Outer Dowsing Offshore Wind

Preliminary Environmental Information Report

Volume 2, Appendix 18.1: Helicopter Access Report

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OUTER DOWSING OFFSHORE WIND

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Helicopter Access Report

Prepared by	Anatec Limited
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	Aberdeen Office	**Cambridge Office**
Address	10 Exchange Street, Aberdeen, AB11 6PH, UK	Braemoor, No. 4 The Warren, Witchford Ely, Cambs, CB6 2HN, UK
Tel	01224 253700	01353 661200
Email	aberdeen@anatec.com	cambs@anatec.com

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01	June 2023	Final PEIR version

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Abbreviations Table

Abbreviation	Definition
°	Degrees Magnetic
°C	Degrees Celsius
AW139	AgustaWestland 139
ARA	Airborne Radar Approach
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAT	Commercial Air Transport
ft	Foot
GPS	Global Positioning System
HCA	Helicopter Certification Agency
IMC	Instrument Meteorological Conditions
ISAR	Integrated Search and Rescue
kt	Knot
m	Metre
MAP	Missed Approach Point
MCA	Maritime and Coastguard Agency
MDH	Minimum Descent Height
nm	Nautical Mile
NOGEPA	Nederlandse Olie en Gas Exploratie en Productie Associatie
NUI	Normally Unmanned Installation
OEI	One Engine Inoperative
Radar	Radio Detection and Ranging
SAR	Search and Rescue
SPA HOFO	Specific Approval for Helicopter Offshore Operations
TEMPSC	Totally Enclosed Motor Propelled Survival Craft
UK	United Kingdom
POB	Person On Board
VMC	Visual Meteorological Conditions
WTG	Wind Turbine Generator

1 Executive Summary

1. This report assesses the impact that Outer Dowsing Offshore Wind (the Project) will have on adjacent gas platforms. As the effect of this wind farm is cumulative with current and planned wind farms, such as the Hornsea complex and the proposed Dudgeon Extension, where applicable all likely obstacles have been considered, not merely those introduced by the Project. This report identifies the baseline with the impact of the relevant existing wind farms and the Project in place. It then assesses the cumulative effect of the nearby additional wind farms currently in the planning phase.

1.1 Regulations

2. Commercial Air Transport (CAT) Regulations have been applied to identify the current helicopter access available without any nearby wind farms. The access is then updated to take account of the Project and other relevant wind farms. The report applies a worse case assumption that wind turbines are built up to the proposed boundaries.

1.2 Meteorological Data

3. Six years of meteorological data from the West Sole A Platform, 1 January 2016 to 31 December 2021, were used for the study. The supplied data was sampled every hour, rather than the standard 10-minute frequency. Despite this, the overall results are consistent with other analyses which have been conducted in the region.

1.3 Vantage data

4. Vantage Person On Board (POB) data was made available for the Excalibur, West Sole Alpha, Barque PB and Malory Platforms. This allowed the probable impact on the historic flights to be determined. For the other platforms, the potential impact, based on the hours when an approach was not permitted, was determined.

1.4 Analysis

5. The impact on helicopter Commercial Air Transport access to ten installations was assessed per year of data provided. For an Airborne Radar Approach, an obstacle free approach arc of 9 nautical miles (nm) is required. In poor weather sufficient distance must be available for a single engine continued take-off.

6. The baseline access for the Excalibur Platform, with the Project built, shows that 1.8% of flights would have had their approaches affected. If sufficient take-off distance is not provided, an additional 2.2% penalty would have been incurred by helicopters not being able to take-off from the Platform in poor weather. If the Dudgeon Extension Wind farm is also built, the number of affected approaches will increase from 1.8% to 2.0 %, with no additional take-off penalty.

7. The baseline for the West Sole Alpha Platform, with the Project built, shows that 1.3% of flights would have had their approaches affected. There is no penalty for take-offs in poor weather. With Hornsea Four also built, the number of affected flights would rise from 1.3% to 3.1%.

8. The Malory Platform will be located inside the boundary of the Project. Inside a wind farm currently only CAT operations under Day Visual Meteorological Conditions (VMC) are permitted. The meteorological data indicated a Mean access of 87.5% per year of daytime conditions. Regular helicopter operations are currently flown to platforms located inside wind farms; for example, to a platform inside Hornsea Two with rotor tips 910 metres (m) away. Vantage POB data from January 2019 to December 2021 for Malory was provided. It indicated that in 2019 eighteen flights would have been affected, fourteen flights in 2020 and sixteen flights in 2021. Adjusting the timings of the affected flights by 30 minutes or more would have allowed access by a number of the affected flights.

9. The Barque PB Normally Unmanned Installation (NUI) is located 0.8nm from the wind farm boundary and is certified for day only operations. Assuming wind turbines are built up to the boundary, this would prevent flight to the Platform under Instrument Meteorological Conditions (IMC): historically, this would have resulted in a loss of access of 6.6% of daylight conditions. Vantage POB data from February 2020 to December 2022 was provided, showing that 51 flights had occurred over the three year period. The available meteorological data covering the first 37 flights, up until May 2021, showed that flights on only two days would have been delayed due to weather but VMC access was available later during those days. Based on the Vantage data provided, it can be concluded that limiting the Barque PB to day VMC only operations would have had a minimal effect on historic helicopter operations. The data also verifies the assumption that flights to NUIs are normally conducted in VMC, and in the case of Barque PB are few in number.

10. The other platforms are discussed within their relevant sections.

1.5 Safety Considerations

11. The SAR helicopters operated on behalf of the Maritime and Coastguard Agency (MCA) are not constrained by CAT meteorological limits. The wind farms will be compliant with Marine Guidance Notice 654, and so Search and Rescue (SAR) access to installations adjacent to the wind farms will still be available. SAR helicopters will be tasked for major incidents, accidents, and urgent medivacs, rather than CAT helicopters. Therefore, any reduction in CAT helicopter access will result in a logistic impact on the installation operator, rather than a safety impact.

2 Introduction

12. This report was produced as part of GT R4's (trading as Outer Dowsing Offshore Wind), hereafter 'the Applicant', obligations under Civil Aviation Publication (CAP) 764 (Ref i), where the operator of any offshore helicopter destination within 9nm of a wind farm must be consulted at the planning stage of a wind farm.

13. The location of the Project will impose operational restrictions on some of the nearby gas platforms. These restrictions could adversely impact on the ability to fly routine crew change flights to support NUIs, drilling rigs and other vessels working over well heads. In this report any restrictions are identified and quantified.

2.1 Background

14. The methodology used to assess the operational impact has been accepted by helicopter operators and oil and gas operators on previous projects. Six years of meteorological data from the West Sole A platform was supplied by Perenco for analysis; 1 January 2016 to 31 December 2021. The data was recorded on an hourly basis, providing 52,537 datapoints.

2.2 Commercial Air Transport Regulations (CAT)

15. CAT flights, such as crew change flights to gas platforms, are regulated under the following requirements.

2.2.1 Offshore Approval

16. Offshore operations are regulated under Specific Approval for Helicopter Offshore Operations (SPA.HOFO) (Ref ii):

17. "Offshore operation" means a helicopter operation that has a substantial proportion of any flight conducted over open sea areas to or from an offshore location. An offshore operation includes, but is not limited to, a helicopter flight for the purpose of:

- *support of offshore oil, gas and mineral exploration, production, storage and transport;*
- *support of offshore wind turbines and other renewable-energy sources; or*
- *support of ships including sea pilot transfer.*

2.2.2 Meteorological Limits

18. The limitations presented within this section, based on CAT Regulations, have been applied to the West Sole Platform data to identify when the Project will affect helicopter access to the infrastructure presented in Table 3.1.

2.2.3 En-Route Descent

19. An en-route descent, where a helicopter may descend from Instrument Meteorological Conditions (IMC) into Visual Meteorological Conditions (VMC), and so make a visual approach to the platform, is permitted when:

    - **Day** – cloud base ≥600ft and visibility ≥4,000m.
    - **Night** – cloud base ≥1,200ft and visibility ≥5,000m.

2.2.4 Instrument Meteorological Conditions

20. IMC conditions are assumed to exist when the weather limits are below those for flight under VMC.

2.2.5 Airborne Radar Approach

21. An Airborne Radar Approach (ARA) is flown to a platform when the weather conditions are below the VMC limits. The minima for an ARA are:

    - A descent to a Minimum Descent Height (MDH) of 200ft by day or 300ft by night (or deck height plus 50ft if higher); and
    - A Missed Approach Point (MAP) no closer than 0.75nm (1,390m) from the installation; this distance is based on the limitations of the Radio Detection and Ranging (Radar) in mapping mode and how it is displayed to the crew.

