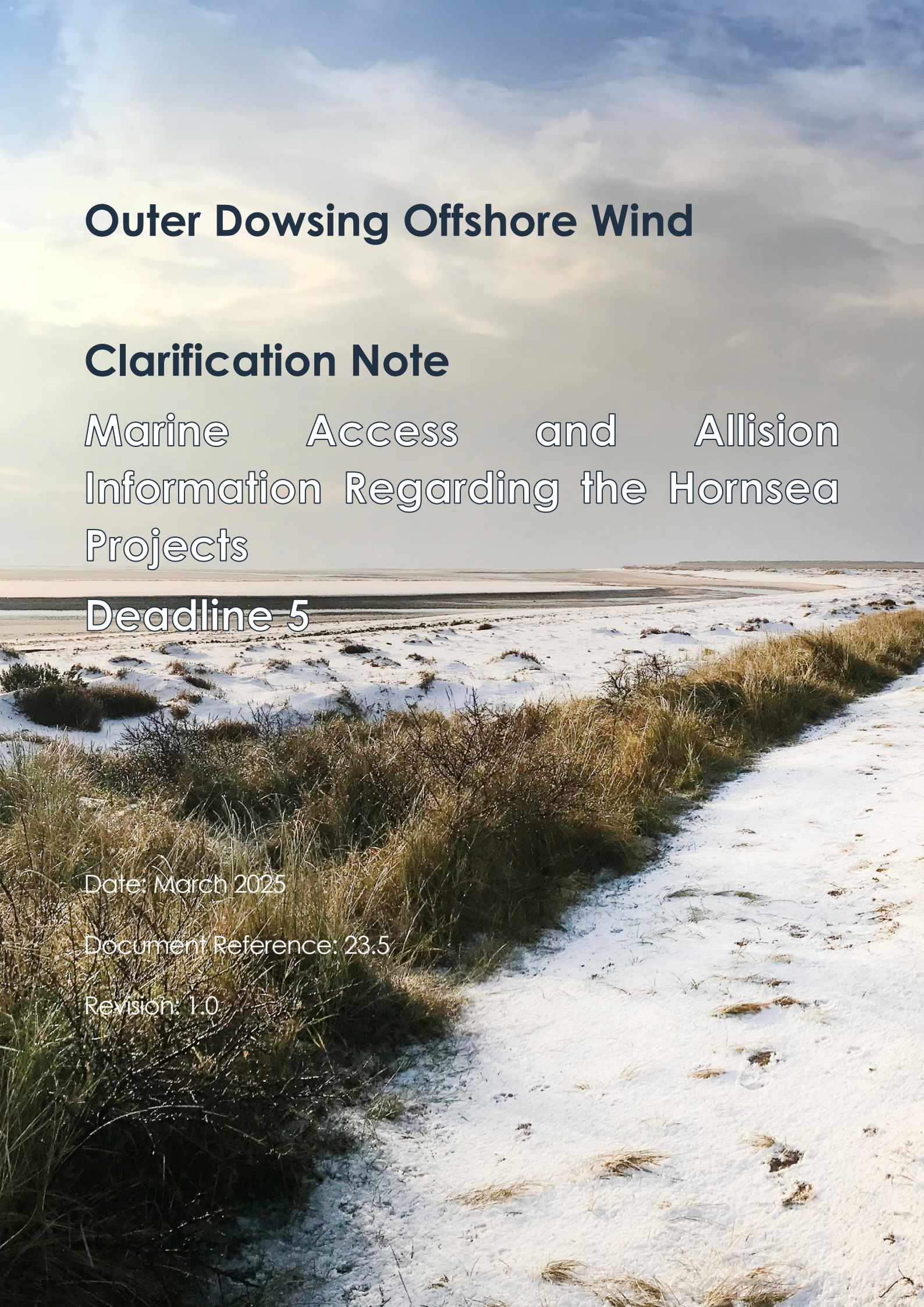

Outer Dowsing Offshore Wind

Clarification Note

Marine Access and Allision Information Regarding the Hornsea Projects

Deadline 5

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1 Background

1. This document aims to clarify the Applicant's position on marine access and allision risk to the Hornsea One and Two Reactive Compensation Stations (RCS) in relation to the relevant points raised by the Ørsted IPs in their response to Written Question Q2 SN1.1 (REP4-149).
2. The response requested that the Applicant extend the scope of the Allision and Marine Access Study (APP-172) to include the Hornsea One and Two RCS. This document expands on the relevant oral submission made on behalf of the Applicant as part of Agenda Item 3.6 of Issue Specific Hearing (ISH) 6 and includes assessment for the RCS that aligns with that undertaken in the Allision and Marine Access Study (APP-172).
3. The same methodology applied in the Allision and Marine Access Study (APP-172) has been used within this document.

2 Allision Risk

2.1 Pre Wind Farm Routeing

4. Changes in allision risk to the Hornsea RCS assets will primarily be based on changes in routeing that arise as a result of the construction and operation of the Project. Full details as to how post wind farm routeing has been defined are provided in the NRA (APP-171).
5. The main routes identified as part of the baseline assessment undertaken for the NRA (APP-171) and the Allision and Marine Access Study (APP-172) are shown in Figure 2-1.

