APPENDIX 16-1

AIR SPACE ANALYSIS BALLYDERMOT WIND FARM, CYRRUS LTD

Airspace Analysis

Ballydermot Wind Farm

22 September 2026

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Executive Summary

The Ballydermot Wind Farm (i.e., the Proposed Project) is comprised of 46 wind turbine generators with 19 no. turbines having a tip height of 200m and 27 no. turbines having a tip height of 220m above ground level. It is adjacent to, or in the vicinity of, other consented windfarm developments. The initial layout included for 47 no. turbines, however following an Instrument Flight Procedure assessment which identified impact to an element of Casement Aerodrome's flight procedures, 1 no. turbine was removed.

Bord na Móna (BnM) engaged Cyrrus in 2021 in order to provide technical support to the developer with a view to mitigating Department of Defence/Irish Air Corps concerns through design initially with continued support to the Application by technically reviewing and providing feedback to responses from the Department of Defence/Irish Air Corps.

The Project Site is situated within Class G (Uncontrolled) airspace within a group of Military Operating Areas (MOA) and beneath restricted airspace designated as EI-R16. This restricted airspace is divided into different sectors and the Proposed Wind Farm site lies beneath R16 C and R16 H.

Calculation of the highest Proposed Turbine Above Mean Sea Level within the Proposed Wind Farm site of 972 feet (rounded up) demonstrates there is no penetration of the restricted airspace above the Proposed Wind Farm site, which has a base of 1500 feet Above Mean Sea Level in Sector C and 2500 feet in Sector H.

Civilian aircraft that are denied transit access to the restricted airspace above the Proposed Wind Farm site will be able to fly over or around the perimeter of the Proposed Wind Farm thus enabling them to remain clear of the R16 airspace in accordance with military Air Traffic Control instructions. However, overflight of a group of obstacles at low altitude is not a flight route that pilots would undertake without serious consideration, especially in a typical General Aviation single-engined aircraft.

Military aircraft would be able to be routed clear of the Proposed Wind Farm site if Air Traffic Control wished to position them towards an instrument approach to land at Casement Aerodrome. However, an Instrument Flight Procedure Safeguarding assessment would be recommended in order to identify any potential areas of impact on the flight procedures; this assessment has been completed and forms Appendix 16-4 to the EIAR. The Proposed Wind Farm site is in the vicinity of one of the low flying areas - Edenderry - and clarification of the scope of low flying in this area should be sought from the Air Corps to determine how any potential impact could be mitigated.

Flying in accordance with the Rules of the Air requires aircraft to maintain certain heights above obstacles in their vicinity. Flying in Class G airspace requires pilots to abide by simple rules which place the responsibility of terrain, obstacle, and aircraft-to-aircraft separation, on the pilot. A simple principle of 'see and avoid' is used worldwide by both civil and military pilots when flying in airspace that is not subject to Air Traffic Control. Maintaining both a good look out, and situational awareness, is a fundamental responsibility of the Pilot-in-Command of any flight.

Abbreviations

AGL	Above Ground Level
AIP	Aeronautical Information Publication
AMSL	Above Mean Sea Level
ATC	Air Traffic Control
DOD	Department Of Defence
FL	Flight Level
FIR	Flight information region
GND	Ground
hPa	Hectopascal
IFR	Instrument Flight rules
IMC	Instrument Meteorological Conditions
ICAO	International Civil Aviation Organisation
KM	Kilometre
MOA	Military Operating Area
NM	Nautical Mile
SARPs	Standards and Recommended Practices
SERA	Standardised European Rules of the Air
SID	Standard Instrument Departure
STAR	Standard Terminal Arrival Route
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

References

[1] AirNav Ireland Aeronautical Information Publication (online).

[2] Air Corps Wind Farm / Tall Structures Position Paper

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1. Introduction

1.1. Overview

1.1.1. MKO are undertaking environmental and planning work on behalf of BnM for a proposed wind farm development on the Offaly-Kildare border which will be known as Ballydermot Wind Farm. The Proposed Wind Farm site will consist of 46 Wind Turbine Generators (WTGs), 19 no. WTGs being 200m above ground level (AGL) and 27 no. WTGs being 220m AGL.

1.1.2. As detailed in Section 1.1.1 in Chapter 1 of the EIAR, for the purposes of the EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Enhancement Areas', 'Proposed Construction Haul Routes', 'Proposed Turbine Delivery Route', 'Project Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection', 'Proposed Onsite Substation', and 'Proposed Offsite Substation'.