22. As the helicopter has to be below cloud and in sight of the installation before proceeding visually beyond the MAP, in practical terms this results in the following minimum weather conditions:

    - Day – cloud base ≥300ft and visibility ≥1390m
    - Night – cloud base ≥400ft and visibility ≥1390m

2.2.5.1 ARA Profile

23. The ARA profile is shown in Figure 2.1 and Figure 2.2. The helicopter's Radar is used as the primary means of navigation and obstacle avoidance, supported by Global Positioning System (GPS).

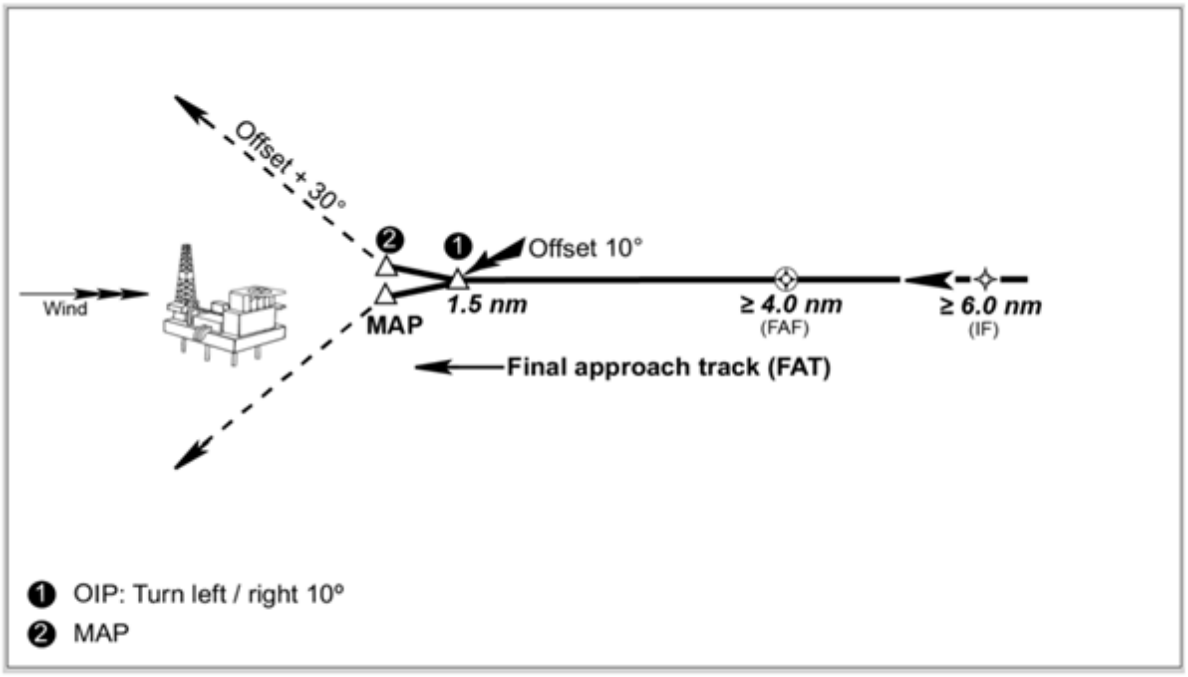


Figure 2.1: ARA Horizontal Profile

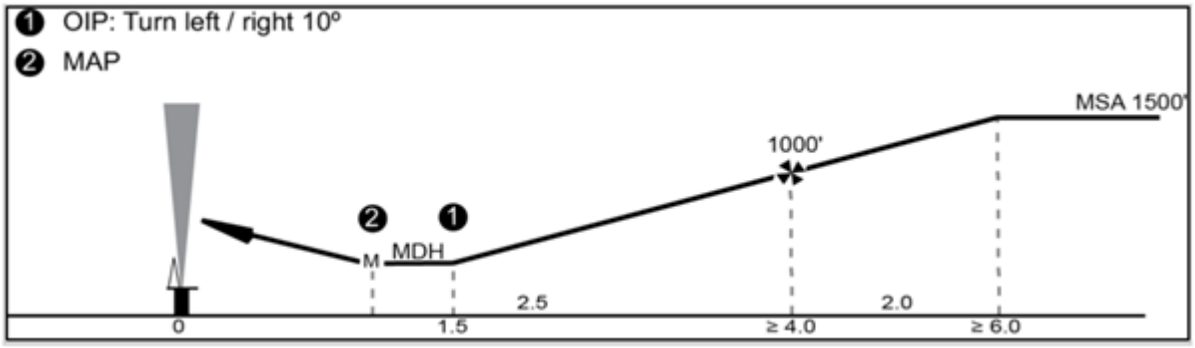


Figure 2.2: ARA Vertical Profile

24. For the purposes of this assessment, it is assumed a 9nm approach arc clear of obstructions is required for an ARA. This distance will allow a helicopter to conduct a direct approach, descending from the Minimum Safe Altitude overhead the wind turbine generators (WTGs) to achieve the Initial Approach Fix at 1,500ft, or to conduct an arc approach maintaining a 1nm lateral separation distance from the WTGs.

2.2.6 No-Fly Conditions

25. Any of the following conditions would result in flights being cancelled, or being unable to land at an offshore installation:

- Sea State (significant wave height) ≥6m;
- wind speed ≥60 knots (kt); this is a general limit, but it should be noted that some NUIs have values as low as 30kt due to reduced deck friction;

- unable to land from an ARA – cloud base <200ft by day or <300ft at night or visibility <1,390m;
- forecast Triggered Lightning;
- for a helicopter lacking an approval for flight in icing conditions, icing conditions occurring at 500ft by day and 1,000ft at night are assessed.

26. It is noted that icing conditions are defined as an air temperature below 0 degrees Celsius (°C), with an inflight visibility less than 1,000m and visible moisture present.

27. Forecasts of Triggered Lightning are not recorded in the West Sole data, and so the actual percentage of no-fly conditions will be higher than calculated.

3 Methodology

28. This assessment has applied the CAT weather limits, as a series of filters, to the meteorological data provided in order to understand the potential operational impact on the gas infrastructure within 9nm of the wind farm. Initially it will assess the baseline access restrictions from operational wind farms and wind farms currently under construction. It will then assess the additional impact of wind farms at the planning stage.

29. Any obstructions within a radius of 9nm are taken into account in this assessment. Obstructions outside 9nm may not have an impact on the ability to fly an approach or departure but may still require a change to the aircraft's routing and so result in longer flights and more fuel burned.

30. The assessment is focused on identifying any reduced access when operating under CAT Regulations, but access under SAR Regulations is also considered.

3.1 Assumptions

31. The following assumptions were used:

- as the exact locations and height of the turbines is not yet known, it is assumed that the boundary of the wind farm forms a solid wall of turbines and they are greater than 1,000ft high;
- for an ARA, an approach arc clear of obstacles out to 9nm is required. This will allow a circling approach to a Final Approach Fix at 6nm;
- an approach up to 30° out of wind may be made providing the resulting angle of drift is no more than 10°.

3.2 Infrastructure Assessed

32. The infrastructure assessed is shown in Table 3.1.

Table 3.1: Details of Assessed Infrastructure

Installation	Operator	Type	Distance to Boundary of OD	Details
Waveney	Perenco	NUI	8.2nm	Daylight only
Malory	Perenco	NUI	Within wind farm	
Barque PB	Shell	NUI	0.8nm	Daylight only
Excalibur	Perenco	NUI	2.1nm	Daylight only

Installation	Operator	Type	Distance to Boundary of OD	Details
Barque PL	Shell	NUI	3.5nm	No details shown on the Helicopter Certification Agency (HCA) website
West Sole Alpha	Perenco	Complex	4.4nm	Cyclically manned
Lancelot	Perenco	NUI	5.6nm	
West Sole B	Perenco	NUI	5.7nm	
Clipper	Shell	Complex	8.0nm	Daylight only (temporary restriction)
West Sole C	Perenco	NUI	8.2nm	Windspeed <30kt

Note: This is assumed to be a temporary restriction.

33. The Galahad, Pickerill A, Pickerill B, Amethyst B1D and Ensign NUIs are undergoing decommissioning and so are not considered further.

3.3 Meteorological Data Provided

34. The meteorological data provided was from the West Sole A Platform. Six years of meteorological data from the West Sole A platform was supplied by Perenco for analysis; 1 January 2016 to 31 December 2021. The data was recorded on an hourly basis, providing 52,537 datapoints. Meteorological data is usually recorded at a 10-minute frequency. Any differences found between the hourly recordings and other data sets recorded over a similar time period at a 10-minute frequency will be discussed.

