Westermost Rough Offshore Wind Farm Safety Zone Application

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Version	Date	Summary of Change
A	24 February 2026	Initial Draft
B	17 March 2026	1st Revisions
C	01 April 2026	2nd Revisions

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Abbreviations Table

Abbreviation	Definition
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
CD	Chart Datum
DECC	Department for Energy and Climate Change
DESNZ	Department for Energy Security and Net Zero
HAT	Highest Astronomical Tide
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IMO	International Maritime Organisation
IPS	Intermediate Peripheral Structure
kV	Kilovolt
LAT	Lowest Astronomical Tide
m	Metre
MCA	Maritime and Coastguard Agency
MSL	Mean Sea Level
MW	Megawatt
nm	Nautical Mile
nm^2	Square Nautical Mile
OREI	Offshore Renewable Energy Installation
OSS	Offshore Substation
RoRo	Roll On Roll Off
SOV	Service Operation Vessel
SPS	Significant Peripheral Structure
TSS	Traffic Separation Scheme
UKHO	United Kingdom Hydrographic Office
VHF	Very High Frequency
WTG	Wind Turbine Generator
WGS84	World Geodetic System 1984

1 Introduction

1.1 Background

1. The Westermost Rough Offshore Wind Farm (hereby referred to as the 'project') is operated by Ørsted and is located approximately 4.3 nautical miles (nm) off the Yorkshire coast. The site has been operational since 2015 and does not currently have statutory safety zones granted for major maintenance activities.

1.2 Scope of the Safety Zone Application

2. This document presents the primary supporting information in Ørsted's application for safety zones to be implemented for the site. The application will be submitted to Department for Energy Security and Net Zero (DESNZ).

3. The proposed safety zones are intended to make clear to passing traffic the areas where the site maintenance activities are taking place. This will alert passing vessels to which areas should be avoided, with a view to minimising the risk of an incident which may threaten life, property or the environment.

4. Safety zones are applied for around the wind turbine generators (WTGs) and offshore substation (OSS) under the circumstances detailed in the following sections.

1.2.1 Plan Objectives

5. As per Section 95 and Schedule 16 of the Energy Act 2004 and Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007 (Electricity Regulations, 2007) respectively, a Safety Zone Application can be made to DESNZ requesting the formal implementation of safety zones around structures associated with an Offshore Renewable Energy Installation (OREI).

6. On this basis, this document presents the safety case for the implementation of safety zones around the WTGs and OSS installed within the site and represents the primary supporting document of the application made to DESNZ.

7. It is emphasised that the use of safety zones is to support the protection of human life, in addition to the other marine safety and navigation risk mitigation measures that will be implemented. On this basis, the proposed safety zones are designed to manage potential interactions between third-party vessels and the maintenance activities undertaken, with a view to securing the safety of vessels and crews (both those associated with the site and those deemed as third-party), and to protect the structures themselves.

1.2.2 Operation and Maintenance

8. During any periods of major maintenance within the ongoing operation and maintenance phase, the following safety zones are applied for:

- 500 metre (m) safety zones around all major maintenance being undertaken around a WTG or the OSS, as denoted by the presence of a major maintenance vessel.

9. For reference, the definition of *major maintenance* given within the Electricity Regulations 2007 (UK Government, 2007) (which details regulations associated with application procedures and control of access related to safety zones) is as follows:

10. '*works relating to any renewable energy installation which has become operational, requiring the attachment to, or anchoring next to, such an installation of a self-elevating platform, jack-up barge, crane barge or other maintenance vessel.*'

11. Further details as to what will trigger these safety zones are provided in Section 6. For clarity, it is noted that the following safety zones are not being applied for:

- Safety zones triggered by Service Operation Vessels (SOVs).
- Permanent operational safety zones.

1.2.3 Decommissioning

12. Decommissioning safety zones are not applied for under this application but will be applied for prior to decommissioning of the site, when removal methodologies and timing of the works will be better understood.

1.3 Legislation and Guidance Compliance

13. This document has been drafted in compliance with the following legislation and guidance to ensure all necessary information required is included within this safety zone application:

- Section 95 and Schedule 16 of the Energy Act 2004;
- Electricity (Offshore Generation Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007; and
- Guidance Notes: Applying for Safety Zones around Offshore Renewable Energy Installations (Department of Energy and Climate Change (DECC[1]), 2011).

[1] Now DESNZ

2 Project Overview

14. The site is situated approximately 4.3nm off the Yorkshire coast and is presented in Figure 2-1. The site covers an area of approximately 10 square nautical miles (nm^2) and is positioned on water depths between 12m and 24m below Chart Datum (CD).

15. In summary, the site design consists of:

- 35 WTGs, each with a generating capacity of 6 megawatts (MW);
- One OSS;
- WTGs constructed on monopile foundations;
- A network of six strings of inter-array cables to connect WTGs to the OSS;
- An export cable with a length of approximately 6nm to transit the electricity from the OSS to landfall at Tunstall, Yorkshire.

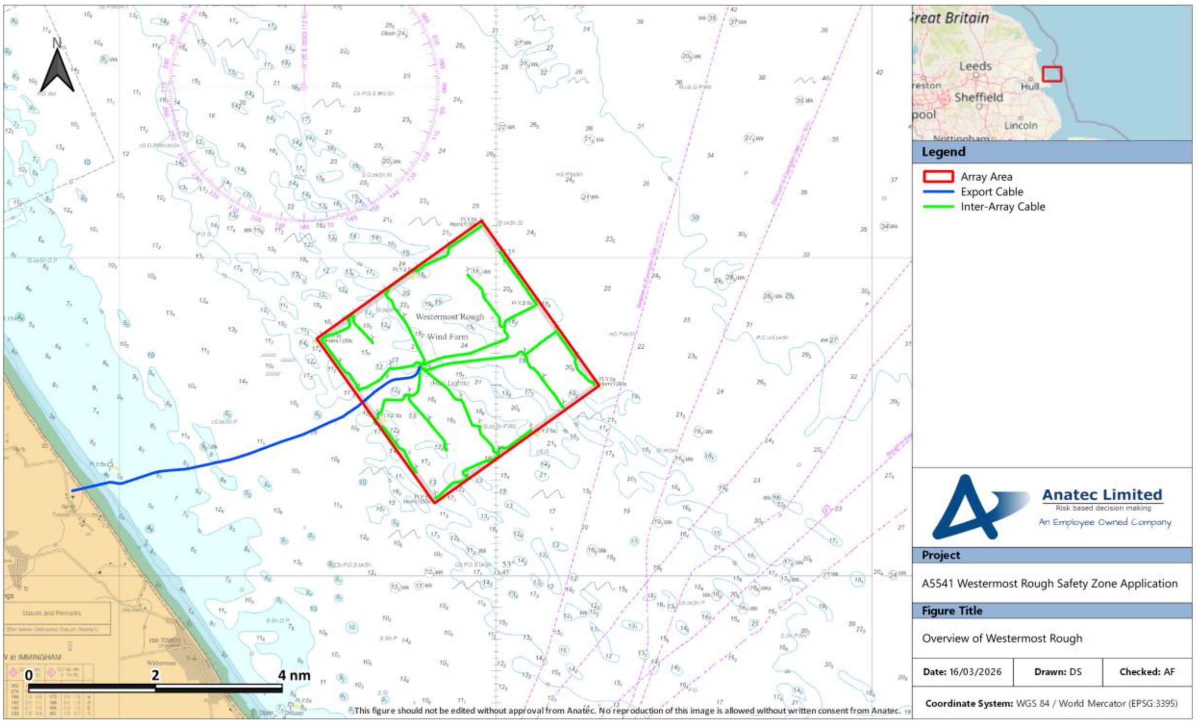

Figure 2-1 Overview of Westermost Rough

16. The layout of the structures across the array area is presented in Figure 2-2. The WTGs are arranged in a broadly 0.8x1.0km spaced grid (centre to centre). The OSS is located approximately 750m from the nearest WTG.

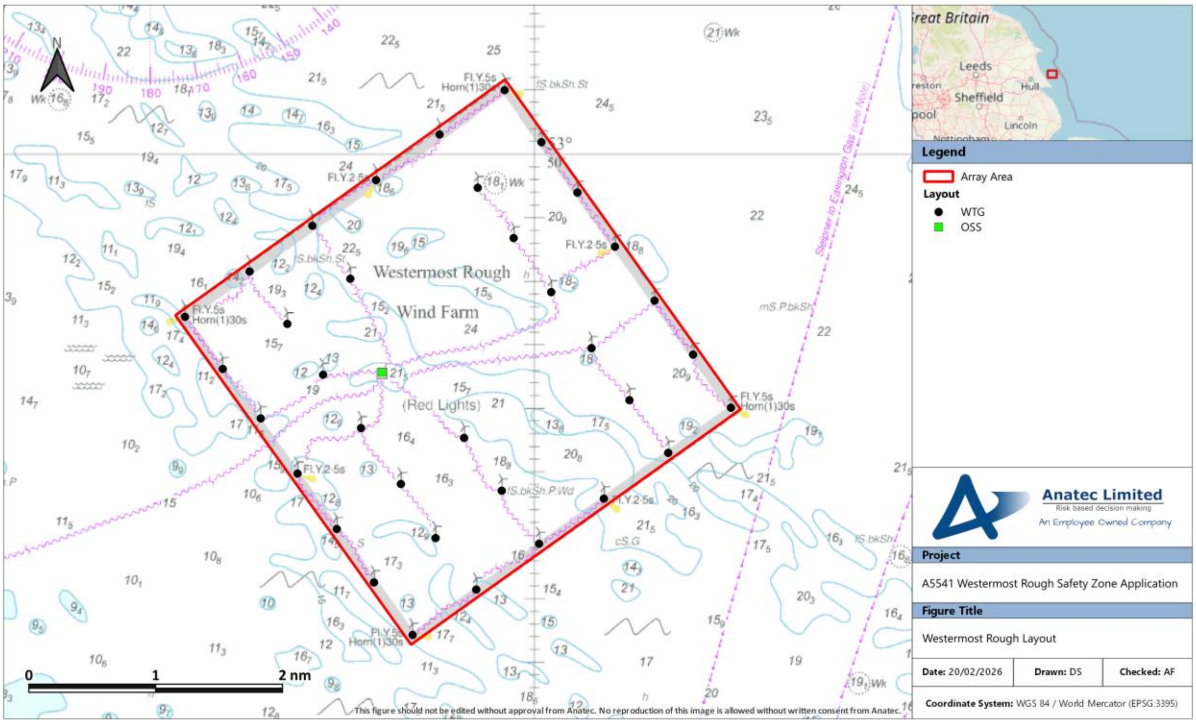

Figure 2-2 Westermost Rough Layout

3 Project Components

3.1 Wind Turbine Generators

17. Key specifications of the WTGs are provided in Table 3.1. Following this, schematics of the WTGs and monopiles are presented in Figure 3-1 and Figure 3-2.