1.1.2.1. The Proposed Wind Farm site represents the area encompassing the Proposed Wind Farm, the Proposed Enhancement Areas, the Proposed Onsite Substation and 0.5km of Proposed Grid Connection underground electrical cabling route; this area spans a large suite of bogs, comprising of a total of 14 no, individual bog basins, which form part of the Allen Bog Group.

1.1.3. After two rounds of Environmental Impact Assessment (EIA) scoping, the first carried out on 1 March 2021 and the second on 30 December 2025, a scoping response was received from the Department of Defence (DoD), outlining their position. A meeting was held with the DoD on the 19th of May 2026, refer to Section 2.6.4 below.

1.1.4. All information has been referenced from the Irish Aeronautical Information Publications (AIP), available online from source, and is therefore the latest available. Military aviation information has, where possible, also been referenced from online sources.

1.2. Scope

1.2.1. The scope of the assessment includes the Proposed Project and the surrounding airspace relating to its use by military aviation as well as civil aviation where that has relevance to military restricted airspace. Also covered is response received from the Department of Defence, as well as noting potential military lighting requirements and lighting requirements under the International Civil Aviation Organisation's ICAO Annex 14 Volume 1.

2. Safety and Airspace Analysis

2.1. The Existing Environment

2.1.1. Airspace, in general terms, is referred to as either controlled or uncontrolled and can be further divided into classes. Airspace is classed as A, B, C, D, E, F and G. Class B, D, E and F are not used in the Republic of Ireland. Only Classes A, C and G are in use within the Republic of Ireland, with Class A and C being examples of Controlled Airspace (CAS) and Class G being Uncontrolled Airspace. Aircraft in CAS are under positive control by Air Traffic Control (ATC) and must adhere to instructions such as route, altitude to fly and, often, speed control. In uncontrolled airspace, pilots will fly without being controlled or necessarily even monitored by ATC, and frequently, also without being in communication with them. In certain uncontrolled airspace pilots can choose to contact ATC however, so as to take advantage of the enhanced situational awareness or arguably, increased safety this brings to a flight. In such cases, ATC may be available – dependent on the level of ATC service provided (and ATC workload) – to provide flight monitoring, advice on aircraft-to-aircraft separation, and general flight support such as updates to weather information, and notice of whether restricted airspaces are available for transit.

2.1.2. Aircraft are flown under rules which govern how a flight is conducted, what navigational equipment an aircraft carries and different pilot certification. If an aircraft is being flown with sole reference to on-board instrumentation, it is known as flight under Instrument Flight Rules (IFR) and if it is being flown by reference to the natural horizon (looking outside), it is termed Visual Flight Rules (VFR).

2.1.3. Aircraft are further flown with reference to different 'heights'. If an aircraft is flown with reference to a local atmospheric pressure setting, it is said to be at an Altitude (ALT) Above Mean Sea Level (AMSL). If it is flown with reference to an internationally mandated pressure setting (known as a 'Standard Setting') of 1013.25 Hectopascal (hPa), it is referred to as being at a Flight Level (FL).

2.1.4. Just as aircraft use the above system to reference their altitude or FL, so airspace has its vertical limits referenced in the same way. Thus, a section of airspace may have a lower limit, or base, of 3500ft AMSL and an upper limit of FL250, or approximately (due to the pressure difference) 25000ft AMSL.

2.1.5. The Proposed Wind Farm site is situated in uncontrolled Class G airspace within an area designated as MOA (Military Operating Area) 4 and below a designated Restricted area – EI R16. EI R16 is comprised of seven sections of varying size and vertical limits. This is shown in **Figure 1** below. The Proposed Turbine layout indicates 27 turbines - or 59% of the total - underlying EI-R16 C and 19 turbines - or 41% of the total - underlying EI-R16 H. The MOA, as an overall airspace area, has vertical limits of the Surface (SFC) up to FL450. The R (Restricted) 16 area has different sectors, designated B through H and have the following vertical limits with arrows indicating the two sectors relevant to the Proposed Wind Farm site:

