ossian

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Appendix 24: Navigational Safety and Vessel Management Plan

Array EIA Report

2024

Revision	Comments	Author	Checker	Approver
FINAL	Final	Ossian OWFL	Anatec/RPS	RPS

Approval for Issue		
For and on behalf of Ossian OWFL	Paul Darnbrough	28 June 2024

Prepared by:	**RPS Energy**
Prepared for:	**Ossian Offshore Wind Farm Limited (OWFL)**
Checked by:	**Ed Maxwell**
Accepted by:	**Fraser Malcolm**
Approved by:	**Paul Darnbrough**

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TABLES

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1. INTRODUCTION

1.1. PURPOSE

1. This outline Navigational Safety and Vessel Management Plan (NSVMP) has been prepared by RPS and Ossian Offshore Wind Farm Limited (Ossian OWFL), a joint venture partnership between SSE Renewables (SSER) Limited, Copenhagen Infrastructure Partners (CIP), and Marubeni Corporation, hereafter referred to as 'the Applicant', to support the Array Environmental Impact Assessment (EIA) Report for the Ossian Array (hereafter referred to as 'the Array').

2. The NSVMP provides details of the vessel management and navigational safety measures to be implemented, in accordance with relevant guidance, during the construction and operation and maintenance phases of the Array. An NSVMP is likely to be required through the Section 36 Consent and Marine Licence as consent conditions and therefore this NSVMP will be updated and submitted to Marine Directorate - Licensing and Operations Team (MD-LOT) for approval post consent.

3. Decommissioning will be subject to a separate Marine Licence and navigational safety and vessel management arrangements will be developed at the appropriate time in advance of those activities commencing.

1.2. PROJECT OVERVIEW

4. The Array is located off the east coast of Scotland, approximately 80 km south-east of Aberdeen from the nearest point (see Figure 1.1).

5. The Array covers an area of approximately 859 km^2. It comprises up to 265 floating wind turbines and up to 15 Offshore Substation Platforms (OSPs) with fixed foundations. Subsea inter-array cables will connect the wind turbines to each other and to the OSPs, while interconnector cables will connect the OSPs to each other.