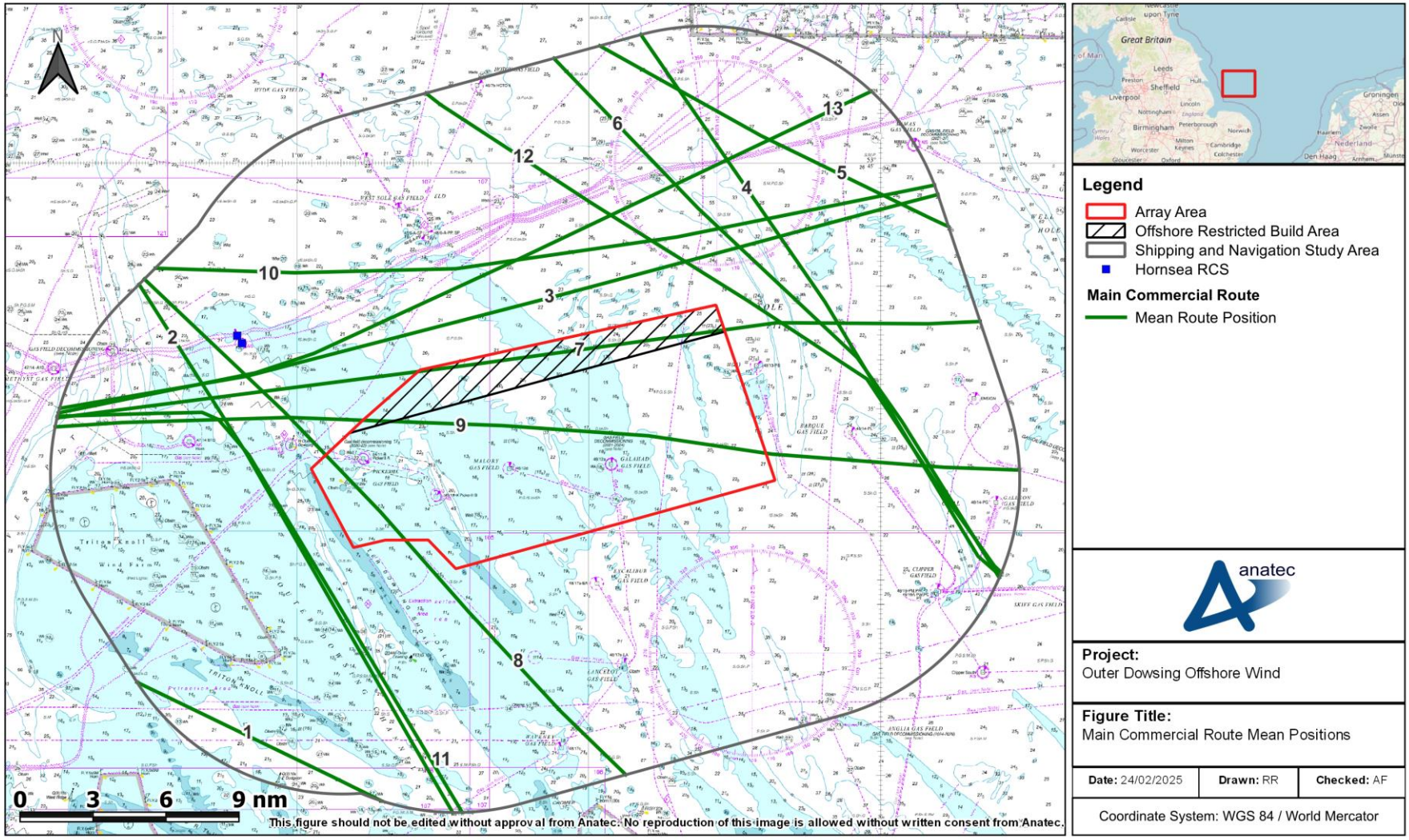

Figure 2-1 Main Commercial Route Mean Positions

6. As shown, the routes passing in proximity to the Hornsea RCS are as follows:
    - Routes 2 and 8 passing west of the Hornsea RCS;
    - Routes 3, 7, 9, 11 and 13 passing south of the Hornsea RCS; and
    - Route 10 passing north of the Hornsea RCS.

2.2 Post Wind Farm Routeing

7. A summary of the likely deviations of these routes is provided below, based on the assessment undertaken in the NRA (APP-171), the Allision and Marine Access Study (APP-172), and the Review of Offshore Restricted Build Area Impact on Shipping Displacement and Collision Risk (PD1-090). An illustration is provided in Figure 2-2.
    - The presence of the array area is likely to result in Route 8 deviating to the west, on similar transits to those used by vessels on Route 2. This means it is also likely to pass further west of the Hornsea RCS.
    - For vessels currently passing south that intersect the array area (Routes 7 and 9), it is likely they will choose to pass north of the array area, in the area south of Route 3.
    - No impact is anticipated on vessels passing north of the Hornsea RCS (Route 10).