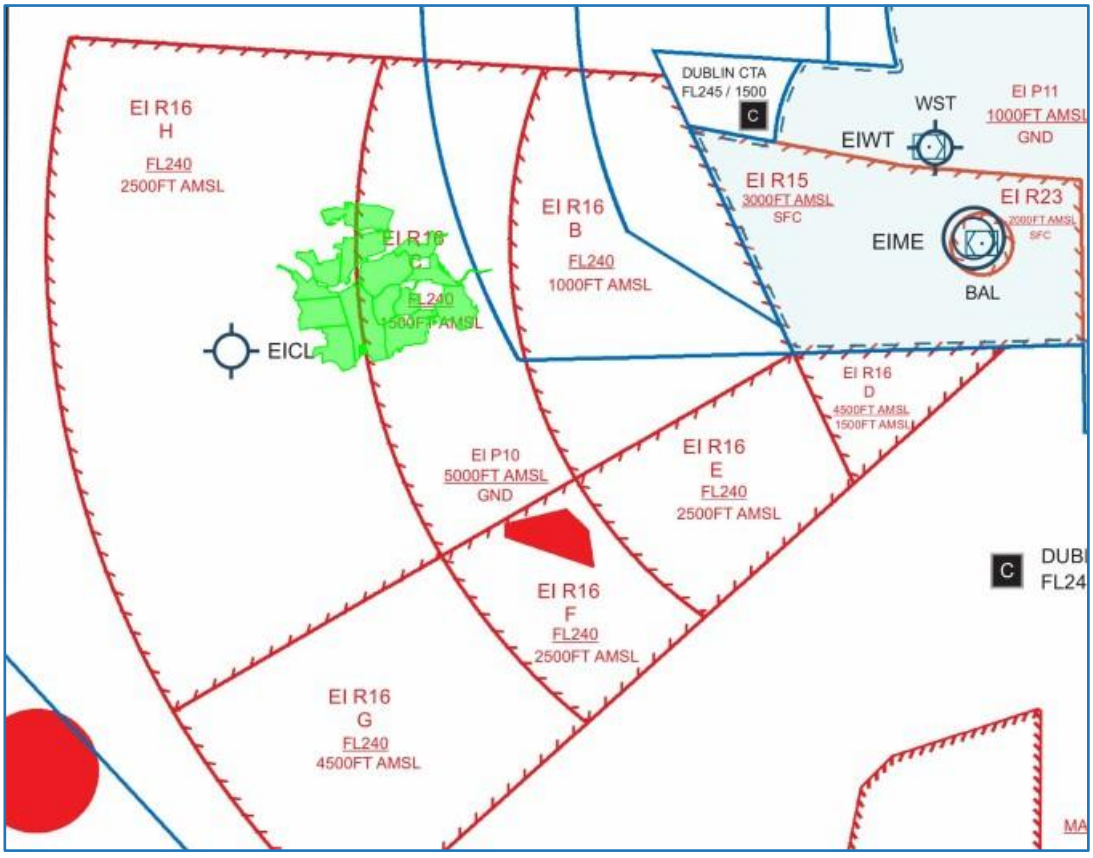
- EI R16 B 1000ft AMSL to FL240
- EI R16 C 1500ft AMSL to FL240 ⟸
- EI R16 D 1500ft AMSL to 4500ft AMSL
- EI R16 E 2500ft AMSL to FL240
- EI R16 F 2500ft AMSL to FL240
- EI R16 G 4500ft AMSL to FL240

- EI R16 H 2500ft AMSL to FL240 ⟸

2.1.6. The associated remarks published in the Irish AIP, recorded against the EI R16 area (all sections), read as follows;

Active

- *MON-FRI 0900-1730 UTC (Winter) Mon-FRI 0800-1600 UTC (Summer).*
- *May be activated at short notice outside published hours.*
- *Restricted for use by State aircraft.*
- *Penetration possible by civil aircraft provided prior permission obtained from, and subject to compliance with any conditions and instructions issued by MIL ATS, Casement Aerodrome.*
- *Aircraft must be operational Mode C transponder equipped.*
- *Information on activity status AVBL from ATS Dublin, ATS Shannon and MIL ATS 122.000 MHz.*



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Figure 1: Area of the Project Site within EI-R16C and H

2.1.7. The Proposed Wind Farm site is situated in the Offaly-Kildare border area and for all intents and purposes shares a boundary with another wind farm, Cushaling Wind Farm. That wind farm has been energised and falls within EI-R16 and MOAs 3, 4 and 5. No Department of Defence (DOD) objection was raised to its planning. Another wind farm, Drehid Wind Farm, falls within MOA4 and EI-R16, received a submission from the DOD, but was nevertheless granted consent.

2.1.8. An EIAR scoping document, providing details of the Proposed Project, was prepared by MKO and circulated to all general stakeholders in 2021 in order to determine the content, depth

and extent of the topics to be addressed in the environmental information submitted to the competent authority. An updated scoping document was issued to consultees in December 2025, reflecting the time elapsed since the previous scoping exercise, updates in local and national policy, legislation and relevant EIAR guidance, changes in the environmental baseline, and refinement of the Proposed Project layout and design. A full description of the scoping and consultation exercise, including the complete list of consultees and the responses received, is provided in Section 2.8 of Chapter 2 of this EIAR.