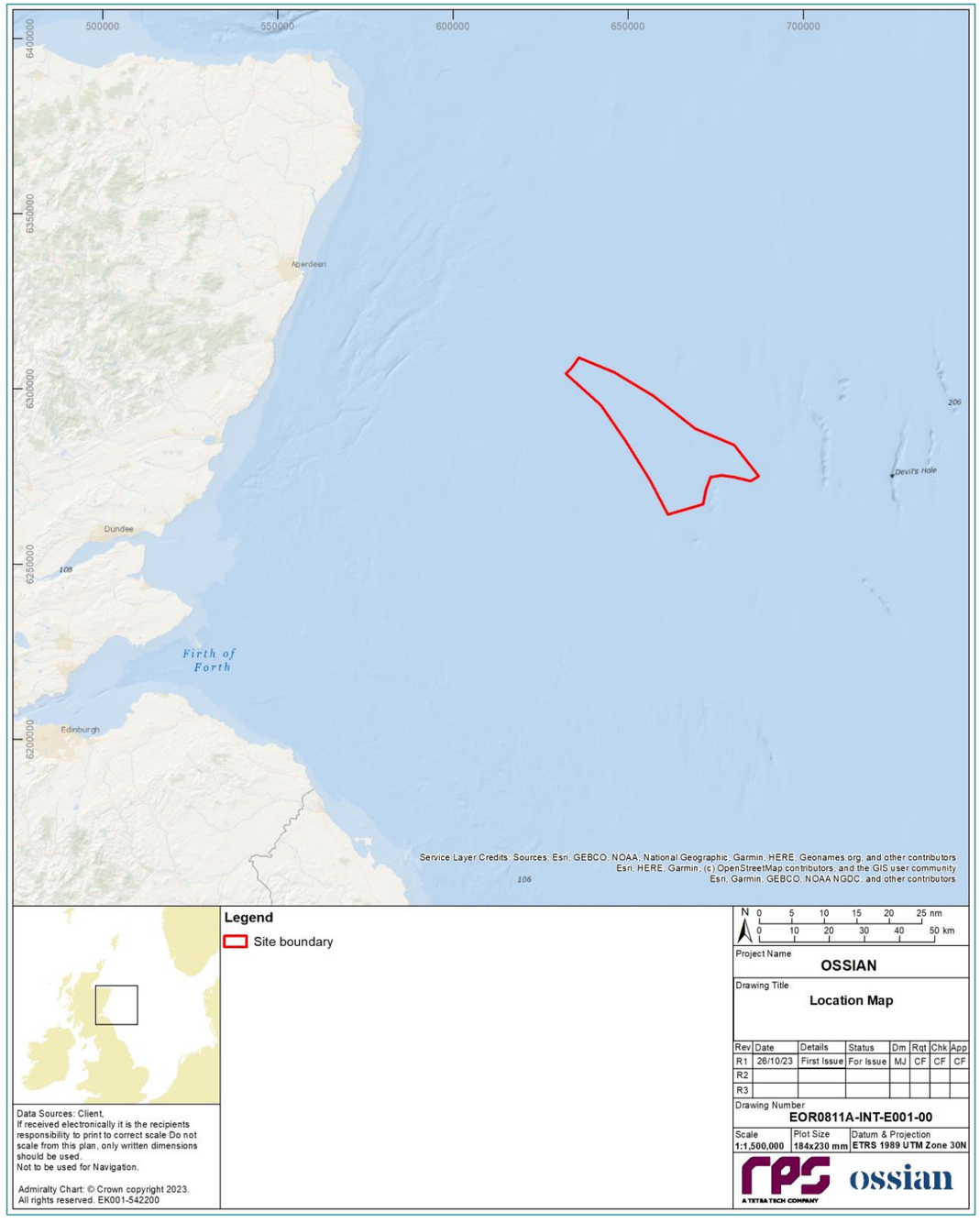

Figure 1.1: Location of the Array

1.3. SCOPE AND OBJECTIVES

6. This NSVMP has been produced for the purposes of satisfying the relevant consent conditions as outlined in Table 1.1, which outlines where in this document the specific requirements of the consent conditions are met. This document applies to vessel management and navigational safety of the Array, in accordance with the relevant guidance, during the construction and operation and maintenance phases.

7. This NSVMP has been produced for the purpose of providing the required information to the Scottish Ministers and Licensing Authority on vessel management and navigational safety during the construction, and operation and maintenance phases, in order to mitigate the impact of project vessels and the navigational risk to other legitimate users of the sea.

8. The information provided in this document is based on the current understanding of the baseline environment and how the Array will be constructed and operated using the best available technologies, in compliance with current legislation and best practice at the time of writing.

9. The NSVMP will be reviewed as required and updated if necessary (see section 1.5). Information contained within this document is accurate at the time of submission, but it is recognised that changes or updates may be required to reflect changes following consultation or changes in best practice.

Table 1.1: Consent Conditions Relevant to the NSVMP

Reference	Condition	Relevant Section
[To be added post-consent]		

1.4. LINKS WITH OTHER CONSENT PLANS

10. This NSVMP forms one of a number of Consent Plans for which the approval from Scottish Ministers will be sought post-consent in compliance with the conditions of the S36 Consent and Marine Licence.

11. In order to reduce repetition between documents, where detailed information is not deemed fundamental to the understanding of the key objectives of this document, a summary of information may be provided with a reference to where more detailed information is provided in a separate document. Table 1.2 provides an overview of which consent documents are referenced within this document.

Table 1.2: Linkages with Other Consent Plans

Plan	Details Contained in Plan	Reference/Status
[To be added post consent]		

Plan	Details Contained in Plan	Reference/Status

1.5. UPDATES AND AMENDMENTS TO THE NSVMP

12. It is acknowledged that this document, once approved, may require updating from time to time. This section outlines the general procedure that will be followed. Factors that may influence the need for a review and/or update include:

- significant change to the design of the Array;
- significant change in methods or schedule outlines within this document;
- significant changes in knowledge of baseline information or environment of relevance to the contents of this document;
- significant changes in legislation or best practice guidance;
- significant stage in project lifecycle (for example, completion of construction); and
- scheduled reviews.

13. [Project specific review detail to be added post-consent].

2. NAVIGATIONAL SAFETY MEASURES DURING CONSTRUCTION

14. The following sections present the navigational safety measures that will be implemented during the construction phase of the Array.

2.1. TEMPORARY LIGHTING AND MARKING

15. The Lighting and Marking Plan (LMP) (outline LMP provided in volume 4, appendix 26) sets out the precise details of the lighting and marking of the Array.

16. [Details of statutory sanction to be noted here post-consent (if applicable)].

2.2. GUARD VESSELS

17. Guard vessels may be required for the Array, at particular times, for example when vessels are particularly vulnerable due to partially completed works or a particular construction activity. During these periods, the construction area will be monitored by guard vessel(s) to further protect the area and to provide additional information to third-party vessels.

18. The decision(s) on when to use a guard vessel will be informed by a risk assessment of the activities.

19. A guard vessel may also be required to monitor safety zones noting this will be further assessed as part of the safety zone application (see section 2.3).