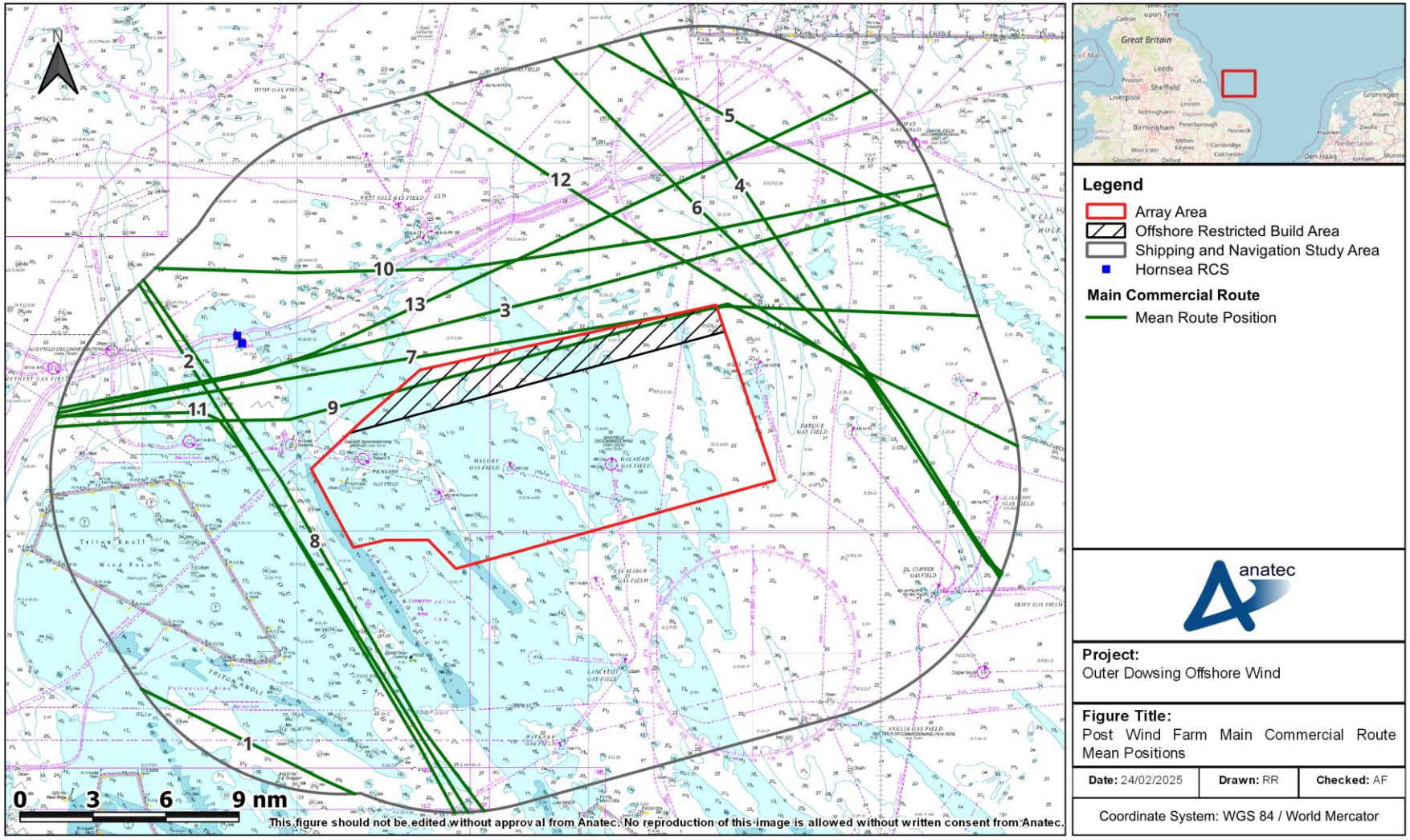

Figure 2-2 Main Commercial Route Mean Positions – Post Wind Farm

2.3 Proximity Assessment

8. A vessel proximity allision assessment in line with the methodology outlined in Section 4.2.1 of the Allision and Marine Access Study (APP-172)) has been undertaken for the Hornsea RCS. The outputs show an increase of two vessels per day on mean route positions[1] within 2nm of the Hornsea RCS. However, applying the same analysis within 1nm of the Hornsea RCS shows a decrease in vessel numbers of approximately one vessel per day, resultant of Route 8 anticipated to pass further west as a result of the array area (see Section 2.2). Therefore, while there may be a small increase of vessel numbers in the general area, overall vessel numbers in close proximity are anticipated to decrease.
9. A key factor behind the change within 2nm was observed to be vessels on broadly east/ west transits through the array area expected to pass further north. There is considered to be sufficient searoom between the array area and the Hornsea RCS to accommodate the anticipated traffic levels (less than ten commercial vessels a day), noting this same traffic already navigates between the Hornsea RCS and the shallows of the Outer Dowsing Shoal, which as shown in Figure 2-3 is a distance of 4.6nm.

[1] Post wind farm routes account for the ORBA as detailed in the Review of Offshore Restricted Build Area Impact on Shipping Displacement and Collision Risk (PD1-090).