Table 3.1 Table WTG Parameters

Specification	Value
Capacity	6 MW
Foundation Type	Monopile
Rotor Diameter	154m
Hub Height above Lowest Astronomical Tide (LAT)	107.8m
Installed Water Depth	12m - 18m
Height above LAT (Mean Sea Level (MSL))	182.8m

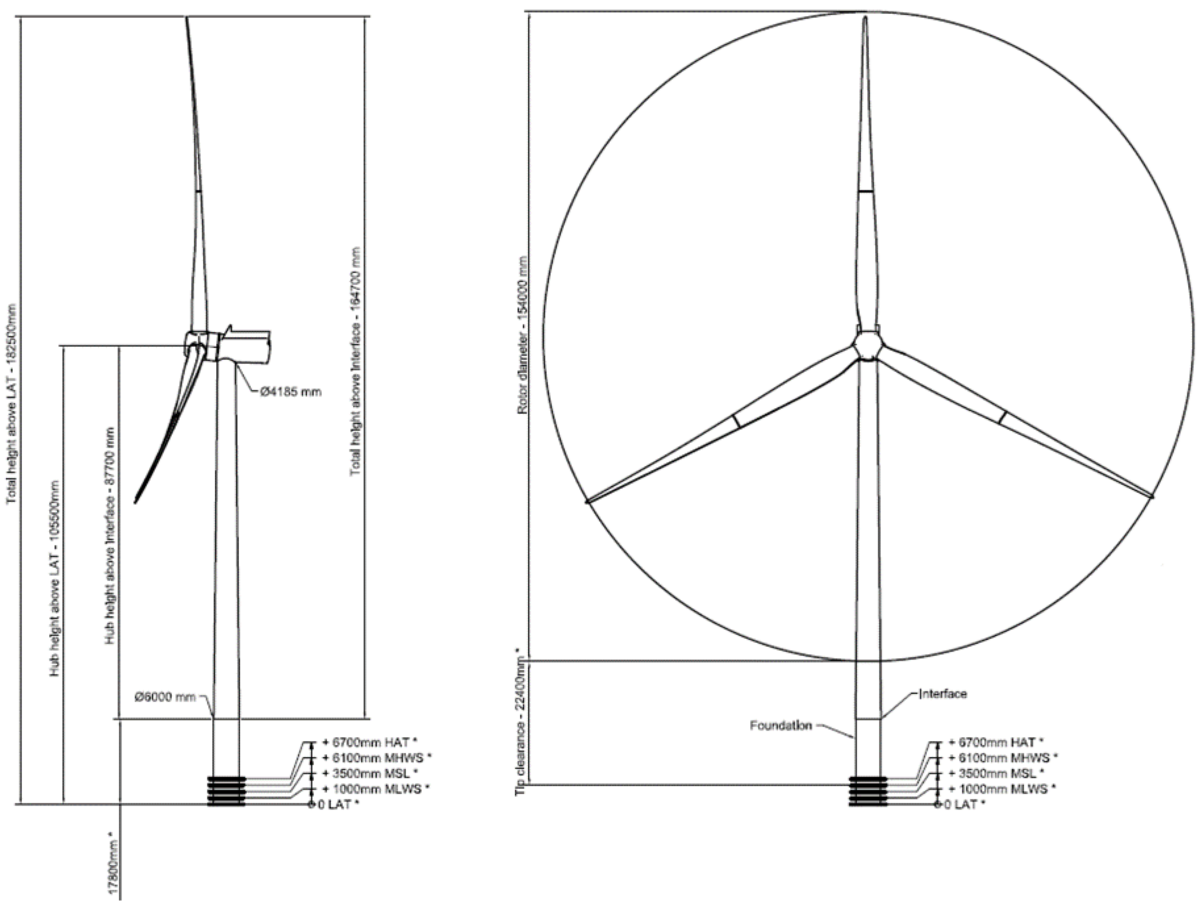

Figure 3-1 Turbine Schematic

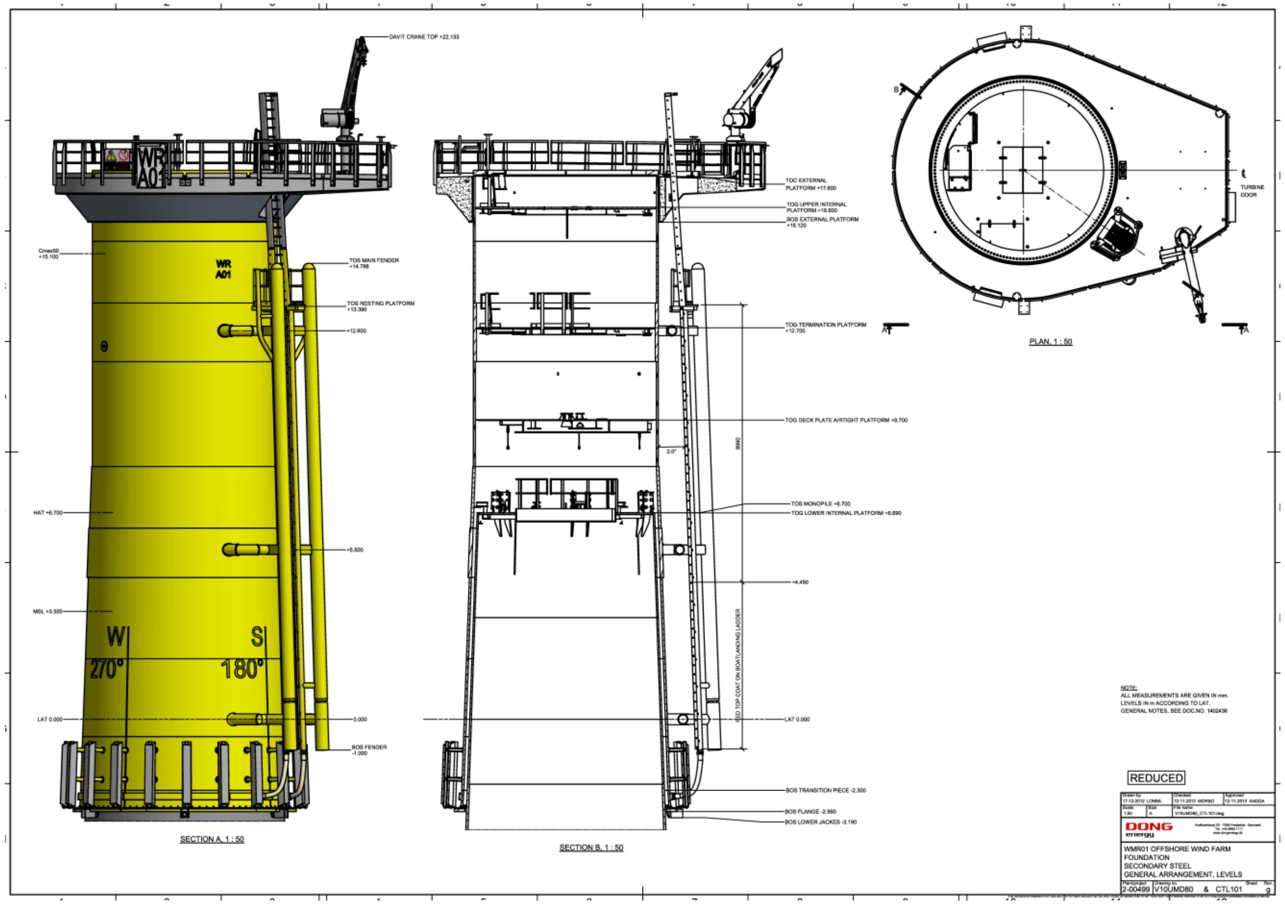

Figure 3-2 Monopile Schematic

3.2 Offshore Substation

Key specifications of the OSS are provided in Table 3.2, followed by schematics of the OSS topside and jacket in Figure 3-3 and Figure 3-4, respectively.

Table 3.2 OSS Parameters

Specification	Value
Topside	
Length	28m
Width	18m
Height	15m
Roof deck height above LAT	33.1m
Jacket	
Foundation Type	Four-legged steel jacket
Height	38m
Maximum dimensions (L x W)	20m x 20m (at the base)

18. The OSS is supported by a jacket foundation with skirt piles at the following installed water depths:
    - -20.4 m LAT.
    - -23.9 m MSL.
    - -27.1 m Highest Astronomical Tide (HAT).

19. The top of the jacket structure sits at the following height above sea level:
    - 17.6 m LAT.
    - 14.1 m MSL.
    - 10.9 m HAT.