2.3. CONSTRUCTION SAFETY ZONES

20. Section 95 and Schedule 16 of the Energy Act 2004 set out the basic requirements for applying for a safety zone to be placed around or adjacent to an Offshore Renewable Energy Installation (OREI). The Electricity

(Offshore Generating Substations) (Safety Zones) (Applications Procedures and Control of Access) Regulation 2007 clarify the requirements for applications which applies to territorial waters in or adjacent to Scotland and within the Renewable Energy Zone.

21. It is noted that as of 1 April 2017, the application process for safety zones within Scottish waters has been devolved from the Department of Business, Energy, and Industrial Strategy (BEIS) (now Department of Energy Security and Net Zero (DESNZ)) to MD-LOT. An application will be made to MD-LOT accompanied by a layout plan, a summary of the construction programme and construction method statement documents, and the proposed methodologies for notifying relevant stakeholders and monitoring safety zone compliance.

2.4. MARINE COORDINATION

22. [Specific details of the marine coordination function to be included here post-consent].

2.5. CABLE LAYING AND OTHER RAM OPERATIONS

23. Restricted in their ability to manoeuvre (RAM) vessels will be utilised during inter-array and interconnector cable installation works, heavy lifting operations and for the towing of integrated floating wind turbines from port to the Array. RAM vessels are those restricted in their ability to manoeuvre as a result of the nature of the work they are undertaking and therefore are restricted in avoiding an approaching vessel(s). All RAM vessels involved in the construction of the Array will comply with the Convention on International Regulations for Preventing Collisions at Sea (COLREGs) (International Maritime Organization (IMO), 1972/77). All vessels, regardless of their nationality, are required to comply with this convention to ensure that they do not interact with vessels that are restricted in their navigational ability.

24. RAM vessels will display lights and shapes to indicate their restrictions. They will transmit safety warnings on Very High Frequency (VHF) to inform other vessels of their actions using the ‘Securité’ message if the messages contain important information relating to navigation. Communications between RAM vessels and the Marine Coordination Centre will be ongoing throughout the operations.

25. RAM vessels will comply with vessel type regulation information transmitted through Automatic Identification System (AIS) and show current navigational status at all times to ensure other vessels equipped with AIS can identify that they are RAM.

26. Cable laying activities will also be promulgated through the notification procedure, and, if necessary, following internal risk assessment, guard vessels may be employed during the cable laying period.

2.6. EMERGENCY RESPONSE COOPERATION PLAN (ERCOP)

27. As required under Marine Guidance Note (MGN) 654 (Maritime and Coastguard Agency (MCA), 2021a), The Applicant will produce an ERCoP in liaison with the MCA.

28. The Applicant will also prepare an internal Emergency Response Plan (ERP) which will detail the emergency planning and response control measures to be implemented during the construction phase.

2.7. INJURY, DESTRUCTION, OR DECAY OF THE ARRAY

29. The Applicant will notify the Licencing Authority, in writing, in the case of injury to, destruction, or decay of the Array during the construction phase. The Licencing Authority will advise of any remedial action to be taken and any Aids to Navigation (AtoN) to be displayed following consultation from the MCA, Northern Lighthouse Board (NLB), or any such required advisors.

3. NAVIGATIONAL SAFETY MEASURES DURING OPERATION AND MAINTENANCE

30. The proceeding subsections set out the navigational safety measures to be implemented by the Applicant during the operation and maintenance phase of the Array.

3.1. MARINE COORDINATION

31. [Specific details of the marine coordination function to be included here post-consent].

3.2. OPERATIONAL LIGHTING AND MARKING

32. The LMP will set out the precise details of the lighting and marking of the Array.

3.3. SAFETY ZONES DURING OPERATIONAL PHASE

33. [Details of any operational safety zones to be added post-consent (likely for major maintenance only)].

3.4. RAM OPERATIONS

34. RAM vessels may be used during inter-array and interconnector cable maintenance, heavy lift operations and for the towing of floating wind turbines to port for major maintenance – these vessels will comply with COLREGs. These vessels will transmit safety warnings on VHF to inform other vessels of their actions, using the “Securité” message if their message contains important information relevant to navigation.

35. Cable maintenance will be promulgated through the notification procedures (see section 4) and, where necessary, guard vessels will be deployed during the cable maintenance period.

3.5. ERCOP AND ERP

36. The approved ERCoP for the construction phase (see section 2.3) will be updated and amended for the operation and maintenance phase, noting that the MCA required template (MCA, 2021b) will be used.

37. The Applicant will also prepare a separate ERP which shall detail the required emergency planning and response control measures to be implemented across the construction and operation and maintenance phases of the Array by all project personnel and Contractors.

