMFs to which fish and shellfish species may be exposed as it constitutes a physical barrier, with fish and shellfish species not able to transit the immediate proximity of cables where EMFs are strongest.

7.3.3 Other plans related to fisheries

75. Additional mitigation, not included in the PEMP for fisheries is included in the Outline Fisheries Liaison and Coexistence Plan (FLCP) ((Document Reference: 7.9), with the aim to facilitate co-existence between the Project and commercial fishing interests and ensuring relevant fishing fleets are notified of the commencement of licensed activities. The requirement for this is secured by the Draft DCO (Document Reference: 6.1).

76. Additionally, the adoption of measures such as soft-start and ramp-up secured through the Marine Mammal Mitigation Protocol (MMMP) (discussed in Section 7.4) would also indirectly benefit fish ecology by allowing mobile species to move away from the area of highest noise impact during installation of foundations. The requirement for this is secured by the Draft DCO (Document Reference: 6.1).

7.4 Marine mammals

7.4.1 Vessel disturbance and collision risk

77. Vessel operators will follow the good practice and code of conduct outlined in Appendix C. Vessel movements, where practicable, will follow set vessel routes and hence areas where marine mammals are accustomed to vessels, in order to reduce any increased collision risk.

78. Vessel operators will use good practice to reduce any risk of collisions with marine mammals. Furthermore, where practicable and safe to do so, transiting vessels will maintain distances of 600m or more from known seal haul-out sites during sensitive periods.

7.4.2 Other plans related to marine mammals

79. Additional mitigation, not included in the PEMP for marine mammals is required if piled foundations (monopiles or pin-piles) are selected and is covered in the following plans:

7.4.2.1 Marine Mammal Mitigation Protocol

80. A MMMP for piling in accordance with the Draft MMMP (Document Reference: 7.7) and as secured by the Draft DCO (Document Reference: 6.1) will detail the proposed mitigation measures to reduce the risk of any physical or permanent auditory injury to marine mammals during all piling operations. This will also include details of the embedded mitigation, for the soft-start and ramp-up.

7.4.2.2 Southern North Sea Special Area of Conservation Site Integrity Plan

81. In addition, a North Falls Site Integrity Plan (SIP) for the Southern North Sea (SNS) Special Area of Conservation (SAC) in accordance with the Outline SIP for the SNS SAC (Document Reference: 7.8) will be produced in the pre-construction phase (as secured by the Draft DCO (Document Reference: 6.1)). This document will provide such mitigation as is necessary to avoid adversely affecting the integrity of the SNS SAC. The In Principle SIP for the SNS SAC sets out the approach for the Applicant to deliver the required mitigation measures for North Falls to ensure the avoidance of significant disturbance of harbour porpoise in relation to the SNS SAC Conservation Objectives.

7.4.2.3 European Protected Species licence

82. It is likely that a risk assessment for European Protected Species (EPS) (cetaceans) will be required. An EPS licence(s) will be applied for, where applicable.

7.4.2.4 UXO clearance

83. An Unexploded Ordnance (UXO) survey will be undertaken prior to construction and whilst the preference would be to avoid any UXO that are identified, it is necessary to consider the potential for underwater UXO detonation, where retrieval is deemed to be unsafe and avoidance is not practicable.

84. A separate Marine Licence for UXO clearance would be submitted post-consent, once further information on the locations and extent of UXO required to be cleared is known.

85. An assessment of the potential effects from UXO clearance at North Falls is provided in ES Appendix 12.5 (Document Reference: 3.3.10) for information purposes.

86. A MMMP for UXO clearance will be submitted for approval under a future Marine Licence application, in accordance with the summary of mitigation for UXO clearance, included within the draft MMMP (Document Reference: 7.7).

87. The final MMMP for UXO clearance will ensure there are embedded mitigation measures, as well as any additional mitigation, if required, to reduce the risk of physical or permanent auditory injury (permanent threshold shift) to marine mammals. This will incorporate appropriate mitigation measures based upon available information and proven methodologies at that time.

88. In addition, the requirement for a SIP for UXO clearance would be confirmed through the separate UXO marine licencing process. If it is deemed that a SIP

is required, subject to whether the UXO clearance activities could exceed noise disturbance thresholds for the SNS SAC (for the Project alone or in-combination), this would be provided as part of that separate process.

7.5 Offshore ornithology

89. The PEMP will include the final procedures to be adopted within vessels transit corridors to reduce disturbance to red-throated diver during operation and maintenance activities in accordance with the Protocol for Reducing Disturbance to Red-Throated Diver (provided in Appendix B).

90. The protocol applies to the core winter period, 1 November to 1 March inclusive. Situations where the protocol does not apply are specified as installation and maintenance of the export cables passing through the SPA, or, for emergencies and reasons of health and safety e.g. due to inclement weather where the most direct route back to port is required.