3.3.1 Meteorological Parameters

35. The following parameters were used:

- Timestamp – year/month/day/hour/minute/second
- Visibility – m
- Cloud base – ft
- Wind direction (10-minute average) – °
- Wind speed (10-minute peak) – m/s converted to kt
- Air temperature - °C
- Maximum wave height - m

3.3.2 Data Anomalies

36. It was noted that there were cloud base values below zero. It was confirmed with the data provider that negative values meant there was no cloud recorded, i.e., clear sky.

3.4 Meteorological Analysis

37. The meteorological limits, defined in the Regulations and shown in Sections 2.2.3 – 2.2.5, were applied as a series of filters to the data. The filters identified when the conditions were:

    - Day VMC
    - Night VMC
    - Day IMC
    - Night IMC
    - No-fly, when the conditions were below offshore limits and so an ARA could not be flown.

38. The data was then summarised in a series of tables and graphs to identify if and when CAT flights might have reduced access.

4 Operational Restrictions

39. This section will use the methodology described in Section 3 and apply it to the operational helicopter environment. Following this, Section 6 onwards will identify any restrictions on helicopter access specific to the facilities shown in Table 3.1.

4.1 Approach Limitations

40. Applying the meteorological limits described in Section 2.2.3 – 2.2.5 to the meteorological data provides the percentage of occasions when each approach type is permitted or required.

41. Table 4.1 shows the percentage of day and night VMC access, i.e., when an en-route descent into visual conditions can be made, and a visual approach and take-off to/from a platform is available. This takes no account of any obstructions within 9nm.

Table 4.1: Day and Night VMC Access

Year	Day VMC	Day IMC	Night VMC	Night IMC
2016	86.8%	13.2%	80.6%	19.4%
2017	93.3%	6.7%	86.3%	13.7%
2018	84.3%	15.7%	75.6%	24.4%
2019	85.3%	14.7%	80.7%	19.3%
2020	89.8%	10.2%	81.7%	18.3%
2021	85.6%	14.4%	74.5%	25.5%
Mean	87.5%	12.5%	79.9%	20.1%

42. Previous analysis using larger meteorological data sets for the southern North Sea, sampled at a 10-minute interval, indicated Day VMC existed for a mean of 89% of daylight conditions. The larger dataset indicated that Night VMC existed for a mean of 83% of night conditions. The West Sole Alpha data approximates to the larger dataset and so it can be inferred that the hourly sampling, rather than 10-minute sampling, has not had a significant impact on the analysis.

43. Table 4.1 does not consider when the conditions did not permit flying, i.e., the conditions identified in Section 2.2.6. An average of 5.9% of daylight conditions did not permit flying, so leaving 6.6% (12.5%-5.9%) usable for IMC. For night conditions, 5.4% were unusable, leaving 14.7% (20.1% - 5.4%) usable. When considering the loss of access, the usable IMC figures should be applied and not all IMC periods. The implication is that even if only VMC access was available, the loss of access compared to today would be an average loss of 6.6% by day and 14.8% at night.

Table 4.2: Usable IMC Access

Year	Usable IMC Day	Day IMC	Day No Fly	Usable IMC Night	Night IMC	Night No Fly
2016	8.7%	13.2%	4.5%	15.0%	19.4%	4.4%
2017	3.0%	6.7%	3.7%	9.6%	13.7%	4.1%
2018	7.6%	15.7%	8.1%	16.7%	24.4%	7.7%
2019	5.5%	14.7%	9.2%	13.7%	19.3%	5.6%
2020	5.5%	10.2%	4.7%	13.6%	18.3%	4.7%
2021	9.2%	14.4%	5.2%	19.4%	25.5%	6.1%
Mean	6.6%	12.5%	5.9%	14.7%	20.1%	5.4%

4.2 Wind Data

44. The wind sectors for an approach and take-off, under all conditions (VMC and IMC), are shown in Figure 4.1. The chart shows all the recorded wind data for 2016 – 2021 segmented into 10° sectors.

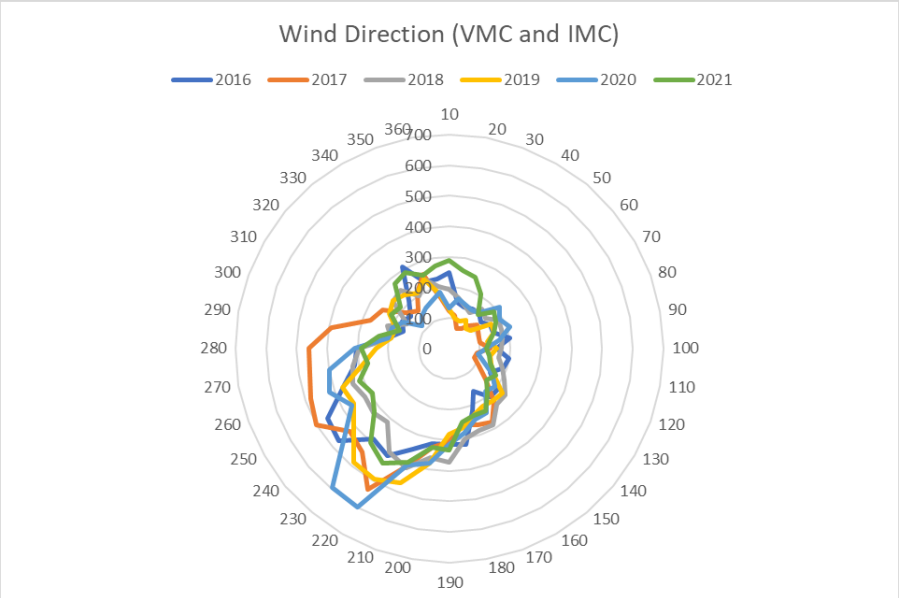


Figure 4.1: Wind Direction in Hours Per Year for 2016 to 2021

45. Figure 4.2 identifies the wind direction and the hours per year when the daylight meteorological conditions are IMC, including no fly IMC conditions; Figure 4.3 then repeats the process for night.