3.6. INJURY, DECAY, AND DESTRUCTION OF THE ARRAY

38. The Applicant will notify the Licencing Authority, in writing, in the case of injury to, destruction, or decay of the Array during the operation and maintenance phase. The Licencing Authority will advise of any remedial action to be taken and any AtoN to be displayed following consultation from the MCA, NLB, or any such required advisors.

4. PROMULGATION OF INFORMATION

39. This section provides information of the proposed approach to distribution and issuing Notifications to Mariners (NtMs) and other appropriate notifications to the relevant stakeholders and other marine users.

4.1. LOCAL NOTIFICATIONS TO MARINERS

40. Local Notifications to Mariners (LNtM) will be issued in advance of any activity associated with the Array which may impact upon navigational safety. The Applicant will issue LNtMs to a list of relevant local and national stakeholders. The list will be regularly updated to ensure contact details remain up to date and all relevant parties are included.

41. The LNtM will be concise, detailing navigational safety information and may include, but not limited to, the information set out in Table 4.1. A standard template will be defined.

Table 4.1: Content of LNtM

Item	Content to be Included
Title	Clearly state that the document is a LNtM and a short relevant title about the scope of the topic. This will include the date of issue and the notification number.
Supplementary information	Details of the organisation and development issuing the LNtM and any relevant LNtMs issued prior to the current one.
Details	• date/time of start/finish and location of the works (coordinates); • vessels on site including call signs; • activity being undertaken; and • specific risk to navigation.
Contact details	Sufficient details to allow mariners to contact the organisation issuing the LNtM including the Marine Coordination Centre/24-hour emergency contact.
Guard vessel and safety zone details	Details of any guard vessels or safety zones present and enforced.
Hyperlinks to additional information	Provided only if absolutely necessary.

42. Among the organisations that the LNtM will be issued to is the United Kingdom Hydrographic Office (UKHO). Upon receipt of a LNtM, the UKHO will decide whether to include information in their Weekly Admiralty NtM, as described in section 4.2.

4.1.1. LNTM ISSUED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

43. The Applicant will, as soon as practicable prior to the commencement of any construction activities, ensure that local mariners, fisher's organisations, and His Majesty's Coastguard (HMCG) via the relevant Maritime Rescue Coordination Centre (MRCC), are made fully aware of the Licensable Marine Activity through LNtM (or any other appropriate means).

4.1.2. LNTM UPON COMMISSIONING AND DURING OPERATION AND MAINTENANCE

44. The Applicant will ensure that local mariners, fisher's organisations, and the relevant MRCC are made fully aware of the completion of the construction works and commissioning of the Array.

45. The Applicant will ensure that relevant stakeholders are informed via LNtM of any planned and unplanned maintenance activities that are outside the day-to-day maintenance activities associated with the Array.

4.1.3. POST COMMISSIONING

46. The Applicant will, upon the commissioning of the Array, provide the 'as built' positions and maximum heights of all wind turbines, offshore substation platforms, and any subsea infrastructure to the MCA and UKHO for aviation and nautical charting purposes.

4.2. ADMIRALTY NOTICES TO MARINERS

47. Admiralty NtMs are issued by the UKHO and are based on the information provided within LNtMs. The UKHO issues these on a weekly basis to provide physical corrections to charts and associated publications. It is the responsibility of mariners to look up the Weekly Editions of Admiralty NtMs which can be found on the UKHO website and to make necessary corrections to the charts on board their vessel.

4.3. HYDROGRAPHIC CHARTS

48. The precise locations and maximum heights of all wind turbines and construction equipment over 150 m above lowest astronomical tide (LAT), and the details of any fixed lighting fitted to all wind turbines, will be provided to the MCA and UKHO for aviation and nautical charting.

4.4. KINGFISHER BULLETINS AND KIS-ORCA

49. The Kingfisher Information Service – Offshore Renewables and Cable Awareness (KIS-ORCA) project is a joint initiative between Subsea Cables United Kingdom (UK) and Renewable UK and is managed by the Kingfisher Information Service of Seafish. Information is available in fortnightly bulletins (Kingfisher – Offshore and Marine Renewables) or downloadable form the KIS-ORCA website (kis-orca.org).

50. Notification to the Kingfisher fortnightly bulletin may include, for example, an overview of the proposed or ongoing works, roles and responsibilities, method statements relevant to the scope of the work for which the notification is issued, offshore activity schedule, navigational safety procedures, advisory safety zones, and any relevant drawings or other project information.

51. The following subsections detail the KIS-ORCA notifications that will be promulgated for each phase of the Array.

4.4.1. NOTIFICATIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

52. The Applicant will ensure that details of the Array are promulgated in the Kingfisher fortnightly bulletins, as soon as reasonably practicable prior to the commencement of construction of the Array to inform other sea users of vessels routes, timing and locations of construction works, and relevant details of the construction activities.