91. The Project Team would make vessel operators aware of the importance of the species and the associated mitigation measures through tool box talks.

7.6 Shipping and Navigation

7.6.1 Information, notifications, charting, vessel routing and co-ordination

92. Marine coordination will be implemented to manage project vessels, including in communication with cumulative project marine coordinators as required. Entry/ exit points and defined routes between the array area and construction and operation and maintenance ports will also be communicated.

7.6.2 Vessel management measures

93. When practicable, vessel management measures will be implemented to reduce disturbance and collision risk with marine fauna (i.e. seabirds and marine mammals) in accordance with Sections 7.4 and 7.4.1.

7.6.3 Other plans related to shipping and navigation

7.6.3.1 Safety zones

94. Application for safety zones will be made post consent under 'The Electricity (Offshore Generating Stations) (Safety Zones) (Applications Procedures and Control of Access) Regulations 2007' (S.I. No 2007/1948).

95. Guard vessels will be used where identified as necessary via risk assessment, as required under MGN 654. This mitigation is secured through the Draft DCO (Document Reference: 6.1).

7.6.4 Emergence Response Co-operation Plan

96. An Emergency Response and Cooperation Plan (ERCoP) will be developed and implemented for all phases of the Project, based upon the MCA's standard template, as secured by the Draft DCO (Document Reference: 6.1).

7.7 Aviation

7.7.1.1 Information, notifications and charting

97. The aviation sector will be made aware of the creation of a potential aviation obstacle due to North Falls infrastructure, including via:

- Notices to Airmen (NOTAMs)
- Aeronautical Information Circulars (AICs),
- Warning of the establishment of obstacles within the North Falls array area and publicity in such aviation publications as the General Aviation Safety Council (GASCo) Flight Safety magazine.

98. Obstacle considerations include temporary cranes and WTG components being towed from shore to the array area.

99. In accordance with the ANO 2016/765 (CAA, 2022b) Article 225A, at least eight weeks before construction commences, details of the type, position, height above mean sea level (amsl) and lighting of each of the completed permanent structures that are 100m or more amsl, together with scheduled dates of commencement and completion of the works, would be notified in writing to the CAA.

8 Plans and Documentation

100. In addition to the post-consent production of the PEMP, the following documents associated with the environmental management and mitigation included in the PEMP will be produced prior to construction:

- Lighting and marking plan;
- Chemical Risk Assessment (Section 7.1);
- A Marine Pollution Contingency Plan (Section 7.1.2);
- Sabellaria spinulosa reef mitigation plan (Appendix A);
- Protocol for minimising disturbance to red-throated diver (Appendix B); and
- Vessel Good Practice and Code of Conduct to Avoid Marine Mammal Collisions (Appendix C).

8.1 Associated Documentation

101. This section will refer to relevant associated EMS and project/site specific documentation that requires to be considered when developing the final PEMP. Examples include, but are not limited to:

- Contract requirements (such as environmental standards);
- Contractors' EMS requirements; and
- Risk registers.

9 Communication and Reporting

9.1 Meetings

102. Regular environmental meetings and debriefs must be held local to the site. Frequent health, safety and environment (HSE) meetings must take place on all construction and maintenance vessels with representatives from the Project Team, the Principal Contractor, and key sub-contractors. Minutes of meetings will be recorded, and standard agenda items will include status of outstanding items, reports of environmental incidents or complaints, stakeholder engagement, tool box talks issued/delivered, and key findings of environmental inspections and audits.

103. The Principal Contractor and Project Team are expected to host regular meetings whereby important environmental information will be shared with the wider Project Team, contractor and subcontractor group members to raise awareness of environmental issues.

9.2 Community Complaints

104. The Applicant values its relationship with the communities that surround North Falls. All work would be carefully planned to reduce disturbance to local coastal communities and sea users.

105. Contractors must ensure that any complaints are reported to the designated members of the Project Team and investigated promptly.

106. The PEMP will detail the procedure in place to report public complaints in relation to offshore works.

9.3 Fisheries Liaison

107. As discussed in Section 7.3, a FLO will be appointed for the duration of the construction, operation and decommissioning works.