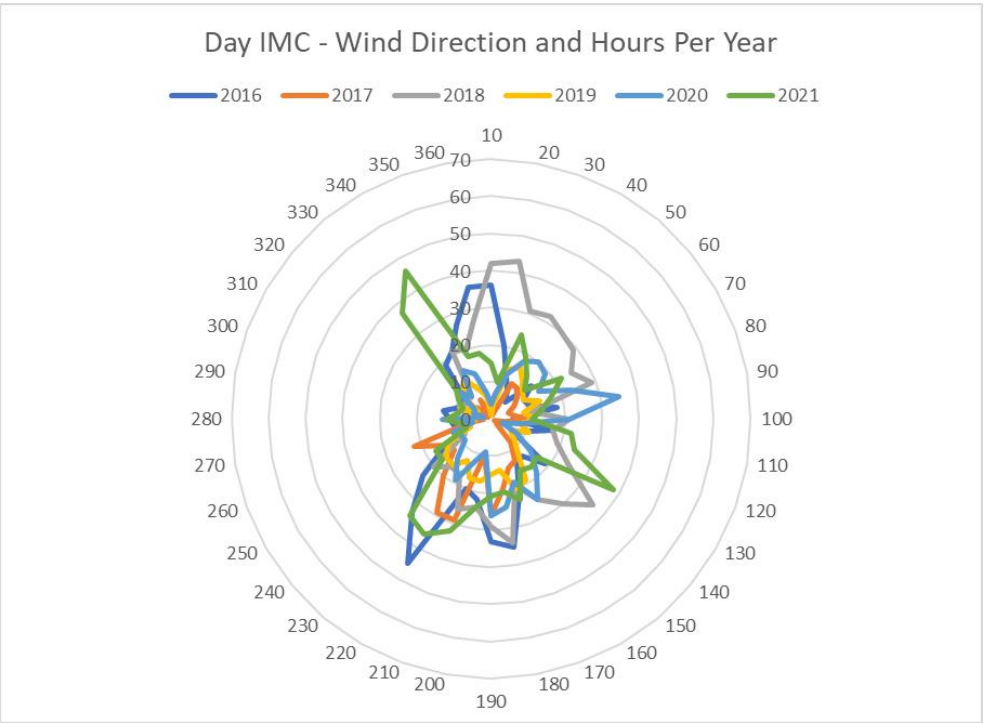


Figure 4.2: Wind Direction for Daylight Hours Per Year When IMC

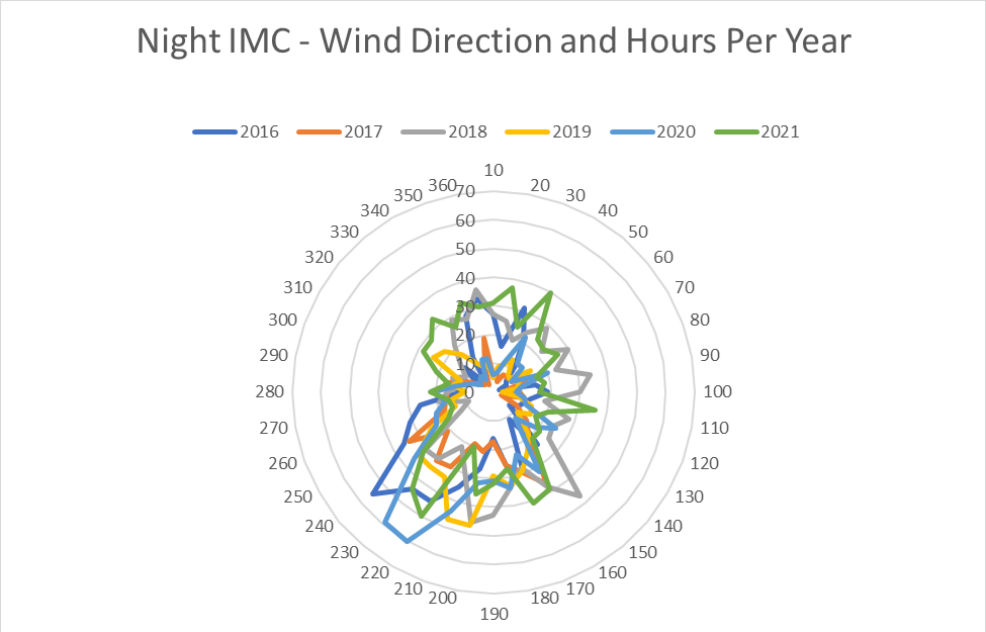


Figure 4.3: Wind Direction for Night Hours Per Year When IMC

5 Emergency Conditions

46. The methodology used so far in this Report addresses helicopter access under CAT Regulations. Emergency down manning of any installation, critical Medivacs and SAR are not constrained by CAT Regulations as these flights are generally flown by the Coastguard SAR aircraft operating under CAP 999 (Ref iii). The Coastguard helicopters are operated as State Aircraft under National Regulations and are not constrained by the higher weather limits in CAT Regulations. Also, commercial SAR can be flown with some alleviations from CAT Regulations. Such SAR arrangements have existed in the United Kingdom, Norway and the Netherlands for decades and include SAR coverage provided by the Integrated Search and Rescue (ISAR) Consortium in Aberdeen (formerly Jigsaw Aviation), SAR helicopters based in the Ekofisk Field, and SAR helicopters under contract to Nederlandse Olie en Gas Exploratie en Productie Associatie (NOGEPA), the Dutch equivalent of Oil & Gas UK.

47. CAP 999 defines the SAR operating minima as:

> *Operating minima for the dispatch and continuation of a SAR operational flight are at the discretion of the aircraft commander. However, he is to consider the urgency of the task, crew and aircraft capability and the requirement to recover the aircraft safely.*

48. Due to the SAR autopilot modes and enhanced sensors fitted to the Coastguard SAR helicopters, a shorter distance is required to enter the field and manoeuvre to land on platforms, even in poor weather. The Wind Farms will be designed in accordance with MGN 654, which permits helicopter SAR operations within a turbine array, and so SAR access will also be available to platforms adjacent to the Wind Farms.

49. Furthermore, in the event of an emergency on the platform resulting in an explosion, fire or release of hydrocarbons, helicopters will be unable to land and so other means of escape, such as Totally Enclosed Motor Propelled Survival Craft (TEMPSC) and/or Seascape systems will be required. Although helicopters are usually the preferred means of down manning an installation, they cannot be the primary means of down manning in all cases.

50. Icing conditions will not affect the Coastguard SAR helicopters are they are certified and equipped for flight in icing conditions.

51. In summary, although a reduction in helicopter access under CAT Regulations will impose a logistic restriction on a gas installation, it will not result in a reduced level of safety, as SAR helicopters will still be able to access an installation.

6 Infrastructure Specific Access

52. This section will now identify how helicopter operations will be constrained by current and future wind farms. It will be done in two parts: firstly, identifying baseline access taking account of any restrictions due to current wind farms and the Project; secondly, it will identify any additional impact from wind farms currently in the planning phase.

53. Figure 6.1 shows the proposed boundaries of the wind farms, the locations of the adjacent wind farms and gas infrastructure. Included in the baseline assessment will be Triton Knoll, Hornsea Two, Dudgeon and the Project. Hornsea One, Race Bank and Sheringham Shoals are too far away to directly affect helicopter access. In the second part, it will be assumed that Hornsea Four and the Dudgeon Extension will both be built up to the boundaries shown.

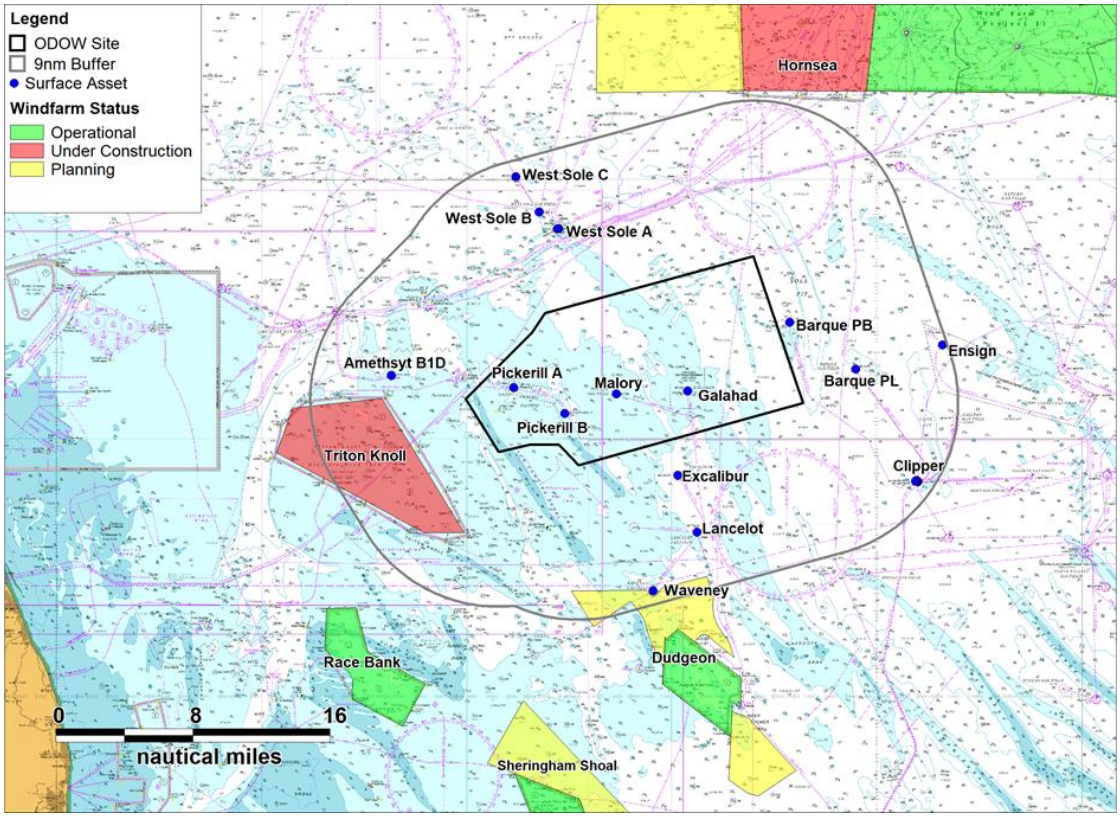


Figure 6.1: The Project and Adjacent Infrastructure

54. Due to performance and handling requirements, helicopters will normally approach to land and take-off facing into the prevailing wind. Approaching with a slight crosswind when at a safe speed is acceptable, but at speeds below 50kts the helicopter should be orientated into wind. The requirement to approach and depart a platform into wind results in restrictions if either is obstructed by obstacles, such as a wind turbine.