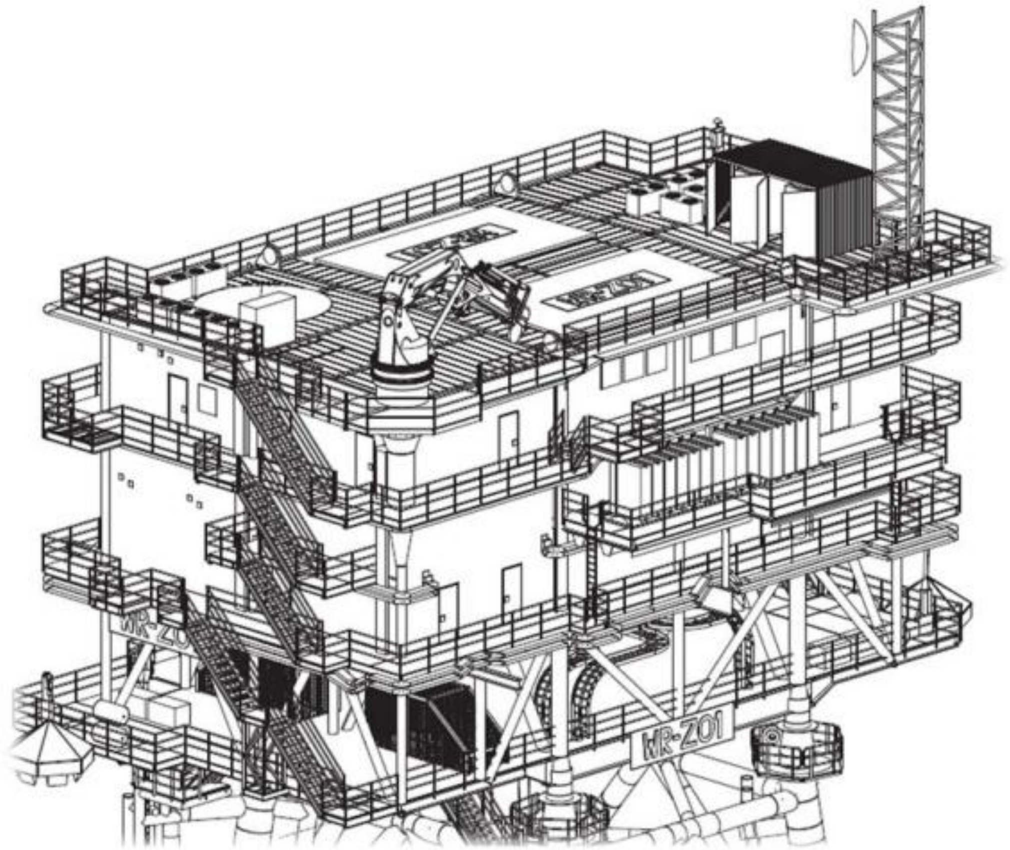

Figure 3-3 Substation Topside Schematic

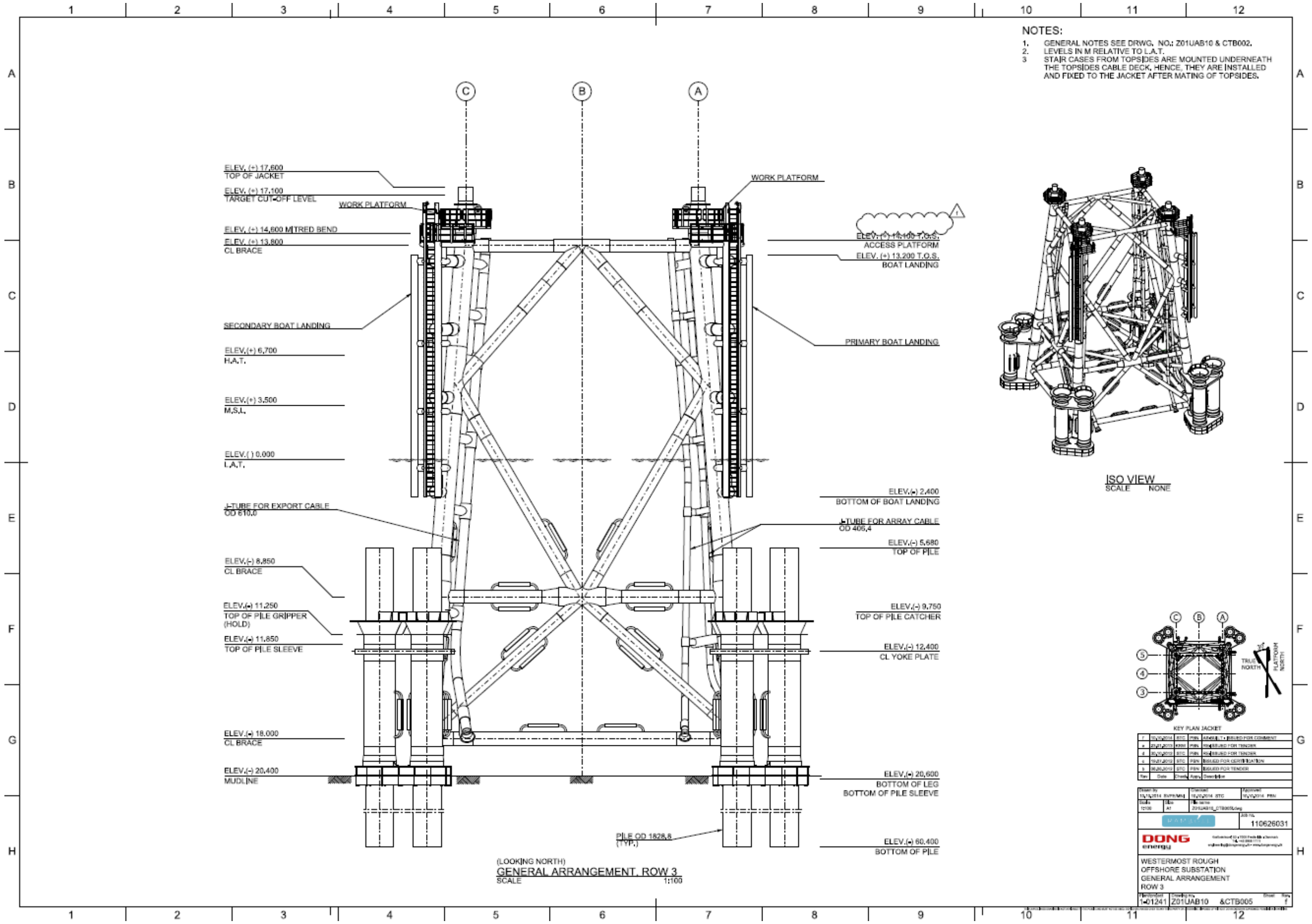

Figure 3-4 Substation Jacket Schematic

3.3 Cables

20. The offshore export cable is shown in Figure 2-1.

21. The approximate total length of the export cable is 6nm. The 155 kilovolt (kV) offshore export cable makes landfall near Withernsea and joins the National Grid's transmission system.

22. A network of six strings of inter-array cables connects the WTGs to the OSS.

4 Lighting and Marking

23. This section summarises the marine lighting and marking of the project, which is as directed by Trinity House and the Maritime and Coastguard Agency (MCA). Aviation lighting is not considered pertinent to this safety zone application and has therefore not been included, however in summary peripheral WTGs are fitted with medium intensity red obstruction lights.

4.1 Significant Peripheral Structures

24. As part of the operational phase, in line with requirements under International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Guidance G1162 (IALA, 2022), the corner peripheral structures are marked as Significant Peripheral Structures (SPS). Each SPS is fitted with three marine lights (spaced at 120° intervals) satisfying the following criteria:

- 5nm light Fl Y 5s, 360° visibility, flashing in synchronicity, IALA category 2 (> 99.0% availability).

4.2 Intermediate Peripheral Structures

25. Select structures have been marked as Intermediate Peripheral Structures (IPS). Each IPS is fitted with three marine lights (spaced at 120° intervals) satisfying the following criteria:

- 2nm light Fl Y 2.5s, 360° visibility, flashing in synchronicity, IALA category 2 (> 99.0% availability).

4.3 Sound Signals

26. Each SPS is also fitted with sound signals, which activate whenever visibility is less than 2nm. When activated, the signals sound a blast lasting 2 seconds, every 30 seconds. They fall under IALA category 3 availability requirements (> 97.0%).

5 Vessel Traffic Data

5.1 Introduction

27. In line with DESNZ guidance (DECC, 2011), a vessel traffic assessment has been undertaken based on up-to-date vessel traffic data collected during 2025. The dataset used consists of 28 days of Automatic Identification System (AIS) data collected by coastal and satellite receivers between 14 and 27 June 2025 (the ‘summer period’) and between 1 and 14 December 2025 (the ‘winter period’) within a minimum 10nm buffer of the Westermost Rough WTG locations (the ‘study area’). Vessel traffic deemed as temporary has been removed from the analysis in order to focus the assessment on routine traffic (e.g., vessels engaged in surveys).

28. The vessel tracks recorded within the study area during the summer period are colour-coded by vessel type and presented in Figure 5-1. Following this, Figure 5-2 presents the equivalent for the winter period.

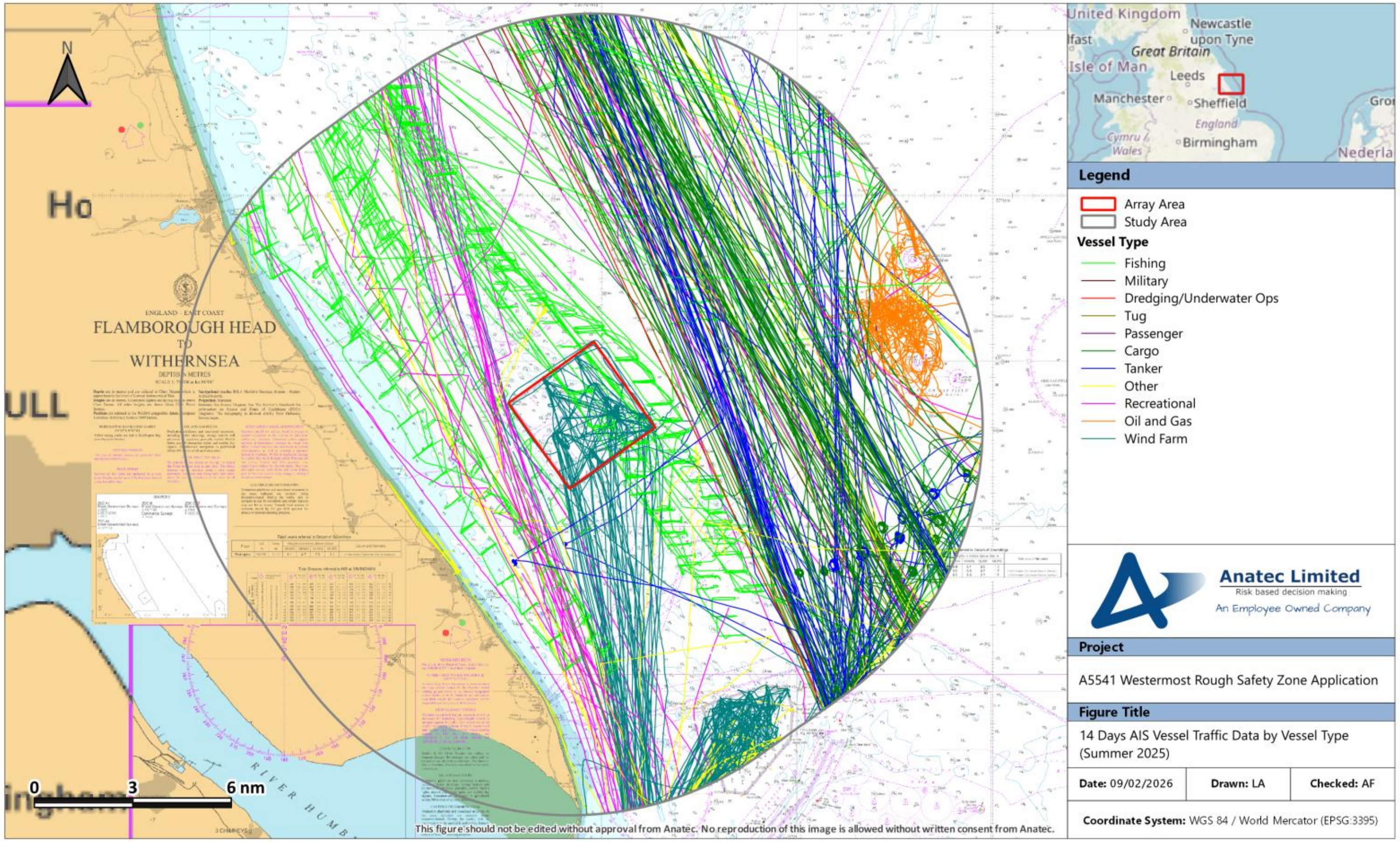

Figure 5-1 14 Days AIS Vessel Traffic Data by Vessel Type (Summer 2025)