9.4 Stakeholders

108. As discussed in Section 3.2, stakeholders will be consulted, in accordance with the relevant DCO conditions.

10 References

CAA (2016) CAP 764: Policy and Guidelines on Wind Turbines. Available at: [redacted]
CAA (2022) Air Navigation Order 2016. Available at: [redacted]
CAA (2023) CAP 437: Standards for Offshore Helicopter Landing Areas. Available at: [redacted]
HSE (2015) Construction (Design and Management) Regulations 2015. Available at: The Construction (Design and Management) Regulations 2015 (legislation.gov.uk)
IMCA (2023) M149 Common Marine Inspection Document. Available at: [redacted]
IMCA (2023) M189 S004 Common marine inspection document for small workboats (Marine inspection for small workboats). Available at: [redacted]
JNCC (2016) Review of the Marine Conservation Zone (MCZ) Features of Conservation Importance. Available at: Review of the MCZ Features of Conservation Importance (jncc.gov.uk)
MCA (2021) MGN 654 Offshore Renewable Energy Installation (OREI) safety response. Available at: MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response - GOV.UK (www.gov.uk)
MMO (2023) Marine Pollution Contingency Plan. Available at: MMO_Marine_Pollution_Contingency_Plan_2023.pdf (publishing.service.gov.uk)
Statutory Instruments No 2007/1948 (2007). The Electricity (Offshore Generating Stations) (Safety Zones) (Applications Procedures and Control of Access) Regulations 2007.

Appendix A. *Sabellaria spinulosa* Reef Mitigation Plan

A.1 Introduction

109. The following sections describe how *Sabellaria spinulosa* reef ("*Sabellaria* reef") will be managed with regard to pre-construction activities and design of North Falls (the Project).

A.2 Pre-construction Surveys

110. The offshore project area does not overlap with any Special Areas of Conservation for which Annex I reef, including *Sabellaria* reef is a qualifying feature. However, *S. spinulosa* is found within the offshore project area and *Sabellaria* reef, which is ephemeral in nature, may be present (see ES Chapter 10 Benthic and Intertidal Ecology (Document Reference: 3.1.12)).

111. As described in Section 10.3.3 of ES Chapter 10 Benthic and Intertidal Ecology (Document Reference: 3.1.12), the Applicant has committed to undertaking pre-construction surveys to determine the location and extent of any *Sabellaria* reef inside the area(s) within the Order Limits in which it is proposed to carry out construction works, with the aim of mitigating impacts through avoidance where practicable. The requirement for these pre-construction surveys is secured by the draft DCO (Document Reference: 6.1).

112. The full methodology for the pre-construction surveys, will be developed in accordance with the Offshore In-principle Monitoring Plan (Document Reference: 7.10).

A.3 Micrositing Requirements

113. Should *Sabellaria* reef be identified inside the area(s) within the Order Limits in which it is proposed to carry out UXO clearance activities and construction works, micrositing would be undertaken where practicable. An appropriate buffer between project infrastructure and the reef will be agreed with the MMO, up to a maximum of 50m.

114. The selected offshore cable routes, taking into account avoidance of *Sabellaria* reef, where practicable, will be issued to the MMO as part of the Design Plan. Secured by the draft DCO (Document Reference: 6.1).

A.4 Process for Managing Micrositing Conflicts

115. Throughout this outline *Sabellaria* Reef Management Plan, the Applicant has reinforced the commitments made in the ES and secured in the draft DCO and have provided an outline process by which mitigation of any *Sabellaria* reefs identified in pre-construction surveys will be managed. There may however be instances where it is not possible or practicable to avoid *Sabellaria* reef, such as:

- Identification of a *Sabellaria* reef in pre-construction surveys, such that avoidance has the potential to significantly impact construction of the Project; and
- Conflicts between *Sabellaria* reefs and archaeological exclusion zones (AEZ).

116. The following sections outline how such conflicts will be managed.

A.4.1 Management of Conflicts Between Design of the Project and *Sabellaria* Reefs

117. In the event of a scenario where a *Sabellaria* reef(s) is identified as having a significant impact on design of the Project, such as where a *Sabellaria* reef is found bisecting the offshore cable corridor and preventing the offshore export cables from connecting the offshore substation platform and the landfall, the Applicant would raise the issue to the MMO and Natural England and engage on resolution options. It is anticipated that consideration of the issue would take a hierarchical approach and consider the following:

- Is the *Sabellaria* reef contiguous or are there areas within it that support the *S. spinulosa* biotope but do not meet the criteria of reef?
- Assuming the *Sabellaria* reef is contiguous, are there areas where the quality of the *Sabellaria* reef is lower where it may be permissible to route offshore electrical cables or install foundations, for example at its periphery?
- Are there sufficient data to apply the principles of the 'core reef' approach (Bussell and Saunders, 2010; Roberts et al., 2016) and would that be an acceptable solution if such an approach identified areas not meeting the principles of 'core reef'.