4.4.2. NOTIFICATIONS DURING CONSTRUCTION

53. The Applicant, through the Marine Coordination Centre, will ensure that the progress of construction of the Array is promulgated in the Kingfisher fortnightly bulletins to inform other sea users of the vessel routes, timings and locations of construction works, and relevant details of the construction activities.

4.4.3. NOTIFICATIONS UPON COMMISSIONING AND DURING OPERATION AND MAINTENANCE

54. The Applicant will ensure that the commissioning of the Array is promulgated to the Kingfisher fortnightly bulletin to inform other sea users.

55. The Applicant will ensure notices are issued to the Kingfisher fortnightly bulletin detailing any planned or unplanned maintenance activities that are outside the day-to-day maintenance carried out at the Array.

4.5. RADIO NAVIGATIONAL WARNINGS

56. Radio navigational warnings may be issued if an activity or incident poses a danger to other marine users. Examples of when radio navigational warnings could be issued are:

- failures to light signals, fog signals, buoys, or other AtoN;
- establishing new AtoN;
- cable laying activities, where a risk is posed to passing traffic;
- other underwater operations that may constitute potential dangers in or near shipping lanes; and/or
- vessels not under command or undertaking significant RAM operations.

57. Once details of an activity have been issued through the standard NtM process, the UKHO will then decide if the warning should be transmitted as a radio navigational warning. The UKHO will then issue the navigational warning.

58. In the context of radio navigational warnings, the UKHO act as the Navigation Area (NAVAREA) 1 (north-east Atlantic) Coordinator of the IMO and International Hydrographic Organisation (IHO) Worldwide Navigational Warning Service and also as the UK Coordinator for issuing coastal navigational warnings. The MCA however is the overarching body responsible for broadcasting the warnings and is the organisation responsible for charging levies to broadcast them.

59. The broadcasts are under the control of the UKHO but tend be made as follows:

- for vessels in NAVAREA 1, broadcasts are made through Enhanced Group Call Safety NET within 30 minutes of receiving the navigational warning, or at the next scheduled broadcast (every 12 hours);
- broadcast by Navigational Telex (NAVTEX) twice a day as UK Coastal Navigational Warnings by appropriate NAVTEX stations at each transmission time (every four hours), or upon receipt of the information if it is of a vital nature; and
- broadcast by VHF or Medium Frequency (MF) radio at selected MCA stations at the next scheduled broadcast and every 12 hours thereafter.

4.6. UK MARINE REPORTING REQUIREMENTS

60. In addition, within UK waters, all vessels are required to report all incidents relating to navigational safety by the quickest means possible to the Marine Accident Investigation Branch (MAIB). The MAIB has a dedicated reporting line for all purposes (+44 (0)23 8023 2527), which is staffed 24 hours per day.

61. Information required shall include:

- details of the incident;
- details of the vessel(s) involved; and
- details of personnel involved.

4.7. OTHER NOTIFICATIONS

62. The Applicant will consult local harbour Masters, where appropriate, who may wish to issue local warnings to those navigating in the vicinity of the Array.

5. LOCATION OF WORKING PORTS

63. Precise ports to be used during the construction phase are not yet determined.

- [List relevant ports to be added here post-consent].

5.1. CONSTRUCTION PORTS

64. [Details of each port and their involvement in the delivery/transport/storage of construction parts and their role throughout the construction phase to be added here post-consent].

5.2. OPERATION AND MAINTENANCE PORTS

65. [Details of the port expected to be used during the operation and maintenance phase to be added here post-consent].

5.3. OTHER OPERATIONAL PORTS

66. In addition to the ports listed above, other ports may be used during the construction and operation and maintenance phases, with these likely to be local to the Array and located [details on port locations to be added here post-consent]. Information regarding any other ports used will, if necessary, be promulgated via methods outlined in section 4.

67. [Details of any mentioned ports used in the facilitation of crew transfer vessels (CTVs), guard vessels, other small vessels etc. throughout the project to be added here post-consent].

6. TYPES AND SPECIFICATION OF VESSELS

68. This section outlines the types and specifications of vessels to be utilised during the construction phase (section 7.1) and operation and maintenance phase (section 7.2). Where the vessels to be used are known specific specifications are presented; otherwise, indicative vessel specifications are presented. Where indicative vessel specifications are presented, these may vary depending on market availability. [Specific condition requirements to be included here post-consent if required].

6.1. STANDARDS AND REQUIREMENTS

69. Vessel crews will be required to meet recognised standards and comply with the international maritime rules (as adopted by the relevant flag state) and regulations for their class and area of operation. The Applicant will conduct independent vessel audits on construction vessels as necessary to check that they meet these standards and are appropriate for the purpose of their desired role(s).