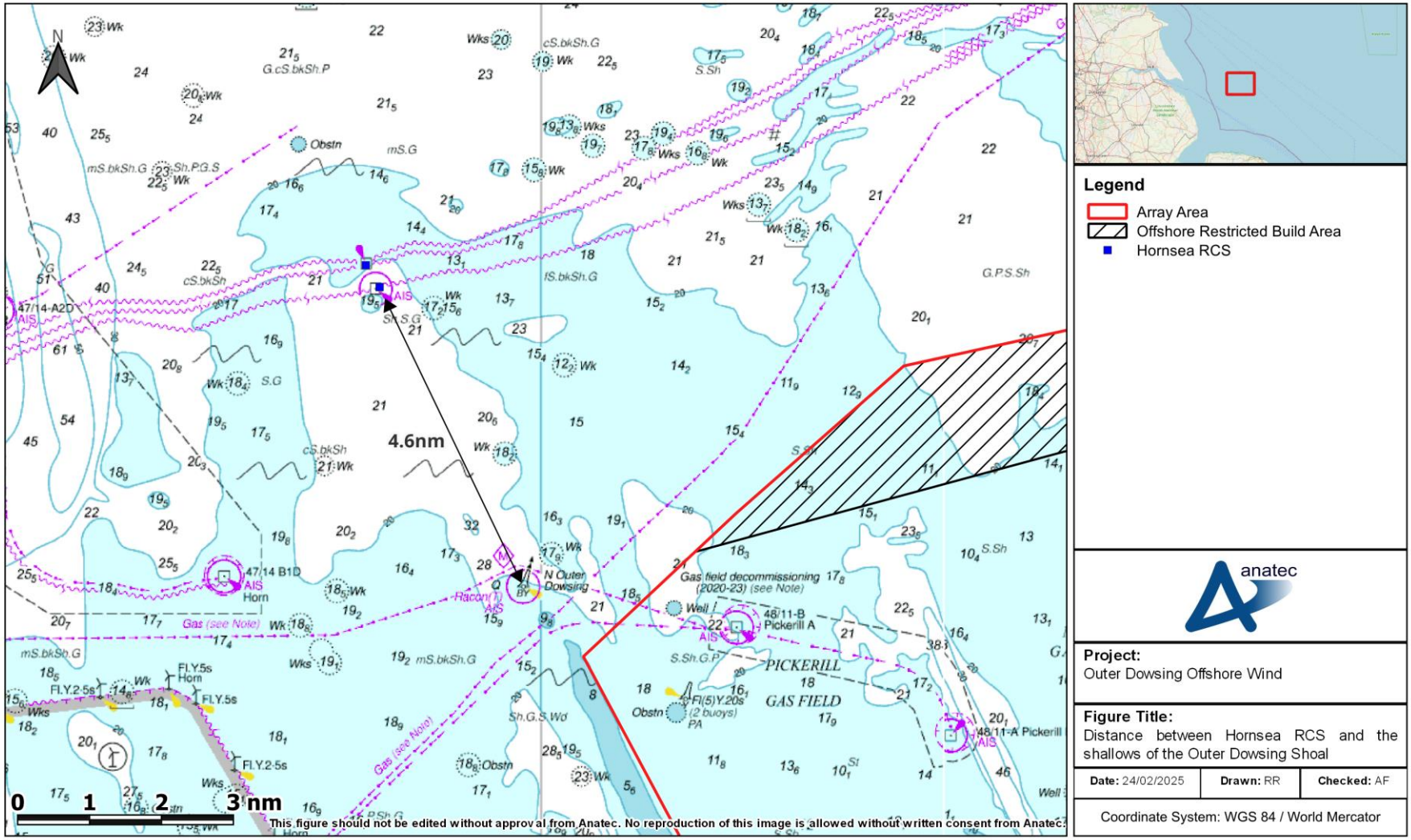

Figure 2-3 Distance between Hornsea RCS and the shallows of the Outer Dowsing Shoal

10. There are other local examples of busier routes (i.e. higher traffic densities) already safely using less searoom than will be the case between the Hornea RCS and the array area. Key examples include:
    - Route 1 (as shown in Figure 2-1) is used by 16 vessels a day and passes between the shallows south of the Triton Knoll wind farm and the shallows to the north of the Race Bank wind farm (minimum width of 3nm between the buoy marking the East Dudgeon Shoals south of the route and the Triton Knoll shallows north of the route).
    - Route 2 (as shown in Figure 2-1) is used by 12 vessels a day and passes between the Hornsea One and Two RCS and the Amethyst A2D platform (5.1nm). Route 2 also passes between the Triton Knoll wind farm and the Outer Dowing Shoal (an area known as the Outer Dowsing Channel), in a minimum width of 4.4nm.