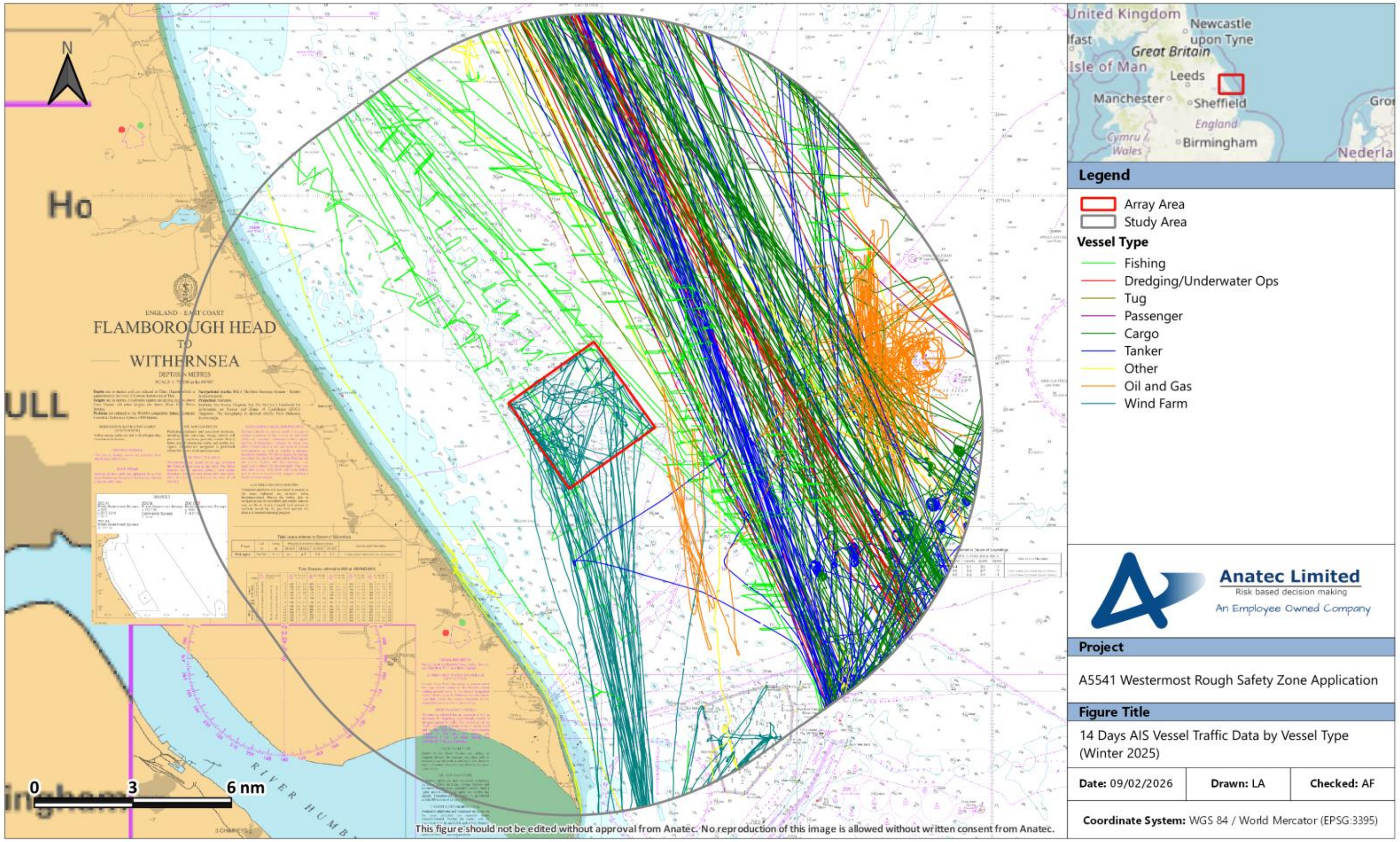

Figure 5-2 14 Days AIS Vessel Traffic Data by Vessel Type (Winter 2025)

5.2 Vessel Count

29. During the 14-day summer period, there was an average of 37 unique vessels recorded per day within the study area, and two to three per day within the array area itself. The majority of these were wind farm vessels, with fishing vessels also noted.

30. Overall, approximately 6% of vessel traffic recorded within the study area also intersected the array area during the summer period.

31. The busiest day within the study area during the summer period was 19 June 2025, on which 48 unique vessels were recorded. The busiest day within the array area during the summer period was 22 June 2025, on which four unique vessels were recorded.

32. The number of unique vessels recorded during each day of the summer period within the study area and array area are presented in Figure 5-3.

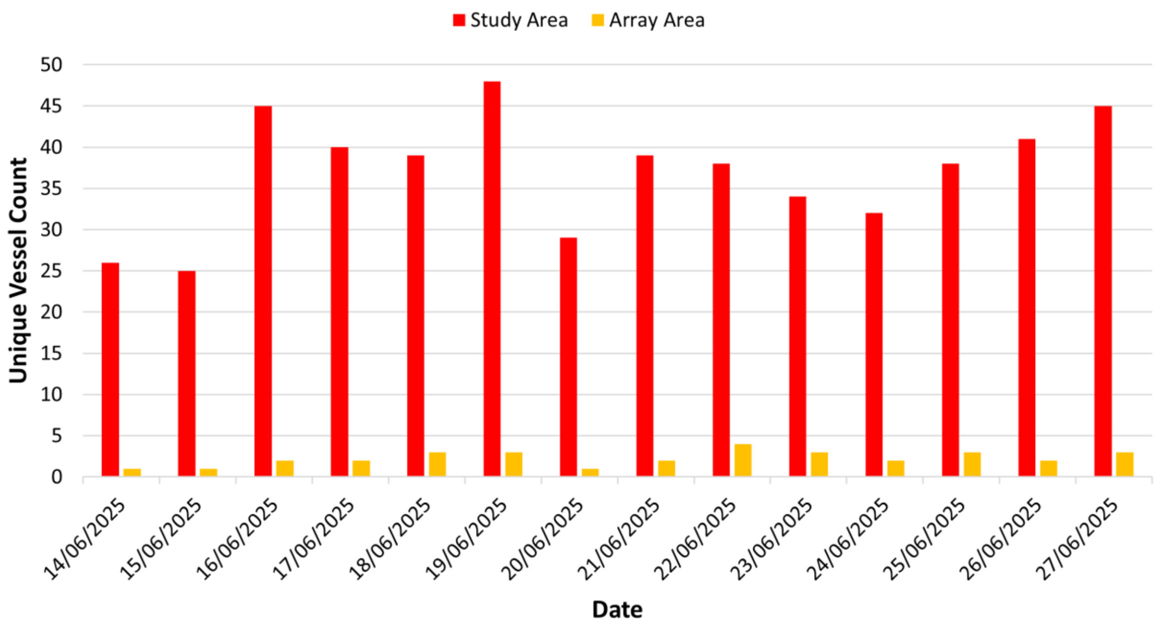

Figure 5-3 Distribution of Unique Vessel Count (Summer 2025)

33. During the 14-day winter period, there was an average of 27 unique vessels recorded per day within the study area, and one to two per day within the array area itself. Again, the majority of these were wind farm vessels, with fishing vessels also noted.

34. Vessel numbers during winter were lower due to a reduction in oil and gas and wind farm support vessels, as well as seasonal traffic such as recreational.

35. Overall, approximately 6% of vessel traffic recorded within the study area also intersected the array area during the winter period.

36. The busiest day within the study area during the winter period was 12 December 2025, on which 36 unique vessels were recorded. The busiest day within the array area during the winter period was 2 and 12 December 2025, on which four unique vessels were recorded.

37. The number of unique vessels recorded during each day of the winter period within the study area and array area are presented in Figure 5-4.

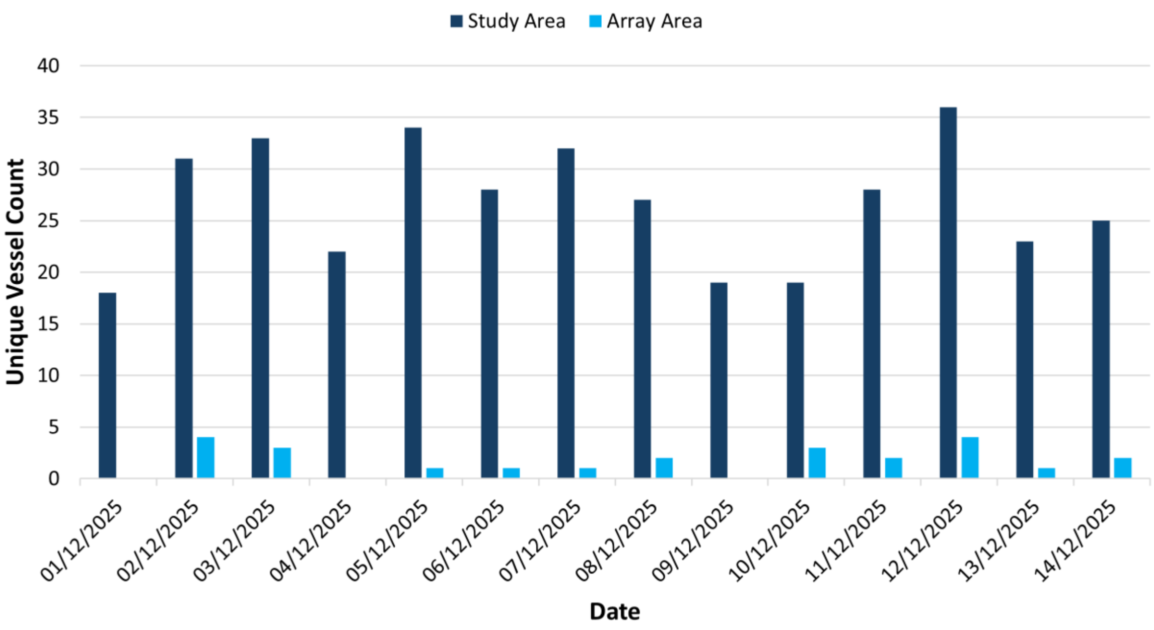

Figure 5-4 Distribution of Unique Vessel Count (Winter 2025)

5.3 Vessel Type

38. Figure 5-5 presents the vessel type distribution of vessels recorded within the study area during both the summer and winter periods.

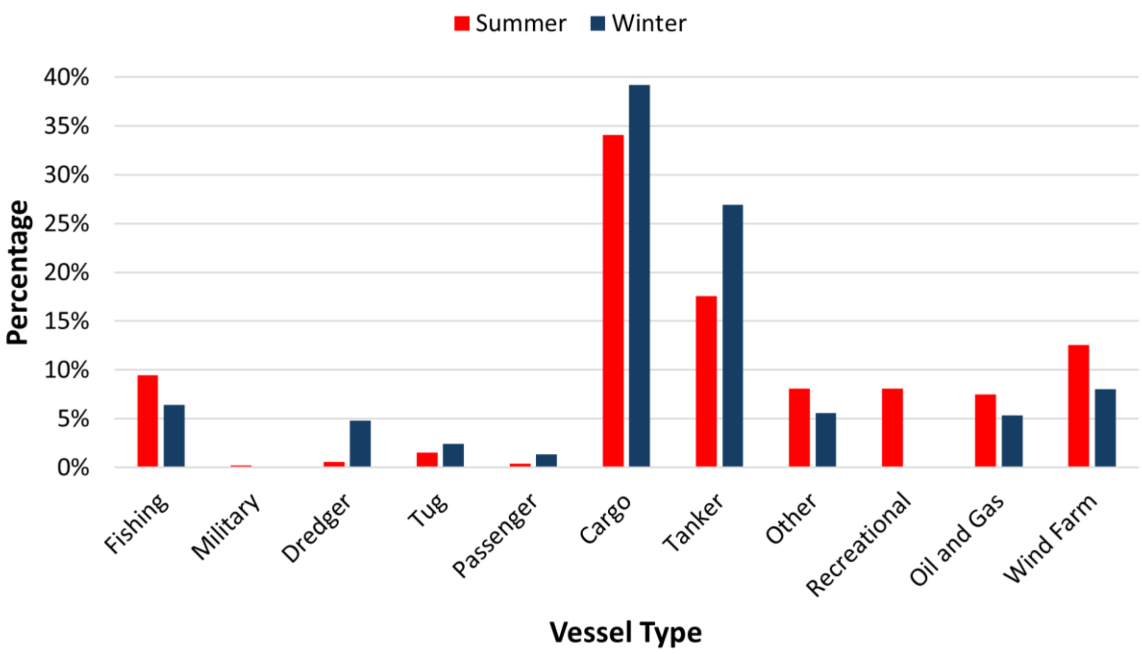

Figure 5-5 Distribution of Vessel Types

39. During the summer period, cargo vessels were the most commonly recorded vessel type within the study area, at 34%. This was followed by tankers (18%) and wind farm vessels (13%). Vessel types recorded within the study area during the winter period displayed a similar pattern with cargo vessels (39%), tankers (27%), and wind farm vessels (8%) again being most common. Within the array area itself, wind farm vessels were most common during both the summer and winter periods, at 72% and 75%, respectively. In both periods, fishing vessels were the only other vessel type recorded intersecting the array area, see Section 5.3.5 for detailed analysis of fishing vessels.