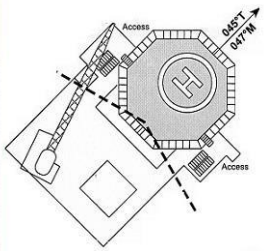
55. Another factor which must be considered is the take-off distance required in the event of an engine failure during take-off, known as a One Engine Inoperative (OEI) take-off. Under VMC a distance of approximately 1nm to the closest object is sufficient to climb to 500ft and then turn away from obstacles whilst continuing the climb. Under IMC, the climb will be continued to 1,000ft before turning. Additionally, in IMC a 1nm buffer between the flight path and any obstacle must be included, and so the total distance required will be larger, typically greater than 2.5nm for current types, such as the AW139 helicopter.

7 Excalibur Platform

56. The Excalibur NUI has a 17.5m D value helideck with a T Value of 5.3 tonnes. So normally any helicopter operating to the Platform would have to be at a mass of 5.3 tonnes or less. There is one exception, the AW139 helicopter uses a safety case to land and take-off at up to 6.8 tonnes. This safety case is approved by the CAA and takes account of the probability of an engine failure, the engine failure modes and single engine performance. Therefore, the AW139 is the only helicopter currently approved to operate to the helideck carrying 12 passengers. For this reason, the take-off characteristics of the AW139 are applied to this assessment as it is the type currently used and gives the operator the highest economic payload.

HELIDECK INFORMATION PLATE

HELIDECK	VAR	POSITION	EGEX **Excalibur**		
Elev **120 ft**	**0**	**N53 27.55 E001 20.4**			
HEIGHT OF INSTALLATION: **141ft** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **No**	Issue Date **04 Feb 2022**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company		Issued By **Helideck Certification Agency**
HELIDECK D value: **17.5** P/R/H Category: F Max Weight: **5.3t** Circle & H Lights: Fitted			**Perenco**		



Wind (T°)	Kts	Limitation /Comment
		NUI • Table 1(T) if overflight of 5:1 items unavoidable • Cleared for AW 139 (6.8t) • Daylight operations only - +90% circle lights U/S

Figure 7.1: Excalibur Platform Information Plate

7.1 Baseline Access

57. Excalibur is situated 9nm north of the Dudgeon Wind Farm and 12nm east of Triton Knoll. Neither of these wind farms will affect access. The Excalibur Platform is located 2.1nm from the proposed boundary of the Project.

7.1.1 Flight Under Visual Flight Conditions

58. Under VMC there will be no impact on operations to Excalibur. Therefore, the VMC figures in Table 4.1 apply.

7.1.2 Flight Under Instrument Flight Conditions

59. In order to permit helicopter access in IMC, then additional space has to be provided for approaches and take-off. Helicopter performance is one of the factors which has to be taken into account when assessing access. The AW139 is assessed, as it is the only helicopter currently being used for this operation and is the only helicopter approved to land on small NUI helidecks with 12 passengers. Smaller helicopters, such as the AW169, could be used in this transport role, but more flights would be required to transport a similar number of personnel. Legacy small types, such as the EC 155 or S76 could be used, but they lack modern safety equipment including crashworthy seating. Under CAA Safety Directive: SD-2016/005 Issued 12 December 2016, only 120 flights per annum are permitted to Excalibur when the helideck is unmanned. Therefore, more frequent flights might not be an option due to the Safety Directive.

60. The minimum requirement in IMC is approximately 2.8nm clear of obstacles for take-off and 9nm for an ARA.

61. The Project would inhibit a helicopter approaching in IMC in an arc from 275° clockwise to 065°. As the helicopter operators have agreed that approaches may be flown up to 30° out of wind, this arc reduces to 305° clockwise to 035°. The helicopter will approach towards the wind, it is the wind direction from the reciprocal of this arc which needs to be taken into account, i.e., access is inhibited with a wind from 125° clockwise to 215°.

Table 7.1: Excalibur Vantage Analysis – Number of Flights with IMC Approaches Affected

Year	Number of flights	Flights lost	Percentage of Lost Flights
2016	257	2	0.8%
2017	243	3	1.2%
2018	234	8	3.4%
2019	201	3	1.5%
2020	279	7	2.5%

Year	Number of flights	Flights lost	Percentage of Lost Flights
2021	78	0	0.0%
Total	1292	23	Average 1.8%

62. Applying the Vantage data to the predicted loss of access when the Project is built, would have resulted in an average of 1.8% lost flights per annum.

7.1.3 IMC Take-off

63. Previous workshops with the helicopter operators have identified that an IMC take-off distance for the AW139 of circa 2.8nm is required. If a suitable distance is available, then no further reduction in access would occur. If the required distance was not available, then Table 7.2 identifies the additional impact on access. This assumes that an arc from 275° clockwise to 065° obstructs the take-off path. This is a worse case which assumes that turbines are located along the line of the wind farm boundary.

Table 7.2: Excalibur Vantage Analysis – Number of Flights with IMC Take-Offs Affected

Year	Number of flights	Flights lost	Percentage of Lost Flights
2016	257	7	2.7%
2017	243	0	0%
2018	234	4	1.7%
2019	201	3	1.5%
2020	279	8	2.9%
2021	78	7	9.0%
Total	1292[Note]	29	Average 2.2%

Note: Only 120 flights per annum are permitted when the helideck is unmanned. However, additional flights are permitted when the platform is manned, as the helideck crew can provide fire cover.

7.2 Access With All Planned Wind Farms In Place

64. The Excalibur Platform is located 2.1nm from the proposed boundary of the Project. Additionally, an ARA could be affected by the presence of the Dudgeon Extension Wind Farm, approximately 6nm to the south.

7.2.1 Flight Under Visual Flight Conditions

65. Under VMC there will be no impact on operations to Excalibur. Therefore, the VMC figures in Table 4.1 applies.

7.2.2 Flight Under Instrument Flight Conditions

66. Due to the location of the Project to the north and potentially the Dudgeon Extension to the south, there are a limited number of directions providing a 9nm approach arc clear of obstructions. As the helicopter will approach into wind, it is the reciprocal of the wind direction which needs to be clear of obstacles. Previous workshops with the helicopter operators identified that their procedures allowed approaches to be made slightly out of wind, with no more 10° of drift: for a wind of less than 20kt this would allow an approach up to 30° out of wind.

67. The Project provides an obstruction from 275° clockwise to 065°. Allowing for an approach up to 30° degrees out of wind narrows this arc to 305° clockwise to 035°. As the approach would be made towards the wind, an approach from this arc would be into a wind direction from 125° clockwise to 215°.

68. The planned Dudgeon Extension Wind Farm to the south would obstruct an arc from 150° clockwise to 230°. Allowing for an approach up to 30° out of wind narrows this arc to 180° clockwise to 200°. As the approach would be made towards the wind, an approach from this arc would be into a wind direction from 360° clockwise to 020°.

69. Taking account of the obstacle environment, and the ability to fly approaches with a slight crosswind, then only approaches with a wind outside these arcs, from 020° clockwise to 125° and 215° clockwise to 360° would be possible.

70. As Vantage data is available for Excalibur, the actual impact of flights from the current and potential wind farms can be determined. Table 7.3 provides an annual breakdown of the flights flown, how many would be lost due to the three wind farms and the percentage of lost flights.

Table 7.3: Excalibur Vantage Analysis – Number of Flights with IMC Approaches Affected

Year	Number of flights	Flights lost	Percentage of Lost Flights
2016	257	3	1.2%
2017	243	0	0.0%
2018	234	5	2.1%
2019	201	2	1.0%
2020	279	9	3.2%
2021	78	7	9.0%

Year	Number of flights	Flights lost	Percentage of Lost Flights
Total	1292	26	Average 2.0%

7.2.3 IMC Take-Off

71. Previous workshops with the helicopter operators have identified that an IMC take-off distance for the AW139 of circa 2.8nm is required. If a suitable distance is available, then no further reduction in access would occur. If the required distance was not available, then Table 7.4 identifies the additional impact on access. This assumes that an arc from 275° clockwise to 065° obstructs the take-off path. This is a worse case which assumes that turbines are located along the line of the wind farm boundary.

Table 7.4: Excalibur Vantage Analysis – Number of Flights with IMC Take-Offs Affected

Year	Number of flights	Flights lost	Percentage of Lost Flights
2016	257	7	2.7%
2017	243	0	0%
2018	234	4	1.7%
2019	201	3	1.5%
2020	279	8	2.9%
2021	78	7	9.0%
Total	1292[Note]	29	Average 2.2%

Note: Only 120 flights per annum are permitted when the helideck is unmanned. However, additional flights are permitted when the platform is manned, as the helideck crew can provide fire cover.