11. Lighting and marking of the wind farm structures in the array area will be discussed and agreed with Trinity House post consent, and these discussions will include consideration of the local O&G and wind farm assets. This will ensure that cumulative allision risk is managed. The Hornsea RCS are already lit and marked, and all infrastructure will be shown on nautical charts allowing all vessels to passage plan.
12. With the mitigations in place and noting the low increase in vessel numbers within 2nm (and a decrease within 1nm) the significance of risk is considered to be **broadly acceptable**.

3 Marine Access

3.1 Deviations to Routine O&M Transits

13. The approximate mean route positions of the routine O&M routes in relations to the Project are shown in in Figure 3-1. These transits mobilise from the Humber Estuary (notably from Grimsby). As shown, they will not be impacted by the infrastructure within the array area.

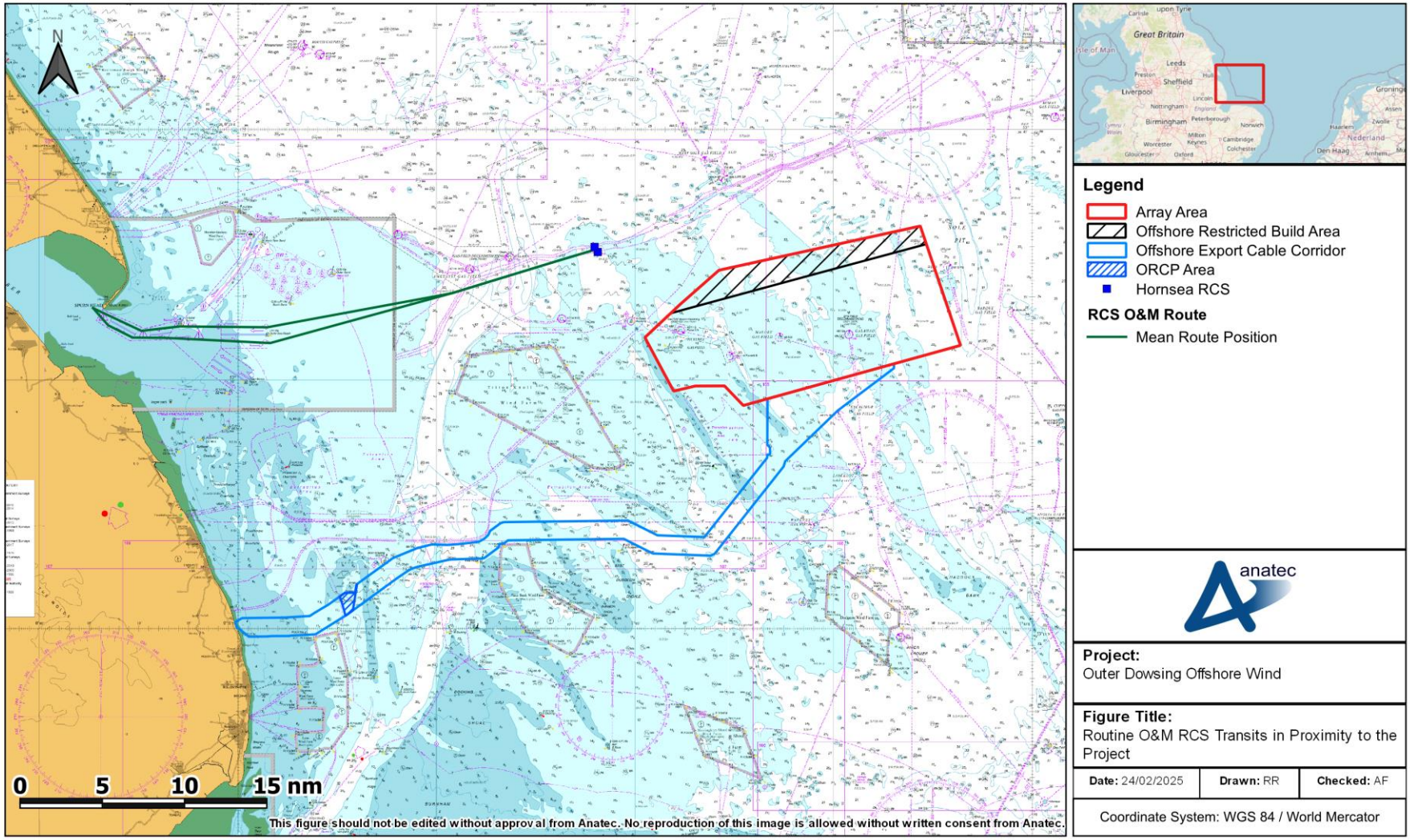

Figure 3-1 Routine O&M RCS Transits in Proximity to the Project

14. Accounting for the above, the significance of risk is considered to be **broadly acceptable** given no deviations to routine transits are expected.

3.2 Proximity (Vessels/ Rigs)

15. Experience at other wind farms that have been constructed within close proximity to third party assets shows that large rig operations occur within limited searoom. A relevant example is the Walney Extension Offshore Wind Farm located within the Irish Sea, where three wells (an exploration, appraisal, and development well) are present inside the site boundary i.e., within the wind turbines. Despite intervention and subsequent decommissioning activities being required, to date there have been no reported issues.
16. Similarly, Heavy Lift Vessel (HLV) activities associated with wind farm construction has occurred within arrays. An example would be the Stanislav Yudin HLV (with anchor spread) which has carried out operations in the Dudgeon and Beatrice Wind Farms, as well as O&G decommissioning operations where there are other platforms in proximity. The Blythe platform has also been installed within 1nm of the existing Dudgeon wind farm turbines. This platform has also had Non Production Installations (NPI's) working over the platform on a number of occasions.