40. The following subsections detail each of the main vessel types individually.

5.3.1 Cargo Vessels

41. Figure 5-6 presents the AIS cargo vessel traffic data recorded within the study area during both the summer and winter periods.

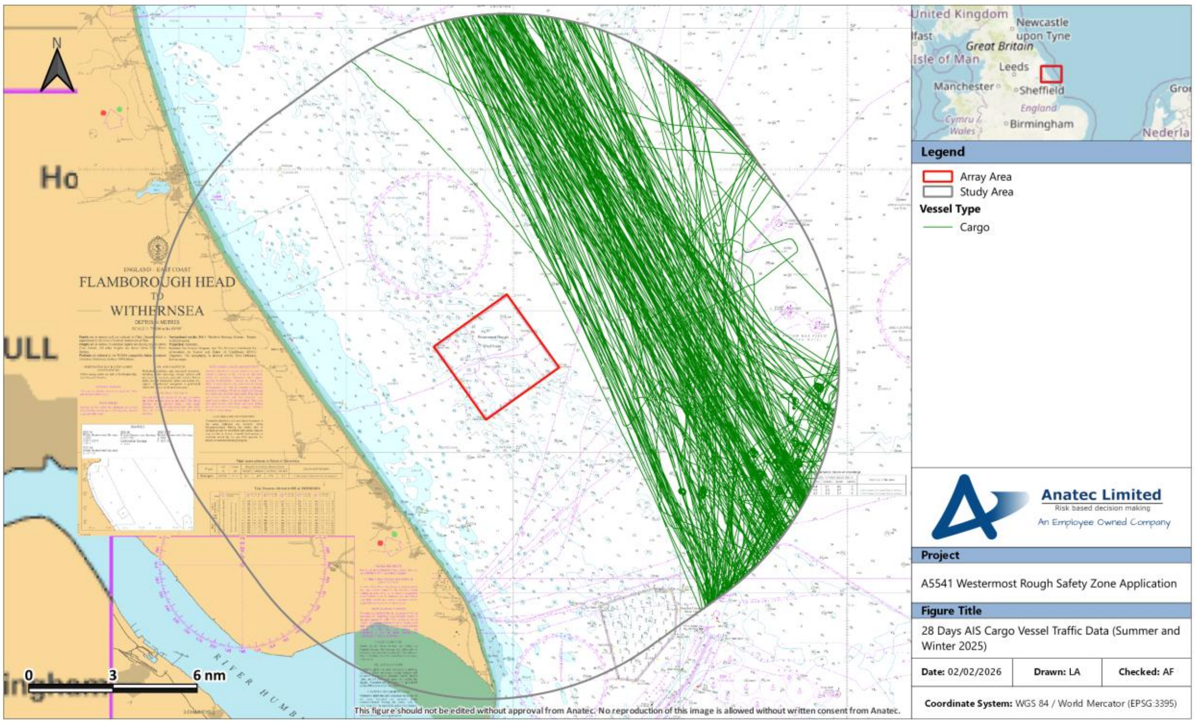

Figure 5-6 28 Days AIS Cargo Vessel Traffic Data (Summer and Winter 2025)

42. Cargo vessels were the most prominent vessel type during both the summer and winter periods. There was an average of 13 unique cargo vessels recorded within the study area per day during the summer period, and an average of 11 per day during the winter period.

43. All cargo vessels were recorded offshore of the array area, with the closest cargo vessel passing 1nm to the east at the nearest point. The majority of vessels could be seen routeing northwest / southeast towards common destinations including Immingham (UK) and Teesport (UK).

44. Cargo vessels were also frequently observed to anchor within the southeast of the study area, beyond the 20m contour and north of the Humber Traffic Separation Scheme (TSS). Anchored vessels are explored further in Section 5.4.

45. Regular Roll-on / Roll-off (RoRo) cargo vessel routeing was observed between Teesport and Zeebrugge (Belgium) from vessels operated by CLdN, as well as routeing from Sea-Cargo vessels towards Immingham and Risavika (Norway). Several transits from a RoRo vessel operated by DFDS Seaways were also captured within the study area.

5.3.2 Tankers

46. Figure 5-7 presents the AIS tanker traffic data recorded within the study area during both the summer and winter periods.

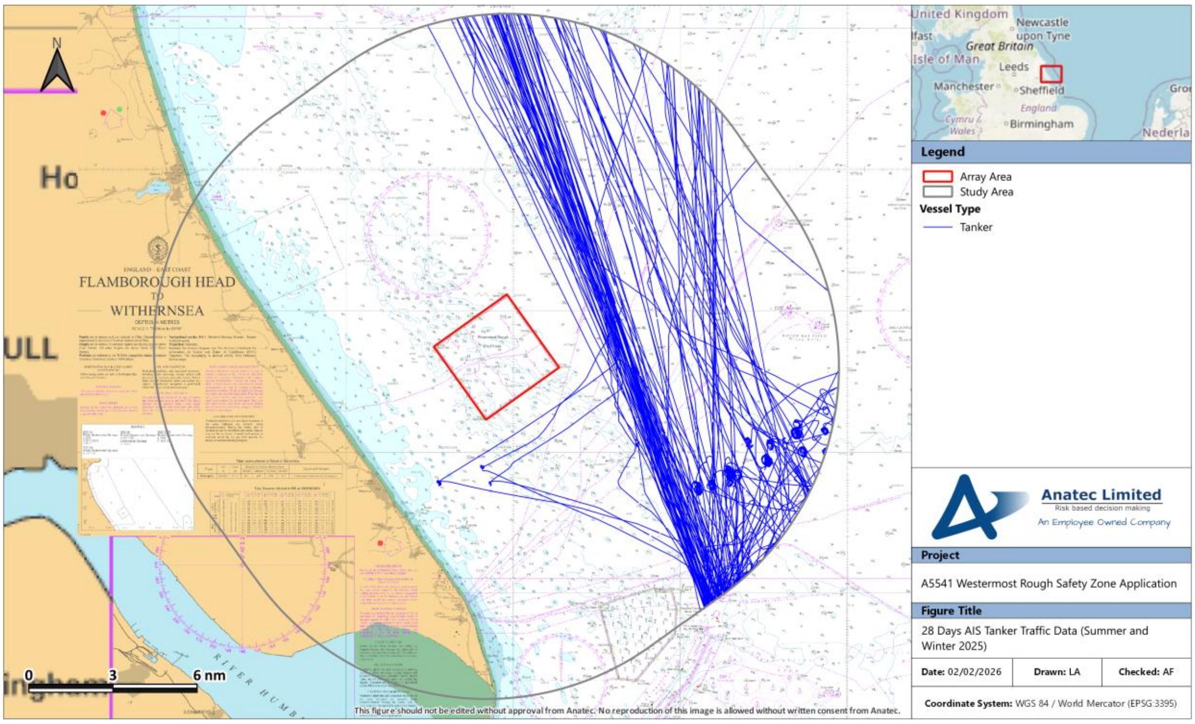

Figure 5-7 28 Days AIS Tanker Traffic Data (Summer and Winter 2025)

47. Tankers were commonly recorded within the study area during both summer and winter periods. There was an average of between six and seven unique tankers recorded per day during the summer period, and an average of seven to eight recorded per day during the winter period.

48. Overall, tankers were seen to route northwest / southeast offshore of the array area, similar to cargo vessels. On this course, the closest tanker to the array area passed at approximately 1.3nm at the nearest point.

49. Several smaller tankers (80m and 85m in length) were recorded anchoring inshore of the array area. Of these vessels, the closest tanker to the array area passed with a closest point of approach of approximately 1nm.

5.3.3 Oil and Gas Vessels

50. The oil and gas vessel traffic data recorded within the study area during both the summer and winter periods is presented in Figure 5-8.

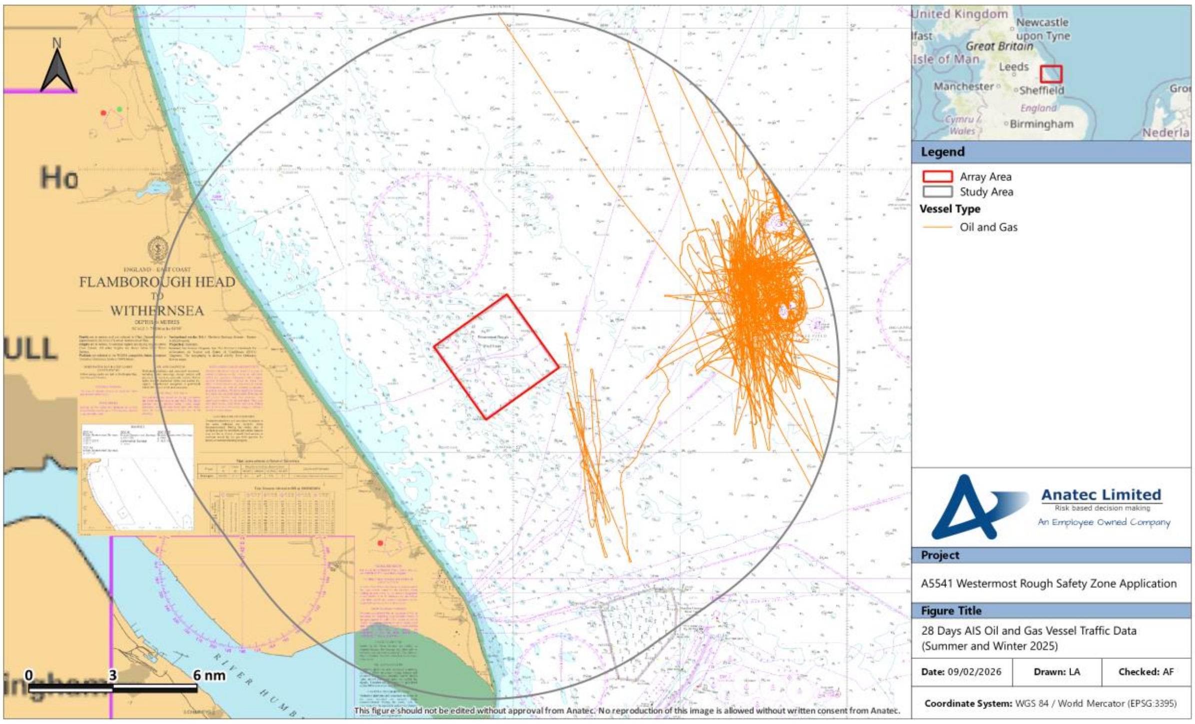

Figure 5-8 28 Days AIS Oil and Gas Vessel Traffic Data (Summer and Winter 2025)

51. Oil and gas vessel activity within the study area was primarily centred around the Rough Gas field to the east of the array area. Vessels were more prominent during the summer period, with between two and three unique vessels per day, compared to between one and two unique vessels per day during the winter period.

52. No oil and gas vessel was recorded within the array area, however one vessel was noted approximately 0.4nm east at the closest point of approach.