70. Vessel crews must meet the requirements for the size, type, and are of operation in line with Standards for Training, Certification and Watchkeeping as set out by the IMO, and any site-specific requirements implemented by the Applicant above the minimum standards outlined above.

71. All vessels involved in the construction of the Array will be lit in accordance with the requirements of COLREGs (IMO, 1972/77). All construction vessels will be equipped with AIS receivers and transmitters.

72. The Applicant will require all construction vessels to comply with the procedures set out in this document and any other relevant plan.

6.2. CONSTRUCTION PHASE

73. The following subsections present examples of the vessel types that will be used during the construction works, specifically relating to:

- anchoring and mooring installation;

- OSP topsides and fixed jacket foundation installation and commissioning;
- inter-array and interconnector cable installation, including cable burial and/or protection;
- floating wind turbine and floating foundation installation and commissioning; and
- additional construction support.

6.2.1. ANCHORING AND MOORING INSTALLATION

[Vessel type/name to be confirmed post-consent]

74. The anchors and mooring lines will be installed by a [Vessel Type/ Name]. The [Vessel Type/ Name] will collect the anchors and mooring lines from [port to be added post-consent].

75. Key details of an indicative [Vessel Type/ Name] are presented in Table 6.1.

Table 6.1: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	Dead Weight Tonnage (DWT)	
Propulsion		
Mooring / station keeping		

6.2.2. OSP TOPSIDES AND FIXED JACKET FOUNDATION INSTALLATION AND COMMISSIONING

[Vessel type/name to be confirmed post-consent]

76. The OSP topsides and fixed jacket foundations will be installed by a [Vessel Type/ Name]. The [Vessel Type/ Name] will collect the OSP topsides and foundations from [port to be added post-consent] or they will be delivered directly to the Array from the point of fabrication.

77. Key details of an indicative [Vessel Type/ Name] are presented in Table 6.1.

Table 6.2: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	(DWT	
Propulsion		
Mooring / station keeping		

6.2.3. INTER-ARRAY AND INTERCONNECTOR CABLE INSTALLATION AND COMMISSIONING

[Vessel type/name to be confirmed post-consent]

78. The inter-array and interconnector cables will be installed by a [Vessel Type/ Name]. The [Vessel Type/ Name] will collect the inter-array and interconnector cables from [port to be added post-consent].

79. Key details of an indicative [Vessel Type/ Name] are presented in Table 6.3.

Table 6.3: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	DWT	
Propulsion		
Mooring / station keeping		

6.2.4. FLOATING WIND TURBINE AND FLOATING FOUNDATION INSTALLATION AND COMMISSIONING

[Vessel type/name to be confirmed post-consent]

80. The floating wind turbines will be installed by a [Vessel Type/ Name]. Integrated floating wind turbine and foundation structures will be towed to the Array from [port to be added post-consent] for installation and commissioning.

81. Key details of an indicative [Vessel Type/ Name] are presented in Table 6.4.

Table 6.4: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	DWT	
Propulsion		
Mooring / station keeping		

6.2.5. ADDITIONAL CONSTRUCTION SUPPORT

[Vessel type/name to be confirmed post-consent]

82. Additional construction support will be provided by a [Vessel Type/ Name]. The [Vessel Type/ Name] will operate from [port to be added post-consent].

83. Key details of an indicative [Vessel Type/ Name] are presented in Table 6.5.

Table 6.5: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	DWT	
Propulsion		
Mooring / station keeping		

6.2.6. CREW TRANSFER VESSELS

84. CTVs will be used during the construction phase to aid the transfer of equipment and personnel between shore and the offshore works. Support will be provided to a number of activities including OSP topside and jacket foundation installation and commissioning, inter-array and interconnector cable installation, cable burial and protection and floating wind turbine and floating foundation installation and commissioning. Key details of an example CTV, the [Vessel Type/ Name], are provided in Table 6.6.

Table 6.6: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	DWT	
Propulsion		
Mooring / station keeping		

6.2.7. SERVICE OPERATION VESSELS

85. Service Operation Vessels (SOVs) will be used during the construction phase to aid the transfer of equipment and personnel between shore and the offshore works. Support will be provided to a number of activities including OSP topside and jacket foundation installation and commissioning, inter-array and interconnector cable installation, cable burial and protection and floating wind turbine and floating foundation installation and commissioning. Key details of an example SOV, the [Vessel Type/ Name], are provided in Table 6.7.