7.3 Excalibur Summary

72. Having the benefit of both meteorological data and Vantage data permits an assessment of how many flights would have been lost.

73. The baseline case shows that an average of 1.8% of all the flights in Vantage would have had their approaches restricted (Table 7.1). If sufficient distance is not provided for an IMC take-off, an average of 2.2% of flights would have had their take-offs affected (Table 7.2). However, if sufficient distance is provided, this restriction will not apply.

74. With all the additional wind farms currently at the planning stage built, the cumulative effect would be an average of 2.0% of approaches being restricted (Table

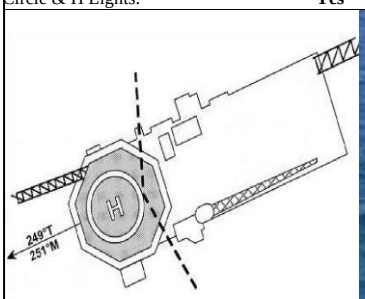
7.3). This is an increase of 0.2% over the baseline figure. The impact on take-offs remains unchanged as it is due to the presence of the Project.

8 West Sole Alpha Platform

75. The West Sole Alpha Platform is classed as a NUI, but cyclically manned. It has a 20m D Value helideck with a T Value of 9.3 tonnes. It is located 4.4nm from the Project. At the time of writing this report, the platform had a limitation of day only operations due to unserviceable helideck lighting. It is assumed this is a temporary restriction, so day and night flights are assessed.

HELIDECK INFORMATION PLATE

HELIDECK Elev **122 ft**	VAR **Check**	POSITION **N53 42.11 E001 09.00**	EGSB **West Sole A**		
HEIGHT OF INSTALLATION: **226** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **Not fitted**	Issue Date **29/12/2021**
FUELLING INSTALLATION: **Yes** STARTING EQUIPMENT: **Yes**			Operating Company **Perenco**		Issued By **Helideck Certification Agency**
HELIDECK D value: P/R/H Category: Max Weight: Circle & H Lights:		**20.0** **F** **9.3** **Yes**			



Wind (T°)	Kts	Limitation /Comment
		NUI - Cyclically manned platform • Table 1(T) for all Landings & Take-Offs • Approaches to & departures from the WA platform should not involve overflight of the WAS platform or its connecting walkway unless single engine survivability can be assured. • North access point currently unusable
		Non Compliance
	5:1	WAS satellite platform North and South access points & Radar platforms.
	Misc	TD/PM marking and lights for 22.2m deck Refuel facilities no longer available H2 compliant fire monitors - not automated

Figure 8.1: West Sole Alpha Platform Information Plate

8.1 Baseline Access

76. There are no current wind farms within 9nm of West Sole Alpha. The Project boundary is 4.4nm to the south.

8.1.1 Flight Under Visual Flight Conditions

77. Flight under VMC would not incur any additional penalties due to the presence of the Project. Table 4.1 identifies percentage of VMC.

8.1.2 Flight Under Instrument Meteorological Conditions

78. The Project would obstruct an arc from 095° clockwise to 210°. Allowing for an approach up to 30° out of wind narrows this to 125° clockwise to 180°. As the approach would be made towards the wind, an approach from this arc would into a wind direction from 305° clockwise to 360°.

Table 8.1: West Sole Vantage Analysis – Number of Flights with IMC Approaches Affected

Year	Number of flights	Flights lost	Percentage of Lost Flights
2016	906	10	1.1%
2017	487	1	0.2%
2018	892	10	1.1%
2019	825	7	0.8%
2020	406	2	0.5%
2021	235	20	8.5%
Total	3751	50	Average 1.3%

79. As the Project is 4.4nm from West Sole Alpha, there will be no restrictions on IMC take-offs.

8.2 Other Planned Wind Farms

80. The boundary of the planned Hornsea Four Wind Farm is to the north of the Platform.

8.2.1 Flight Under Visual Flight Conditions

81. Flight under VMC would not incur any additional penalties due to the presence of the adjacent wind farms. Table 4.1 identifies that 87.5% of daylight conditions are VMC.

8.2.2 Flight Under Instrument Flight Conditions

82. As the West Sole Alpha is 4.4nm from the boundary of the Project, and approximately 7nm to the Hornsea Four Wind Farm, there should be no take-off constraints. The Project would obstruct an approach arc from 095° clockwise to 210°. Allowing for an approach up to 30° out of wind narrows this to 125° clockwise to 180°. As the approach would be made towards the wind, an approach from this arc would into a wind direction from 305° clockwise to 360°.

83. As West Sole Alpha is approximately 7nm from Hornsea Four. This will obstruct an approach arc from 360° clockwise to 070°. Allowing for an approach up to 30° out of wind narrows this sector to 030° clockwise to 040°. As the approach would be made towards the wind, an approach from this arc would into a wind direction from 210° clockwise to 220°.

84. Taking account of the obstacle environment, and the ability to fly approaches with a slight crosswind, then only ARAs with a wind from 360° clockwise to 210° and 220° clockwise to 305° would be possible.

85. As Vantage data is available for West Sole Alpha, the impact on historic flights from the current and potential wind farms can be determined. Table 8.2 provides an annual breakdown of the flights flown, the number of lost flights, and the percentage of lost flights.

Table 8.2: West Sole Vantage Analysis – Number of Flights with IMC Approaches Affected

Year	Number of flights	Flights lost	Percentage of Lost Flights
2016	906	28	3.1%
2017	487	9	1.8%
2018	892	23	2.6%
2019	825	19	2.3%
2020	406	8	2.0%
2021	235	28	11.9%
Total	3751	115	Average 3.1%

8.3 West Sole Alpha Summary

86. The West Sole Alpha platform will have no restrictions imposed under VMC.

87. The baseline shows that an average of 1.3% of approaches would have been affected by the presence of the Project (Table 8.1). There are no restrictions on take-off.

88. With both the Project and Hornsea Four built, an average of 3.1% of approaches would have been affected (Table 8.2). There are no restrictions on take-off.

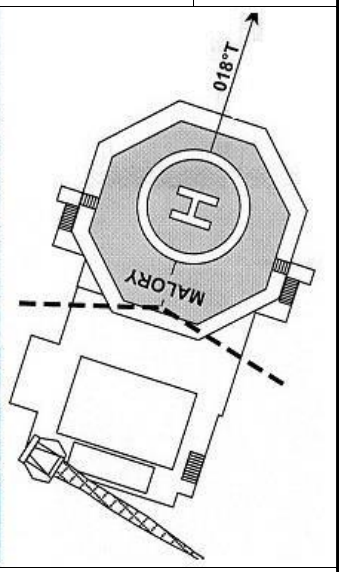
89. Similar or better access will be available for the adjacent West Sole Bravo and West Sole Charlie NUIs. Both installations are limited to day only operations. At the time of writing this report, helicopters can only land on the West Sole C when the wind speed is below 30kt, as the deck friction does not meet the requirements in CAP 437.

9 Malory Platform

90. The Malory Platform is a NUI located inside the Project boundary. It has a 16m D Value and a 5.3 tonne T Value. Under the CAA approved safety case, the AW139 is approved to operate to this platform at up to 6.8 tonnes, other helicopters must apply their actual mass, and so cannot land above 5.3 tonnes. The platform is equipped with circle and H lights and is approved for night operations. As the helideck is not fitted with an automatic fire fighting system, it will be limited to 120 flights per year when not manned.

HELIDECK INFORMATION PLATE

HELIDECK Elev **105 ft**	VAR **Check**	POSITION **N53 32.6 E001 14.6**	EGMI **Malory**		
HEIGHT OF INSTALLATION: **136** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **-**	Issue Date **08 Feb 2022**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company **Perenco**		Issued By **Helideck Certification Agency**
HELIDECK D value: **16.01** P/R/H Category: **F** Max Weight: **5.3** Circle & H Lights: **Yes**					



Wind (T°)	Kts	Limitation /Comment
		NUI • Table 1(T) if overflight of 5:1 infringements unavoidable • Cleared for AW139 (6.8t)
		Non Compliance
	5:1	East and west access
	Misc	No automatic fire-fighting facilities

Figure 9.1: Malory Platform Information Plate

9.1 Baseline Access

91. At present the Malory platform has no wind farms within 9nm.

9.1.1 Flights Under Visual Meteorological Conditions

92. Assuming sufficient distance is allowed for VMC approaches and take-offs, then the meteorological data indicates access should be available for an average of 87.5% of daylight conditions. Current operations to helidecks located inside wind farms, such as inside Hornsea One and Two, should be used for guidance on the necessary spacing of the helideck from nearby turbines. Flights in day VMC to a platform inside Hornsea Two occur on a regular basis under CAT Regulations, with a turbine blade tip as close as 910m from the platform helideck. Although a smaller distance has been shown safe and acceptable, to allow helicopter operators additional flexibility, it is recommended that an obstacle free radius of 1nm is provided around the Malory Platform.