53. Transiting oil and gas vessels were noted to route towards Heysham.

5.3.4 Recreational Vessels

54. Figure 5-9 presents the recreational vessel traffic recorded within the study area during both summer and winter periods.

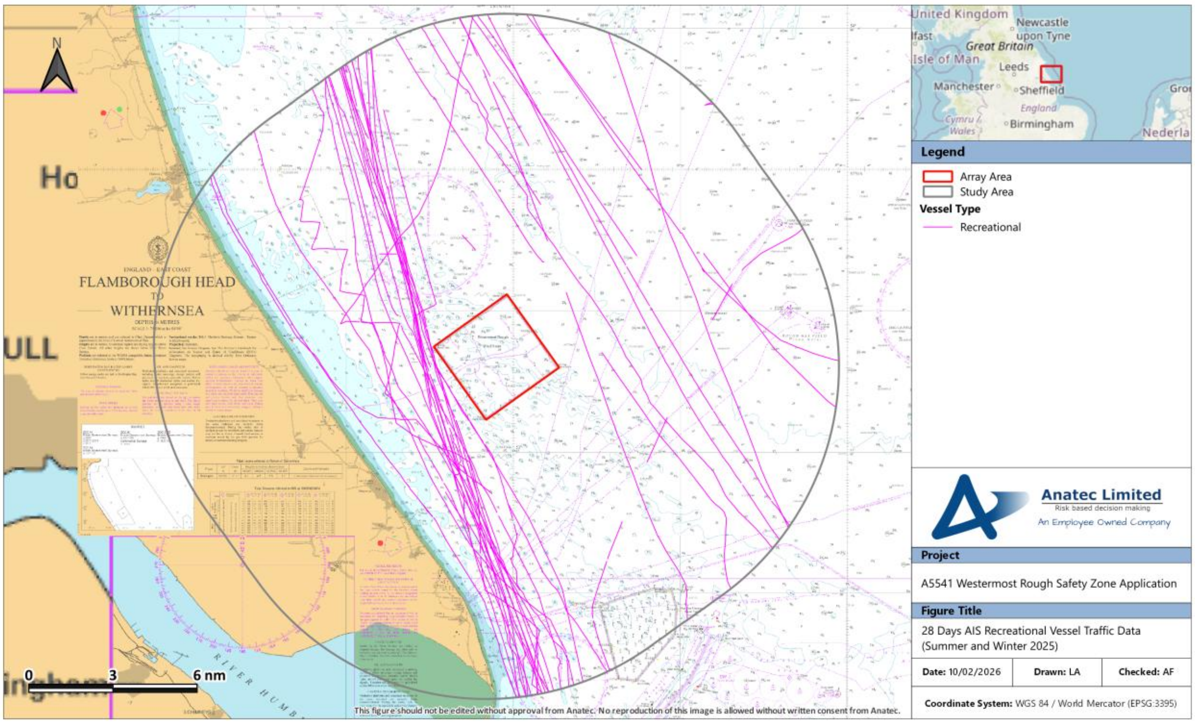

Figure 5-9 28 Days AIS Recreational Vessel Traffic Data (Summer and Winter 2025)

55. During the summer period, there was an average of three unique recreational vessels were recorded per day. No recreational vessels were recorded during the winter period.

56. The majority of recreational vessels chose to pass inshore of the array area, with a route noted west of the Humber Gateway Offshore Wind Farm and likely east of Flamborough Head based on vessel course. Other recreational vessels on a similar course chose to pass offshore of the array area and Humber Gateway Offshore Wind Farm. Two vessels were observed displaying 'tacking' behaviour whilst transiting south-eastwards inshore of the array area.

57. No recreational vessels were recorded within the array area, however four recreational vessel transits were recorded within 500m of the westernmost WTG of the array. Two of these were by the same vessel with approximately five hours between each transit and likely represent and outward and return journey.

58. It should be considered that the analysis may underrepresent recreational vessels that do not broadcast on AIS. Input from the project's Offshore Coordination indicates non AIS traffic is limited on-site, however for the purposes of the impact assessment in Section 8 it has still been assumed that recreational vessels could choose to enter the array area.

5.3.5 Fishing Vessels

59. The fishing vessel traffic data recorded within the study area during both the summer and winter periods is presented in Figure 5-10.

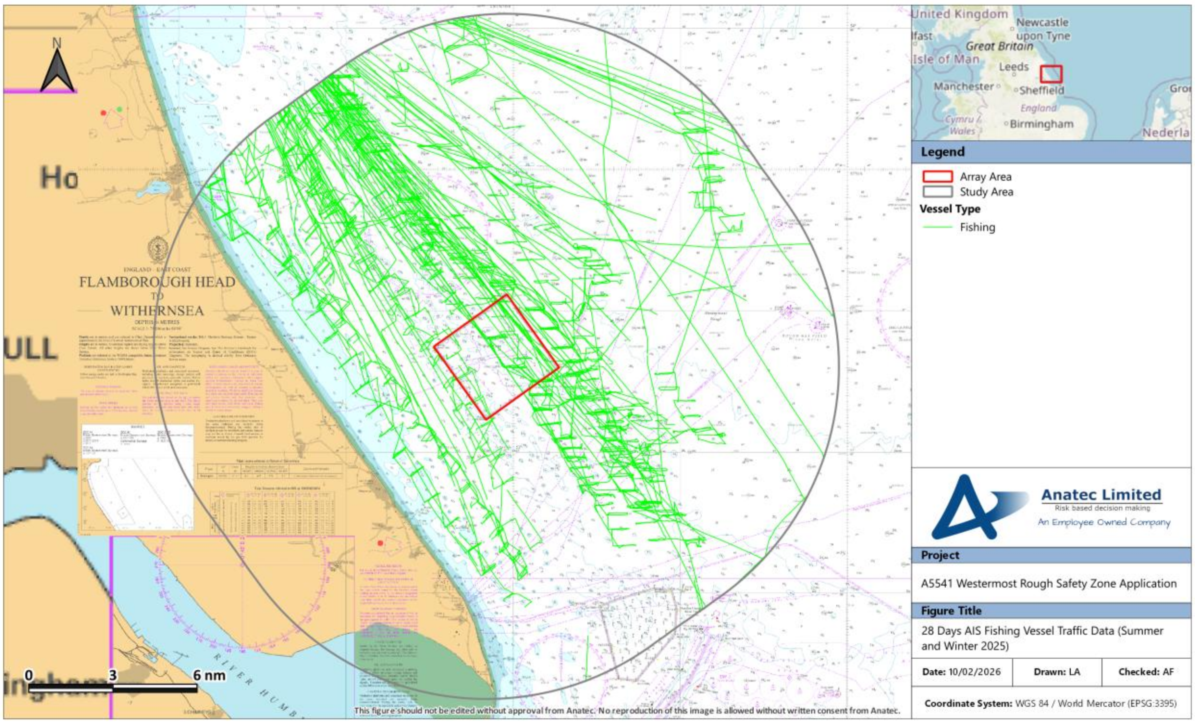

Figure 5-10 28 Days AIS Fishing Vessel Traffic Data (Summer and Winter 2025)

60. Fishing activity was more common during the summer period, with an average of between three and four unique vessels recorded per day. During the winter period, there was an average of between one and two unique vessels recorded per day.

61. Fishing vessel lengths were generally low, with an average length of 14m recorded over the 28-day period.

62. As can be seen, fishing activity was recorded throughout the study area, with vessels displaying behaviour consistent with active fishing. Fishing vessels engaged in fishing can be estimated using track behaviour, analysis of speed, and information broadcast over AIS such as navigational status. From this, it was deemed that approximately 64% of vessels were involved in active fishing across the 28-day period. All vessels deemed to be engaged in fishing were utilising pots and traps, several doing so within the array area itself. Figure 5-11 presents a detailed view of the tracks of fishing vessels recorded intersecting the array area.

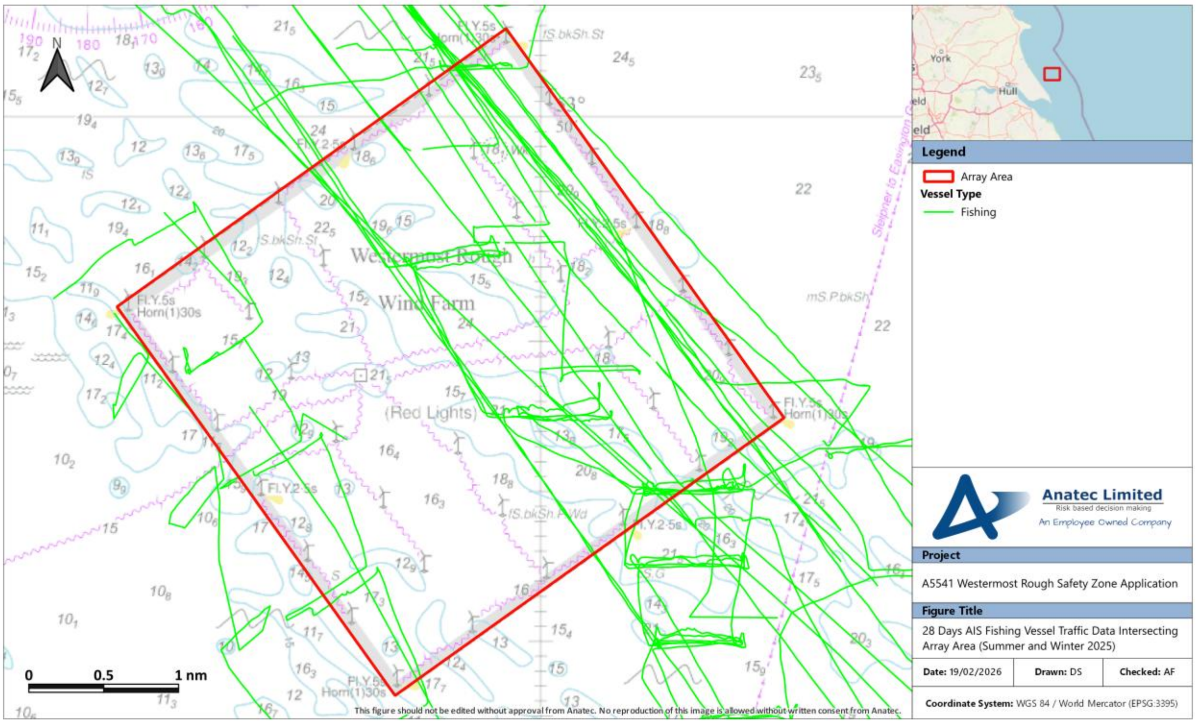

Figure 5-11 28 Days AIS Fishing Vessel Traffic Data Intersecting Array Area (Summer and Winter 2025)

63. During the summer period, a unique vessel was recorded within 500m of the WTGs on average every one to two days. During winter, one vessel was recorded within 500m every two days. It is noted that, in general, these were the same vessels during the summer and winter periods. These were relatively small vessels, with the largest recorded broadcasting a length of 19m.

64. It should be considered that the analysis may underrepresent smaller fishing vessels (less than 15m) that do not broadcast on AIS.

5.3.6 Wind Farm Vessels

65. Figure 5-12 presents the wind farm vessel traffic data recorded within the study area during both the summer and winter periods.