Table 6.7: [Vessel Type/ Name] Key Details

Parameter		Value
Vessel name		[Vessel details to be added post consent]
Vessel type		
Contact		
Vessel role		
Key characteristics	Length	
	Breadth	
	DWT	
Propulsion		
Mooring / station keeping		

6.3. OPERATION AND MAINTENANCE PHASE

86. Similar vessels are likely to be required, at various times, to those described for construction in section 6.2.

7. NUMBERS AND MOVEMENTS OF VESSELS

7.1. CONSTRUCTION VESSELS

87. The number of vessels within the Array at any one time will vary during the construction period, with peaks in vessel activity reflecting the timing of major installation works.

88. For each vessel type anticipated to be entering the Array, Table 7.1 presents the indicative number of vessels involved in construction, the main construction activities they will be involved in, and the anticipated number of return journeys (a transit to the Array, and then back to port) they will make (if available). It should be noted that the number of transits given is a best estimate based on the available information at the time of writing, and the actual numbers may differ during the construction phase.

Table 7.1: Construction Phase Vessel Activities Summary

Vessel Type	Anticipated Total Number	Key Construction Activities	Approximate Number of Return Journeys
[To be added post consent]			

7.2. OPERATION AND MAINTENANCE VESSELS

89. The number of vessels within Array at any one time will vary during the operation and maintenance phase, with peaks in vessel activity reflecting the timing of major maintenance works. Consequently, it is not possible at this time to provide precise numbers of vessel movements during the operation and maintenance phase. Estimates based on current information are provided in Table 7.2.

Table 7.2: Operation and Maintenance Phase Activities Summary

Operation and Maintenance Activity	Vessels Required	Trips to Port	Number of Annual Transits
[To be added post-consent]			

8. INDICATIVE TRANSIT ROUTE CORRIDORS

90. The indicative transit corridors for the major construction vessels between the Array and the relevant construction ports are presented in Figure 8.1.

91. Note the indicative transit routes presented in Figure 8.1 are not intended to be prescriptive and are unlikely to be followed precisely by every vessel, however they are designed to give an indication to other users of the areas within which they may expect to encounter additional project construction vessels. Navigational safety and compliance with COLREGs shall remain the navigational priority at all times.

92. All vessels shall passage plan as per the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974). In addition, vessels may take alternatives from these indicative routes for a variety of reasons, at the discretion of the vessels' Master, including:

- compliance with COLREGs as required;
- prevailing weather, tidal, or sea state conditions;
- navigational hazards as indicated on charts, or notified through NtMs or other such sources;
- vessels originating from or bound for a destination not indicated by the indicative transit routes;
- instructions from the Marine Coordination Centre or other responsible persons in charge of coordinating and managing construction vessel traffic; and
- any other reason the Master of a vessel may deem relevant for the purpose of ensuring the safety of theirs or another vessel.

[Indicative transit route figure to be added post consent].

Figure 8.1: Indicative Transit Routes

9. ANCHORING

93. Given the location of the Array and its distance from shore, there are unlikely to be any defined anchoring areas in the vicinity of the Array.

94. Anchoring is at the discretion of the Vessel Master but can be in conjunction with the information provided by the Marine Coordination Centre or port authorities, where relevant; however, standard marine practice requires that when a vessel proceeds to anchor, consideration is given to:

- water depth;
- seabed type and charted hazards including cables/pipelines;
- weather and tidal information including current and predicted weather;
- avoidance of prohibited anchorage areas;
- consideration of other anchored vessels;
- avoidance of known areas of other marine activity such as fishing or recreational boating; and
- avoidance of main commercial routes, pilot boarding area or other navigational features such as spoil grounds or subsea cables.

95. All vessels associated with the Array will take the above into consideration prior to anchoring as per standard marine practice. Construction and operation and maintenance phase vessels requiring anchorage within the Array will request permission to do so from the Marine Coordination Centre.

10. ENVIRONMENTAL SENSITIVITIES RELEVANT TO VESSEL MANAGEMEMT

96. [This section will summarise the marine mammal and bird sensitivities relevant to vessel traffic associated with construction and operation and maintenance phases of the Array (where applicable). This section will also describe the indicative vessel routes as detailed in section 9 above in the context of the environmental sensitivities].

11. COMPLIANCE WITH MGN 654

97. [Details of relevant condition to be added post-consent] require the Applicant to demonstrate that the NSVMP has adequately addressed all of the recommendations of MGN 654 (MCA, 2021a) and its annexes that may be appropriate to the Array, or any other relevant document which may supersede said guidance prior to approval of the NSVMP.

98. MGN 654 has therefore been reviewed and all appropriate recommendations (at this pre-construction stage of the Array) have been identified. In each case it has been indicated where each of these recommendations has been addressed within this document (or other relevant consent plans) for the Development. The review summary is provided in annex B.