93. Access restrictions will apply to CAT flights. However, as the layout of the Project will comply with MGN 654, there will be no restrictions on emergency access by SAR helicopters by day or night. Current practice is not to fly CAT under night or IMC inside wind farms.

94. Vantage data covering the period from 2nd December 2019 to 22nd December 2021 was provided. Five flights occurred when the meteorological data was not recorded. Inside a wind farm only Day VMC flights will be permitted. Therefore, any occasions when a flight recorded in Vantage occurred in IMC or at night, the flight was recorded as being affected.

Table 9.1: Malory Vantage Analysis – Number of Flights where a Day VMC Flight Would be Affected.

Year	Number of flights	Flights Affected (IMC/Night)	Percentage of Affected Flights (IMC/Night)
2019	159	16/2	10.1%/1.3%
2020	95	9/5	9.5%/5.3%
2021	49	10/6	20.4%/12.2%

95. The meteorological data indicated that an average of 87.5% of daylight conditions would allow access, so 12.5% of daylight flights could be affected. As the meteorological data provided shows an hourly record, not the usual 10-minute interval, it lacks sufficient granularity to confirm exactly when conditions changed

from IMC to VMC, or *vice versa*. Therefore, a conservative approach has been taken and IMC assumed to occur unless the hourly record shows it was VMC. In 2019 and 2020 the periods of affected access were generally in line with predictions from the meteorological assessment, i.e. 12.5%. The percentage of flights affected in 2021 was greatly increased. However, the number of flights in 2021 were reduced, increasing the sensitivity to periods when flights could not occur. A number of the flights recorded as night in 2021 occurred just after night commenced; for example, on 22nd December 2021 the flight arrived at the Malory platform at 16:28 when night commenced at 16:24. A slightly earlier flight, for example 30 minutes earlier, would have allowed access to the platform. Similarly, there were flights affected by IMC conditions where the conditions improved to VMC shortly after landing; for example, on 14th February 2020 a shuttle flight landed at 07:42 under IMC and it was recorded as VMC at 08:00. Altering the flight timings to coincide with Day and VMC would have allowed improved access compared to the impact shown in Table 9.1. However, it is accepted that this could result in a reduced working shift length on the Platform, possibly requiring additional visits.

10 Barque Platform

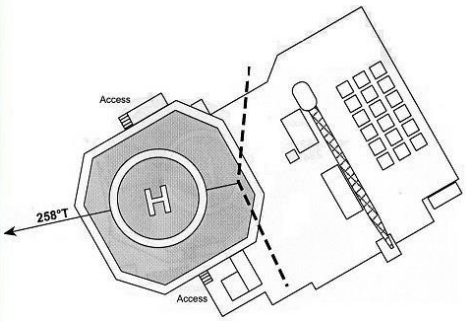
HCA		HELIDECK INFORMATION PLAT			
HELIDECK Elev **125 ft**	VAR **0**	POSITION **N53 36.80 E001 31.60**	EGJW **Barque PB**		
HEIGHT OF INSTALLATION: **358ft** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **133.580**	NDB	Issue Dat **Mar 20**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company **Shell**		Issued **Helide Certifica Agenc**
HELIDECK D value: **22.2** P/R/H Category: F Max Weight: **9.3** Circle & H Lights: No					
					
Wind (T°)	**Kts**	**Limitation /Comment**			
		NUI • Daylight operations only - Circle & "H" lights not fitted • Table 1(T) if overflight of either access unavoidable			
		Non Compliance			
5:1		North and South access			
Misc		No automatic fire-fighting facilities Approved friction surface - No net			

Figure 10.1: Barque PB Platform Information Plate

10.1 Baseline Access

96. Currently the Barque PB has no wind farms within 9nm. With the Project built up to the boundary, the following restrictions will apply.

10.1.1 Flights Under Visual Meteorological Conditions

97. Due to its location 0.8nm from the Project, if WTGs are built up to the wind farm boundary, IMC operations to the Platform will not be possible, as 1nm laterally clear of obstacles must be maintained during the current ARA procedure, including any go-around. As only VMC operations will be possible, the data in Table 4.1 indicates access should be available for an average of 87.5% of daylight conditions. This would result in an average loss of access per annum of 6.6%, see Table 4.2. However, flights to NUIs are not usually conducted in marginal weather conditions as the installation operators do not want to strand workers overnight on a platform with limited domestic facilities. This is not a safety issue, as the platform will meet all HSE requirements, including means to escape in the event of a major incident (Ref iv), but concerns worker welfare and in particular disruption to future shift patterns. Therefore, a loss of access of 6.6% is considered to be a worse case, as flights in marginal conditions are not common.

98. Vantage POB data covering the period 21 February 2020 to 5 December 2022 was provided. The data showed 51 flights to the Barque over the 3-year period. Of the 51 flights, 37 flights coincided with the meteorological data identified in paragraph 3.3. The data confirmed that flights were infrequent.

99. The flight arrivals at the platform were compared to the associated meteorological conditions to confirm that a two-hour day VMC window was available before and after arrival: when the flight was within 2 hours of night only the daylight conditions were considered as the Barque PB helideck is only approved for daylight operations. Where the 2-hour VMC window was compromised, the flight was recorded as being affected.

100. The data recorded periods when only a single flight occurred. Where helicopters are the sole means of transport to and from a NUI, a minimum of two flights would normally occur, the first to deliver the work party, the second to extract the work party. This anomaly could be due to the aircraft shutting down on the helideck whilst work was conducted, some flight data is missing, or other transport means, such as walk-to-work, being used.

Table 10.1: Barque PB Vantage Analysis – Number of Flights Affected

Year	Number of flights	Flights Affected	Percentage of Delayed Flights
2020	17	3	17.6%
2021	20	1	5.0%
2022	14	No Met Data	

101. The first flight on the 10 May 2021 arrived at 08:15 shortly after it became VMC. This infringed the arbitrary 2-hour VMC window but in practical terms would not have delayed the flight. A second flight that day was unaffected. The other two affected flights in 2020 occurred on the 28 September 2020 where the conditions did not become VMC until 11:00; delaying the first flight that arrived at 08:45 and the second flight that arrived at 10:45. A third flight that day was not affected. The flight affected in 2021 occurred on the 19 March 2021, when the conditions did not become VMC until 09:00, so delaying a flight that arrived at 08:45. On the latter two days VMC access was available with a slight delay to the flights. All of the other flights were unaffected. Based on the Vantage data provided, it can be concluded that limiting the Barque PB to day VMC only operations would have had a minimal effect on historic helicopter operations. The data also verifies the assumption that flights to NUIs are normally conducted in VMC.

102. A distance of 0.8nm (1,481m) between a helideck and adjacent wind turbines has previously been shown to be sufficient for safe operations. For example, the Blyth NUI has the Dudgeon Wind Farm adjacent, with the closest turbine 1,212m (Ref v) away. Helicopters regularly operate to platforms located inside wind farms where the distance available is smaller than 1,400m. For example, flights on a regular basis occur to a platform inside the Hornsea Two Wind Farm where the closest turbine tip is 910m from the helideck. Although a smaller distance has been shown safe and acceptable, to allow helicopter operators additional flexibility, it is recommended that an obstacle free arc of 1nm from the Project to the Barque PB is provided.

103. Although shown in Table 3.1 and in Figure 6.1, the Barque PL does not have a currently approved helideck, so is not considered further.

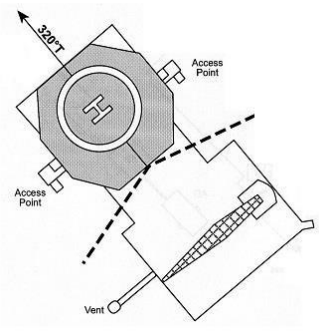
11 Lancelot Platform

104. The Lancelot Platform is located 5.6nm from the Project to the north. The Lancelot helideck has a 17.5m D Value and 5.3 tonne T Value. Again, there is an AW139 specific approval to operate at 6.8 tonnes to this helideck.