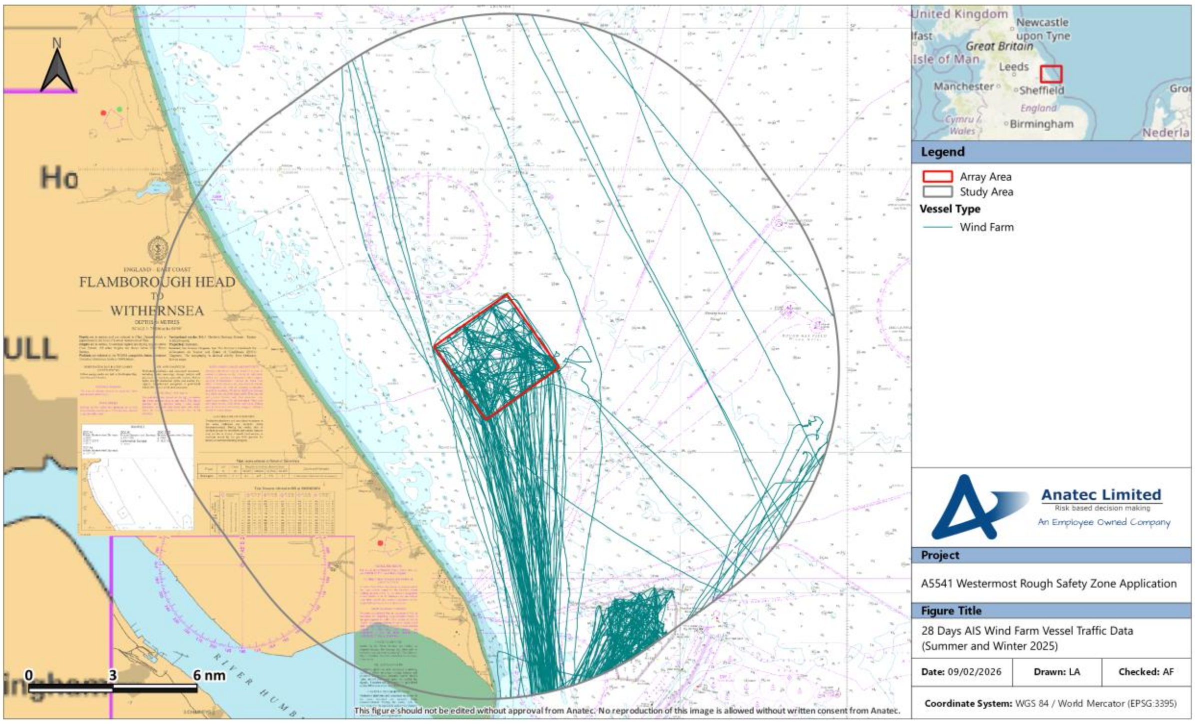

Figure 5-12 28 Days AIS Wind Farm Vessel Traffic Data (Summer and Winter 2025)

66. During the summer period, there was an average of between four and five unique wind farm vessels per day recorded within the study area, whilst during the winter period there was an average of between two and three.

67. Within the array area itself, there was an average of between one and two unique wind farm vessels recorded during both the summer and winter periods.

68. Wind farm vessels were generally observed undertaking operational activities within the array area, as well as at Humber Gateway Offshore Wind Farm. Several were recorded on a northwest / southeast course, with destinations including Great Yarmouth and Aberdeen.

69. Excluding vessels on site within the array area, two unique wind farm vessels were recorded within 500m of the WTGs.

70. Due to the majority of wind farm vessels being associated with the project, they are likely to be aware of or involved in any potential periods of major maintenance within the array area and are therefore less relevant to the application. They have however been retained for reference.

5.4 Anchored Vessels

71. Vessels can broadcast their navigational status over AIS including whether they are at anchor. However, as this information requires manual input, it is not always kept up to date and reliable. Therefore, along with navigational status, analysis of speed

and track behaviour have been utilised to identify any vessels deemed to be at anchor within the study area during both the summer and winter periods. The resulting vessel traffic is presented in Figure 5-13, colour-coded by vessel type.

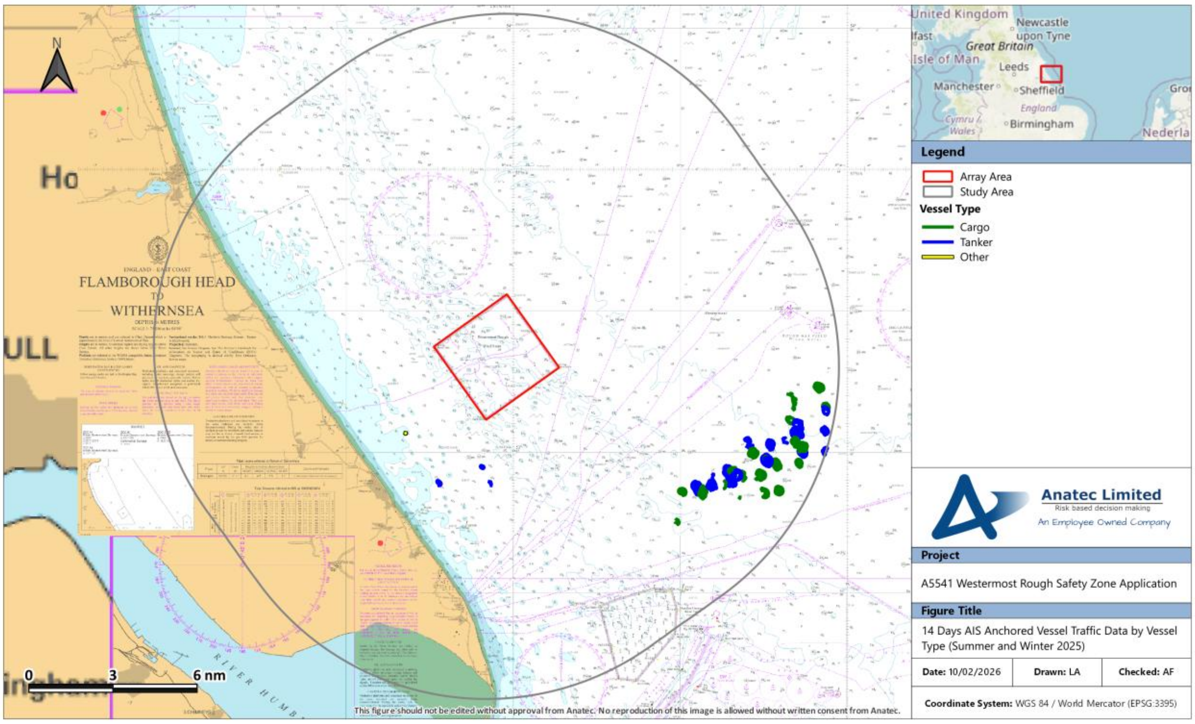

Figure 5-13 14 Days AIS Anchored Vessel Traffic Data by Vessel Type (Summer and Winter 2025)

72. During the summer period there was an average of between six and seven unique vessels recorded to anchor per day. During the winter period, there was an average of between four and five unique vessels anchoring per day. It is noted that numerous vessels were recorded to anchor over multiple days. Overall, all but one anchoring vessel were cargo vessels (50%) and tankers (49%).

73. Vessels deemed to be at anchor were mostly observed to the southeast of the array area, in an area used by cargo vessels and tankers. Common destinations for anchoring vessels include Immingham and Tetney Terminal.

74. Several vessels were also observed to be at anchor to the south and southwest of the array area. These included two different tankers, one of which was recorded in both periods, as well as a vessel recorded at various wreck sites within the study area. The closest vessel at anchor to the array area was a tanker at 1.6nm south of the array area and was recorded to anchor for approximately 12 hours.

6 Safety Zone Overview

75. This section provides an indication as to what vessel scenarios are considered as triggering a safety zone during major maintenance at Westermost Rough. The list of scenarios presented is not considered to be exhaustive but does provide an indication of the types of activities that may require a safety zone.

76. The activities listed have been identified on the basis that they satisfy the following criteria:

- The activities are considered as being allowed safety zones under the relevant guidance and legislation as listed in Section 1.3; and
- Risk assessment has identified that where safety zones are able to be deployed under the legislative framework, such safety zones are a relevant mitigation measure to bring relevant risks (as per Section 7) to within As Low As Reasonably Practicable (ALARP) parameters.

77. The definition of 'major maintenance' given within the Electricity Regulations 2007 (which details regulations associated with application procedures and control of access related to safety zones) is as follows:

78. *'works relating to any renewable energy installation which has become operational, requiring the attachment to, or anchoring next to, such an installation of a self-elevating platform, jack-up barge, crane barge or other maintenance vessel.'*

79. It is noted that SOVs are not generally used as part of the maintenance strategy. Regardless no safety zones for SOV operations including Walk to Work are applied for under this application.

80. Permanent operational safety zones are also not applied for under this application.

81. Throughout any periods of major maintenance, details of the work being undertaken will be promulgated through Notice to Mariners, radio warnings as designated by the United Kingdom Hydrographic Office (UKHO) and the Kingfisher bulletin.

82. To provide indication of major maintenance frequency, a total of 18 instances of major component replacement by a jack up were recorded between 2020 and 2025 based on annual O&M Reports for the site. It is noted that other vessel types may also fall under the definition of 'major maintenance' given within the Electricity Regulations 2007.

7 Justifications for Safety Zones

83. This section details the key hazards for which safety zones are a relevant mitigation. The justification considers the findings of operational experience of other wind farms and the vessel traffic assessment undertaken for this application (see Section 5).

7.1 Reduction in Collision Risk

84. Major maintenance will involve the use of vessels on site, including those that are anchored next to, or attached to, the structure, as per Section 6.

85. Commercial vessels (cargo, tanker, passenger) typically avoid offshore wind farms, and this assumption aligns with the vessel traffic data studied for the site (Section 5), with these vessel types generally observed to pass offshore of the WTGs at distances of at least 1nm.

86. However, smaller vessels may still choose to transit through the array area. This can be seen in the analysis of fishing vessel activity (Section 5.3.5) where vessels were recorded on transit as well as actively fishing within the array area during both summer and winter. No recreational vessels were recorded within the array area during the period studied (Section 5.3.4), however the minimum spacing of approximately 800m is such that transits through from smaller vessel types including recreation could still occur. This is evidenced by the presence of fishing vessels within the array area with lengths of up to 19m.

87. Given the possibility of vessel transit through the array area, the implementation of 500m safety zones around relevant structures to protect any major maintenance activities will ensure that vessels are aware of the ongoing sensitive operation and that collision risk to both project and third-party vessels is ALARP.

7.2 Protecting Site Personnel

88. During periods of major maintenance, there is expected to be an increase in the number of crew / personnel on site. This includes those onboard vessels anchored, or attached to, a structure which are at a particular risk of collision (as per Section 7.1), as well as those onboard passing third-party vessels.

89. Therefore, there is a need to ensure the safety of such crew / personnel. The implementation of mandatory 500m safety zones provides an alert to vessels transiting in the general area that a sensitive operation is underway and would limit the likelihood of third-party vessels in the area being in close proximity (and therefore potentially at risk and/or requiring monitoring).

7.3 Accounting for Inexperienced Mariners

90. As discussed in Section 5.3.4, no recreational traffic was recorded as intersecting the array area, however was identified transiting in close proximity. It should be

considered that there may be instances of transits from recreational vessels that carry a lower standard of navigational equipment than commercial vessels in the array area as per Section 7.1, and/or with crew that may not be as experienced or have few formal qualifications.