17. These operations are able to be undertaken noting the available industry experience and guidance, such as the Guidelines for Offshore Marine Operations (GOMO) (2020). This guidance facilitates effective planning of these types of operations, taking into account restrictions, to help ensure safe and efficient operations even when searoom is limited.
18. For these reasons, it is not anticipated that the array area will have any impact on large scale operations occurring at the Hornsea RCS, given the available distance between the RCS and the array area is a minimum of 5.7nm.
19. In terms of access to the RCS by rigs requiring towing or other similarly large scaled assets operating under self-propulsion, any associated movements would be expected to be very infrequent as they are only likely to be needed during major maintenance or decommissioning. The movements could originate from numerous locations including from the north (northeast England/ Scotland) and east (Denmark/ Norway). In these cases, it is anticipated there will be no interaction or re-routeing required as a result of the Project given the array area is located to the south of the RCS. In event of a movement from Southern Europe (e.g. the Netherlands), then the presence of the array area may have an impact on the options available. However, any impact is expected to be low given there are numerous routeing options that would avoid the array area, and it is noted that these infrequent operations are subject to detailed planning taking into account weather as well as any hazards on route.
20. Accounting for the above, the significance of risk is considered to be **broadly acceptable**. This is in line with the significance rankings within the Allision and Marine Access Study (APP-172) determined for O&G assets at similar distances from the array area, most pertinently the West Sole A complex located 5.5nm north of the array area and the Lancelot platform located 5.7nm south of the array area.

4 Conclusions

21. This document provides further clarification on the risk of vessel proximity allision in regard to changes in allision risk to the Hornsea RCS due to the presence of the Project, deviations required for routine O&M transits to/ from the Hornsea RCS, and access to the Hornsea RCS by rigs and other large marine assets during large scale operations. The significance of risk for each is considered to be **broadly acceptable**.

5 References

GOMO (2020). Guidelines for Offshore Marine Operations.