HELIDECK INFORMATION PLAT

HELIDECK Elev **120 ft**	VAR **Check**	POSITION **N53 24.6 E001 22.5**	EGLE **Lancelot**		
HEIGHT OF INSTALLATION: **133** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **not fitted**	Issue Dat **Dec 20**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company **Perenco**		Issued **Helide Certifica Agenc**
HELIDECK D value: **17.5** P/R/H Category: **F** Max Weight: **5.3** Circle & H Lights: **Yes**					



Wind (T°)	Kts	Limitation /Comment
		NUI • Table 1 (T) if overflight of 5:1 items unavoidable • Cleared for AW 139 (6.8t)
		Non Compliance
5:1		East and west access
Misc		No automatic fire-fighting facilities

Figure 11.1: Lancelot Platform Information Plate

11.1 Baseline Access

105. The Lancelot Platform currently has the Dudgeon Wind Farm approximately 6nm to the south. This presents an obstruction from 160° clockwise to 200°. As an approach can be flown up to 30° out of wind, the obstructed arc is cancelled out and so Dudgeon does not cause a reduction in access. The Project provides an obstruction from 280° clockwise to 050°. Allowing for an approach up to 30° degrees out of wind narrows this arc to 310° clockwise to 020°. As the approach would be made towards the wind, an approach from this arc would be into a wind direction from 130° clockwise to 200°.

Table 11.1: Lancelot Analysis – Number of Hourly Periods with IMC Approaches Affected

Year	Hourly Periods Recorded	Hours when ARA Lost	Percentage of Hours Affected
2016	8700	237	2.7%
2017	8760	203	2.3%
2018	8760	360	4.1%
2019	8736	268	3.1%
2020	8784	283	3.2%
2021	8769	304	3.5%
Total	52500	1655	Average 3.2%

11.2 Planned Wind Farms

11.2.1 Flight Under Visual Meteorological Conditions

106. Due to its location, there will be no effect on VMC operations to the Lancelot. Table 4.1 identifies that 87.5% of daylight conditions are VMC.

11.2.2 Flight Under Instrument Meteorological Conditions

107. As well as the Project, access under IMC will also be affected by the location of Dudgeon Extension to the south. The Dudgeon Extension would obstruct an approach in the arc 150° clockwise to 240°. Allowing for an approach up to 30° out of wind, this reduces the arc to 180° clockwise to 210°. As the approach would be made towards the wind, an approach from this arc would be into a wind direction from 360° clockwise to 030°.

108. There is no Vantage data available for the Lancelot and so the approach arcs for the Dudgeon Extension and the Project were applied to the meteorological data. This identifies when an actual flight would not have been possible, rather than when an

historic flight would have been lost (applying Vantage data). As the Lancelot is certified for night operations, data for both day and night are considered.

Table 11.2: Lancelot Analysis – Number of Hourly Periods with IMC Approaches Affected

Year	Hourly Periods Recorded	Hours when ARA Lost	Percentage of Hours Affected
2016	8700	380	4.5%
2017	8760	245	2.8%
2018	8760	497	5.7%
2019	8736	318	3.5%
2020	8784	317	3.7%
2021	8769	425	5.0%
Total	52500	2211	4.2%

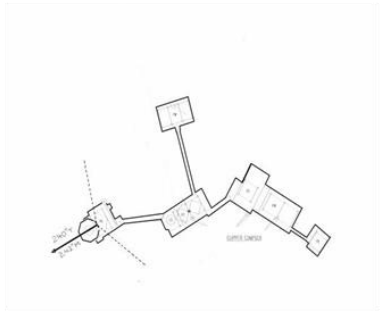
109. The Mean of 4.2% is higher than the Mean of 2.7% for the nearby Excalibur Platform applying Vantage data, (see Table 7.1). This is probably due to the fact that the Lancelot analysis takes account of all conditions, both day and night, whilst in reality flights to NUIs tend to be flown mainly in daylight and in conditions where the forecast shows a period of good weather with a high probability of extracting personnel at the end of the working period. If the Lancelot's operator was able to provide Vantage data, then an analysis could be conducted to confirm this hypothesis.

12 Clipper Platform

110. The Clipper complex is located 8nm from the southeast boundary of the Project. It is located over 9nm from the Dudgeon Extension wind farm. The Platform has a 20.9m D Value and 12.8 tonne T Value. It is approved for daylight operations only.

HELIDECK INFORMATION PLATE

HELIDECK VAR Elev **162 ft** **Check**	POSITION **N53 27.51 E001 43.84**	EGCX **Clipper**		
HEIGHT OF INSTALLATION: **364** HIGHEST OBSTACLE WITHIN 5NM: **Check**		VHF **133.580**	NDB **CPR 374**	Issue Date **Dec 2021**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **Yes**		Operating Company **Shell**		Issued By **Helideck Certificatio Agency**
HELIDECK D value: **20.9** P/R/H Category: **F** Max Weight: **12.8** Circle & H Lights: **Yes**				



Wind (T°) Kts	Limitation /Comment
	Manned platform • Daylight operation only - Green "H" lights unserviceable Table 1 (T) if overflight of 5:1 items unavoidable
5:1	**Non Compliance** North and South access platforms

Figure 12.1: Clipper Platform Information Plate

12.1 Baseline Access

111. The Clipper is more than 9nm from the Dudgeon and Hornsea Wind Farms. It is 8nm from the Project.

12.1.1 Flight Under Visual Meteorological Conditions

112. Due to the location of the Platform in relation to the wind farms, there will be no impact on VMC operations.

12.1.2 Flight Under Instrument Meteorological Conditions

113. Due to the location of the Platform, and the ability of helicopters to fly an approach with a slight crosswind (see Section 3.1), a usable approach arc of 9nm free from obstacles will be available. Therefore, there will be no restrictions on IMC approaches.

13 Waveney Platform

114. The Waveney NUI has a 16.01m D value helideck with a T Value of 5.3 tonnes. The platform is approved for daylight operations only.

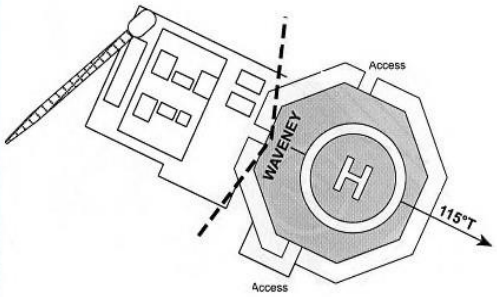
HELIDECK INFORMATION PLATE					
HELIDECK Elev **103ft**	VAR **0**	POSITION **N53 21.20 E001 18.30**	EGRE **Waveney**		
HEIGHT OF INSTALLATION: **135** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **Nil**	Issue Date **23 Apr 2020**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company **Perenco**		Issued By **Helideck Certification Agency**
HELIDECK D value: **16.01** P/R/H Category: **F** Max Weight: **5.3** Circle & H Lights: **Yes**					
 					
Wind (T°)	**Kts**	**Limitation /Comment**			
		▪ NUI ▪ Daylight Operations only - Circle and "H" lights not fitted ▪ Table 1 (T) if overflight of either access unavoidable on take-off ▪ Cleared for AW139 (6.8t)			
		Non-Compliance			
5:1		NE and SW access			
Misc		TD/PM & H Lights not fitted No automatic fire-fighting facilities Gull Scat fitted (Bird scaring system - irregular loud noises)			

Figure 13.1: Waveney Platform Information Plate

13.1 Baseline Access

115. The Waveney Platform has the Dudgeon Wind Farm to the south, providing an obstruction from 130° to 180°. As an ARA can be flown up to 30° out of wind, this will cancel the effect of the obstructions. The Project is located 8.2nm from Waveney and so will have no significant impact on access.

13.1.1 Flight Under Visual and Instrument Meteorological Conditions

116. However, Dudgeon and the Dudgeon Extension wind farms will affect access to the Platform, depending on how close turbines are built to the Dudgeon Extension boundary.

14 References

i CAA (2016). CAP 764 Policy and Guidelines on Wind Turbines. Sixth Edition. Gatwick: CAA.

ii CAA (2018). Guidance for Specific Approval for Helicopter Offshore Operations (SPA.HOFO). Gatwick: CAA. https://www.caa.co.uk/Commercial-industry/Aircraft/Operations/Types-of-operation/SPA-HOFO---Specific-approval-for-helicopter-offshore-operations/

iii CAA (2014). CAP 999 Helicopter Search and Rescue (SAR) in the UK National Approval Guidance. Second Edition. Gatwick: CAA.

iv https://www.hse.gov.uk/pubns/priced/l65.pdf

v https://www.helidecks.org/certificates/Blythe%20-%20Plate.pdf