A.4.2 Management of Conflicts Between *Sabellaria* Reef and Archaeology

118. In the event of a scenario where the design of the Project is impacted by the presence of *Sabellaria* reefs and archaeology (requiring AEZs), conflict resolution is anticipated to be based on a hierarchical approach which may consider the following:

- Can buffers for the AEZ and/or Sabellaria reef be reduced or removed, in agreement with Historic England and Natural England, respectively, informed by site investigation, to facilitate cable routing between the features;
- Can the archaeology be relocated or recovered? The potential for relocation or recovery is very dependent on the nature of the archaeology and would require full consultation with Historic England; and
- Where agreement cannot be reached with Historic England and Natural England on the points above, the options listed in Section A.4.1 would be considered.

119. The Applicant considers that decisions will need to be made on a case-by-case basis and that adopting a hierarchical approach may be appropriate whereby the importance of particular archaeological interests together with the quality of the *Sabellaria* reef are weighed against each other.

120. The final approach will be agreed with the MMO, in consultation with Natural England and Historic England.

A.5 Conclusion

121. This outline *Sabellaria* Reef Management Plan sets out the principles by which *Sabellaria* reef will be managed and impacts on *Sabellaria* reef mitigated during

the design and construction of the Project. The final *Sabellaria* Reef Management Plan to be submitted to the MMO for approval in accordance with the conditions of the DMLs will be based on the principles set out within this outline plan.

A.6 References

122. Bussell, J., Saunders, I. (2010). An appraisal and synthesis of data identifying areas of ross worm, Sabellaria spinulosa, reef in The Wash. Natural England internal document.

123. Roberts, G., Edwards, N., Neachtain, A., Richardson, H. & Watt, C. (2016). Core reef approach to Sabellaria spinulosa reef management in The Wash and North Norfolk Coast SAC and The Wash approaches. Natural England Research Reports, Number 065.

Appendix B. Protocol for Reducing Disturbance to Red-Throated Diver

B.1 Introduction

124. This document provides a protocol to reduce disturbance to non-breeding red-throated diver which is a qualifying feature of the Outer Thames Estuary Special Protection Area (OTE SPA). A final protocol for reducing disturbance to red-throated divers during construction and operation will be provided as part of the PEMP.

B.2 Vessel Disturbance Mitigation

125. At this stage, the construction and operation and maintenance ports have not been confirmed but may include Harwich and/or Lowestoft.

126. There is potential for vessel traffic to disturb red-throated diver within the OTE SPA dependent upon the location of load-out and Operation and Maintenance ports. If the port locations result in vessel transits which cross the OTE SPA, the PEMP will include procedures to be adopted within vessel transit corridors to reduce disturbance to red-throated diver during construction, operation and maintenance activities.

127. Potential impacts on red-throated diver during construction, operation and maintenance works will be mitigated through:

- Selecting routes that avoid known aggregations of birds;
- Restricting vessel movements to existing navigation routes (where the densities of red-throated divers are typically relatively low);
- Maintaining direct transit routes (to reduce transit distances through areas used by red-throated diver);
- Considering the potential for crew transfer vessels (CTVs) to travel in convoy en route to the wind farm sites and seeking to do so where it is considered practicable;
- Avoidance of over-revving of engines (to reduce noise disturbance); and
- Briefing of vessel crew on the purpose and implications of these vessel management practices (through, for example, tool-box talks).

128. The Project Team would make vessel operators aware of the importance of the species and the associated mitigation measures through tool-box talks.

Appendix C. Vessel Good Practice and Code of Conduct to Avoid Marine Mammal Collisions

129. This Appendix includes the embedded good practice measures that will be put in place to reduce vessel collision risk with marine mammals.

130. These good practice measures include that vessel movements, where practicable, will follow set vessel routes and hence areas where marine mammals are accustomed to vessels, in order to reduce any increased collision risk. Any potential collision risk could be further reduced by ensuring all vessel movements are kept to the minimum number that is required by North Falls to complete the works/activities.

131. Operators of all vessels will be made aware of the risk and measures to avoid marine mammal collisions during mobilisation briefings. In order to reduce the risk of collisions, meetings will be undertaken with all vessel operators to promote collision awareness and avoidance, including code of conduct.

132. Code of conduct for vessel operators will be produced and issued to reduce the risk of collision with marine mammals across all phases of North Falls.

133. The code of conduct for good practice will be developed prior to construction based on the latest information and guidance.

134. The code of conduct for good practice to avoid marine mammal collisions with vessels will include, but not be limited to:

- Avoid deliberately approaching marine mammals when sighted.
- Avoid abrupt changes to course or speed should marine mammals approach the vessel or bow-ride.
- Where practicable, vessels will maintain a steady speed, and direction, to allow any marine mammal to predict where the vessel may be headed, and to move out of the way or avoid surfacing in the path of the vessel.
- An agreed minimum distance from seal haul-out sites, particularly during sensitive periods such as pupping and moulting.
- Protocol to report any collisions.

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North Falls Offshore Wind Farm Limited

A joint venture company owned equally by SSE Renewables and RWE.

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