12. COMPLIANCE WITH THE APPLICATION

99. Annex A details how the Array design parameters and mitigation commitments relevant to navigational safety and vessel management have been compiled with via this document.

13. REFERENCES

IMO (1972/77). *Convention on International Regulations for Preventing Collisions at Sea (COLREGs) – Annex 3*. London: IMO.

IMO (1974). *International Convention for the Safety of Life at Sea (SOLAS)*. London: IMO.

MCA (2021a). *Marine Guidance Note 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response*. Southampton: MCA.

MCA (2021b). *Emergency Response Cooperation Plans (ERCoP): Template for Construction, Operations and Decommissioning Phases.* Southampton: MCA.

ANNEX A COMPLIANCE WITH THE ARRAY EIA REPORT

Table A.1: Compliance with the Array EIA Report

Parameter/Commitment	Mitigation	Where Addressed
[To be added post-consent]		

ANNEX B: MGN 654 COMPLIANCE

Table B.1 MGN 654 Compliance

MGN 654 Section	Checklist	Where Addressed
4.5 Site and installation coordinates	Developers are responsible for ensuring that formally agreed coordinates and subsequent variations of site perimeters and individual OREI structures are made available, on request, to interested parties at relevant project stages, including application for consent, development, array variation, operation and decommissioning. This should be supplied as authoritative Geographical Information System (GIS) data, preferably in Environmental Systems Research Institute (ESRI) format. Metadata should facilitate the identification of the data creator, its date and purpose, and the geodetic datum used. For mariners' use, appropriate data should also be provided with latitude and longitude coordinates in World Geodetic System 1984 (WGS84) datum.	[To be added post-consent]
10 Assessment of access to and navigation within, or close to, an OREI	It should be determined to what extent navigation would be feasible within or near to the OREI site itself by assessing whether:	[To be added post-consent]
	a. Navigation within and /or near the site would be safe: i. for all vessels; ii. for specified vessel types, operations and/or sizes; iii. in all directions or areas; iv. in specified directions or areas; or v. in specified tidal, weather or other conditions.	[To be added post-consent]
	b. Navigation in and/or near the site should be prohibited or restricted: i. for specified vessel types, operations and/or sizes; ii. in respect of specific activities; iii. in all areas or directions; iv. in specified areas or directions; v. in specified tidal or weather conditions, or simply restricted; and vi. recommended to be avoided.	[To be added post-consent]
	c. Where it is not feasible for vessels to access or navigate through the site it could cause navigational, safety or routeing problems for vessels operating in the area e.g., by preventing vessels from responding to calls for assistance from persons in distress.	[To be added post-consent]
	d. Guidance on the calculation of safe distance of OREI boundaries from shipping routes has been considered.	[To be added post-consent]
4.11 Search and Rescue (SAR), maritime assistance service, counter pollution and salvage incident response	a. An ERCoP will be developed for the construction, operation and decommissioning phases of the OREI.	[To be added post-consent]
	b. The MCA's guidance document Offshore Renewable Energy Installation: Requirements, Advice and Guidance for Search and Rescue and Emergency Response for the design, equipment and operation requirements will be followed.	
	c. A SAR checklist will be completed to record discussions regarding the requirements, recommendations and considerations outlined in the above document (to be agreed with MCA).	
4.12 Hydrography	In order to establish a baseline, confirm the safe navigable depth, monitor seabed mobility and to identify underwater hazards, detailed and accurate hydrographic surveys are included or acknowledged for the following stages and to MCA specifications: i. Pre-construction: The proposed generating assets area and proposed cable route; ii. On a pre-established periodicity during the life of the development; and iii. Post-construction: Cable route(s). Post-decommissioning of all or part of the development: the installed generating assets area and cable route.	[To be added post-consent]
4.14 Risk mitigation measures recommended for OREI during construction, operation and maintenance and decommissioning	Promulgation of information and warnings through NtMs and other appropriate Maritime Safety Information (MSI) dissemination methods. Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC). Safety zones of appropriate configuration, extent and application to specified vessels. Provision of AtoN as determined by the General Lighthouse Authority (GLA). Monitoring by radar, AIS, Closed Circuit Television (CCTV) or other agreed means. Appropriate means for OREI operators to notify, and provide evidence of, the infringement of safety zones. Creation of an ERCoP with the MCA's SAR Branch for the construction phase onwards. Use of guard vessels, where appropriate.	[To be added post-consent]

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sse Renewables · Marubeni · CIP Copenhagen Infrastructure Partners

Ossian Offshore Wind Farm Limited
Inveralmond House
200 Dunkeld Road
Perth
PH1 3AQ

Project Office
Fourth Floor
10 Bothwell Street
Glasgow
G2 6NT

ossianwindfarm.com