91. Implementation of mandatory safety zones in conjunction with other embedded mitigation measures (e.g., , issue of Notice to Mariners, and monitoring and policing of safety zones) is therefore necessary to mitigate the risks to any recreational users.

92. As previously stated, if a vessel were to infringe a safety zone, and therefore become at risk of a collision, the monitoring and policing procedures would be actioned as detailed in Section 9. Any infringements to these safety zones shall be noted by the on-site vessel(s) and efforts made to contact the vessel using standard marine procedures, altering it to the safety zone infringement. Furthermore, on-site vessel(s) shall be contactable (via Very High Frequency (VHF)) and be able to provide information to recreational vessels navigating in, or in proximity to, the site should they require.

93. Therefore, the implementation of safety zones in combination with other mitigation measures shall bring the risk to within ALARP parameters.

7.4 Accounting for Unforeseen Risk

94. During any periods of major maintenance, there is potential for a number of events to occur which may result in previously unforeseen risk. Such events could include:

- Fire/explosion;
- Machinery Failure (including steering);
- Cargo (e.g., structure components) shifting;
- Structural failure of wind farm component;
- Dropped object(s);
- Accidental interaction with unexploded ordnance/wreck; or
- Accident associated with adverse weather.

95. If any of these incidents were to occur during periods of major maintenance, there is potential for loss of life and/or serious environmental damage. While safety zones would not necessarily directly mitigate any of these events in of themselves, they would decrease the likelihood of a third-party vessel being exposed to a hazard by sterilising the immediate working areas of existing vessel traffic. This greatly reduces the overall severity of consequence to third-party users of any potential incident.

96. The safety zones will be implemented alongside other mitigation measures, bringing the risk to within ALARP parameters.

8 Impact of Safety Zones

97. This section considers the potential impact of safety zones on relevant traffic, which has been identified based on the vessel traffic assessment undertaken (see Section 5).

8.1 Commercial Vessel Routeing

98. Other than wind farm vessels operating in relation to the site, no commercial vessels were recorded transiting within the array area. This is expected, due to the presence of the WTGs, as well as the shallow water depths associated with the site's location. Commercial vessels generally passed at least 1nm from the WTGs. A single oil and gas vessel was recorded approximately 0.4nm to the southeast of the WTGs.

99. On this basis, it is expected that the presence of the safety zones will have limited impact on commercial vessels as they are already passing the array area at distances that would avoid any safety zone extents.

100. Regardless, it is noted that promulgation of information will be undertaken including details of active safety zones which will facilitate passage planning of commercial vessels.

8.2 Fishing Vessels

101. As per Section 5.3.5, the available data indicates that fishing vessels currently transit and actively fish (i.e., deploy gear) within and in proximity to the array area, noting that the analysis may underrepresent smaller fishing vessels (less than 15m). It is therefore possible that fishing vessels may seek to transit and/or fish within the array area during periods of major maintenance.

102. Any fishing vessel that did choose to transit through or fish in the array area would be free to do so in areas where safety zones were not active, noting that during major maintenance safety zones would only be present for limited periods of time at individual structures. The vessel types required to trigger a major maintenance safety zone (e.g., jack up, see Section 6) are unlikely to be present at multiple structures at any one time, with the more likely scenario being a single major maintenance vessel working on one structure before moving to the next i.e., multiple 500m safety zones would not be considered a likely occurrence.

103. It should also be considered that promulgation of information (i.e., Notice to Mariners and Kingfisher notification) will be undertaken in advance of any major maintenance activities in relation to associated safety zones.

104. It is therefore expected that there will be limited impact on fishing vessel activity from the safety zones, provided clear and advance notice is provided to the fishing industry, resulting in increased awareness of any period of major maintenance.

8.3 Recreational Vessels

105. As per Section 5.3.4, the available data indicates that no recreational activity was recorded within the array area. However, the closest passing recreational vessel was recorded approximately 270m to the west of a WTG.

106. Any recreational vessel that did chose to transit through the array area would be free to do so in areas where safety zones were not active, noting that safety zones would only be active temporarily while works were ongoing.

107. It should also be considered that promulgation of information will be undertaken in advance of any major maintenance activities in relation to associated safety zones.

108. Therefore, there are not expected to be notable impacts to recreational vessels from the safety zones.

8.4 Anchored Vessels

109. Generally, it is considered unlikely that vessels would choose to anchor within a wind farm given the presence of infrastructure. This aligns with the vessel traffic assessment in Section 5.4, with no vessels were identified as being at anchor within the array area, or within 500m. Therefore, any impact from the safety zones on vessel anchoring is likely to be minimal.

9 Monitoring and Policing

9.1 Monitoring

110. All vessels associated with the site will be supplied with safety zone procedures as summarised in this application.

111. Whenever a 500m safety zone is active, vessel-based site monitoring will be undertaken to identify any vessels approaching or infringing the safety zones. This may be undertaken by the associated major maintenance vessel that has triggered the safety zone, or another on site vessel available (likely a crew transfer vessel). The monitoring vessel will have responsibility for monitoring that safety zone via Radar, AIS, VHF communications and visual observations. It is noted that site monitoring via AIS is also undertaken by the Offshore Coordination team from the onshore East Coast Hub.

112. Where a third-party vessel is observed to be approaching the array area, early contact will be made by the designated on-site vessel to advise the passing vessel of maintenance work underway, and alert them to the presence of any active or soon to be active safety zones.

113. Where a third-party vessel is observed to come in close proximity to an active safety zone, the designated on-site vessel will make contact using standard marine procedures to inform the vessel it has infringed, or is close to infringing, the safety zone. The vessel will be warned to increase their passing distance and instructed against entering in the future. In the case where the vessel is a fishing vessel, the Commercial Fisheries Manager will look to engage with the vessel through the local Fishing Industry Representative before escalating to more formal evidence-based processes.

114. Where feasible, contact will be made with the associated vessels at the earliest opportunity, and details of any incidents will be logged, with the evidence retained for submission to DESNZ where appropriate.

115. Direct navigational advice will not be given to any third-party vessel, with the Convention on the International Regulations for Preventing Collision at Sea (COLREGs) (International Maritime Organization (IMO), 1972) remaining the navigational priority for all vessels.

9.2 Policing

116. Where feasible, details and actions of any vessels which consistently ignore the warnings issued by the vessels on site or are considered to be causing a potential danger to vessels, personnel or assets within the safety zone areas will be monitored and action (including steps taken) recorded.

117. The safety zones supplement more general regulations that are applicable to all sea users including the Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996 which implement COLREGs (IMO, 1972). These general regulations remain in force and require vessels to take appropriate action when encountering other vessels as well as the presence of safety zones. Any infringements of a safety zone or unsafe navigational acts (as required under the relevant regulations implementing international conventions) will be reported to DESNZ and the MCA.

10 Summary

118. This document represents the primary supporting document to the safety zone application submitted for the project. Safety zones have been applied for the offshore wind farm, which consists of 500m safety zones around all major maintenance being undertaken around a WTG or OSS, as denoted by the presence of a major maintenance vessel.

119. A safety case has been provided, which indicates the safety zones (in combination with other mitigation measures) are necessary to bring risks to within ALARP parameters, including collision risk, and risk to crew, personnel, third parties and mariners.

120. The safety zones will also reduce consequences in the event of an unforeseen emergency incident by decreasing the likelihood that a third-party vessel will be in proximity.

121. The findings of the vessel traffic survey data have indicated that no significant impacts to third-party vessels are expected from the safety zones, noting traffic generally avoids the area due to shallow water depths and the presence of existing structures. In addition, major maintenance safety zones are infrequent in nature and have limited spatial impact. The safety zones are therefore considered a proportionate mitigation measure.

122. The 500m safety zones shall be monitored for infringements by a nominated vessel (likely a crew transfer vessel). The primary response to potential infringement will be to warn passing traffic of the ongoing works and any active safety zones, and to alert any vessels where an infringement may occur or has already occurred.

123. Details of all infringements and/or near missus shall be recorded. Where necessary (i.e., where a vessel has infringed safety zones on multiple occasions or where a vessel has acted in a dangerous manner), details and relevant evidence shall be provided to DESNZ and MCA.

11 References

Energy Act 2004. https://www.legislation.gov.uk/ukpga/2004/20/contents (accessed Feb 2026).

Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007. https://www.legislation.gov.uk/uksi/2007/1948/contents/made (accessed Feb 2026)

DECC, 2011. Guidance Notes: Applying for Safety Zones around Offshore Renewable Energy Installations. London: DECC (now DESNZ).

IALA, 2021. G1162 the Marking of Offshore Man-Made Structures. Saint Germaine en Laye, France: IALA.

Appendix A WTG Coordinates

ID	Structure	World Geodetic System 1984 (WGS84)	
		Latitude	Longitude
A01	WTG	53° 46.207′ N	000° 08.386′ E
A02	WTG	53° 46.620′ N	000° 07.873′ E
A03	WTG	53° 47.041′ N	000° 07.379′ E
A04	WTG	53° 47.477′ N	000° 06.858′ E
A05	WTG	53° 47.911′ N	000° 06.369′ E
A06	WTG	53° 48.300′ N	000° 05.864′ E
A07	WTG	53° 48.710′ N	000° 05.362′ E
B01	WTG	53° 46.564′ N	000° 09.232′ E
B02	WTG	53° 46.969′ N	000° 08.691′ E
B03	WTG	53° 47.395′ N	000° 08.231′ E
B04	WTG	53° 47.835′ N	000° 07.701′ E
B05	WTG	53° 48.255′ N	000° 07.197′ E
B06	WTG	53° 48.654′ N	000° 06.722′ E
B07	WTG	53° 49.066′ N	000° 06.221′ E
C01	WTG	53° 46.924′ N	000° 10.066′ E
C02	WTG	53° 47.342′ N	000° 09.570′ E
C03	WTG	53° 47.757′ N	000° 09.070′ E
C06	WTG	53° 49.009′ N	000° 07.558′ E
C07	WTG	53° 49.426′ N	000° 07.054′ E
D01	WTG	53° 47.279′ N	000° 10.927′ E
D07	WTG	53° 49.784′ N	000° 07.900′ E
E01	WTG	53° 47.640′ N	000° 11.782′ E
E02	WTG	53° 48.055′ N	000° 11.266′ E
E03	WTG	53° 48.463′ N	000° 10.763′ E
E04	WTG	53° 48.904′ N	000° 10.228′ E
E05	WTG	53° 49.329′ N	000° 09.729′ E
E06	WTG	53° 49.725′ N	000° 09.251′ E

ID	Structure	World Geodetic System 1984 (WGS84)	
		Latitude	Longitude
E07	WTG	53° 50.144′ N	000° 08.744′ E
F01	WTG	53° 47.995′ N	000° 12.616′ E
F02	WTG	53° 48.413′ N	000° 12.113′ E
F03	WTG	53° 48.837′ N	000° 11.601′ E
F04	WTG	53° 49.261′ N	000° 11.074′ E
F05	WTG	53° 49.687′ N	000° 10.576′ E
F06	WTG	53° 50.083′ N	000° 10.098′ E
F07	WTG	53° 50.492′ N	000° 09.608′ E
OSS	OSS	53° 48.273′ N	000° 07.979′ E