2.2. Submission from the DOD

2.2.1. In response to the 2021 and 2025 scoping exercise, a submission received from the DOD outlined the Irish Air Corp's position on the Proposed Wind Farm.

2.2.2. The Irish Air Corp use EI R16 and the MOA's to conduct pilot training and aircraft are positioned from within this airspace by military ATC towards an instrument approach at Casement Air Base. Flights under VFR will simply join the circuit (traffic pattern) at Casement after receiving 'joining instructions' from ATC.

2.2.3. A response was received on 1st March 2021 and 30th December 2025 detailing the DOD position on the Proposed Wind Farm.

2.2.4. The following points are summarised from both the 2021 and 2025 response due to the similarity in provided detail and, where applicable, will be addressed individually. Refer to Section 2.6.4 for detail on the meeting held with the DoD on 19th May 2026.

2.2.5. They are;

1. The Irish Air Corps use EI-R16 and the MOA's to conduct pilot training and to position aircraft under IFR for an approach at Casement Aerodrome. Instrument approach procedures are primarily conducted from the west through EI-R16. The airspace is used regularly. The area is designated in accordance with section 68 of the IAA act for use by the Defence Forces and published in ENR 5-2 of the AIP Ireland. Military aircraft may not be flying in compliance with the rules of the air.

2. The DOD is opposed to the erection of windfarms or other obstacles which will affect the ability of the Air Corps to train and operate in a safe and economic manner. Their key concerns in this regard were:

a) The proposed development is situated within the 20 Nautical Mile area of Casement Aerodrome that is protected against tall structures.

b) The proposed site is located in MOA 4 and within EI-R16. It is also situated in the Edenderry/Allenwood/Rathangan Low Flying Training Area. There is concern the proposed windfarm would negatively impact Air Corps low level flying training in the area.

c) The routes taken by Air Corps aircraft to multiple training areas in the MOA 4 and 5 would pass through the area of the proposed development. The concern is that the proposed development would reduce aircraft navigability in a large portion of the EI-R16 and MOA 4.

d) Both military and civilian aircraft transiting through this area are often instructed by military ATC to fly underneath the base level of the relevant EI-R16 sector to provide

separation between aircraft that are flying IFR in the sector and the aircraft passing below the sector. The standard minimum separation is 1000ft. The proposed windfarm may impact the ability of aircraft to transit underneath the restricted military airspace to provide IFR separation to traffic above.

3. The Scoping document refers to other windfarms already in the area in support of the submission but the DOD noted concerns with the possible cumulative effect of this.

2.3. Instrument and Visual Flying

2.3.1. The Republic of Ireland is a signatory to the International Civil Aviation Organisation (ICAO) and as such follows and adopts the Standards and Recommended Practices (SARPS). In turn, Ireland, being an EU Member State is aligned with the Standardised European Rules of the Air (SERA). Under ICAO, member states file differences in their country's rules and regulations to those of ICAO. These are then published as part of the country's Aeronautical Information System (AIS).

2.3.2. As explained previously, aircraft are flown under one of two rules; Instrument Flight Rules (IFR) or Visual Flight Rules (VFR). Flight under IFR requires far more preparation than does VFR flight as, although the IFR flight may take place in benign weather conditions, it can equally be conducted in very poor conditions where visibility is at, or almost, zero. Minimum altitudes, procedures, obstacle, and terrain clearance must all assume the pilot is flying with no outside visibility at all and are therefore very strictly devised, published, and adhered to.

2.3.3. During flight under VFR, the pilot is responsible for avoiding obstacles and terrain by directly positioning the aircraft by looking out the window. The aircraft is also navigated using maps (electronic or paper) and by using prominent landmarks such as roads, railway lines, towns, and lakes. Whilst electronic navigation aids are frequently used, the primary focus is on visual navigation.

2.3.4. Visual flight, which to a large extent, is conducted in uncontrolled airspace, is largely the responsibility of the pilot. The pilot is responsible for remaining in the airspace they have chosen to fly within, or in which they are permitted to fly, as well as being responsible for avoidance of terrain and obstacles, in compliance with the Rules of the Air.

2.4. Rules of the Air (Minimum Heights)

2.4.1. In determining to what rules aircraft flying in the vicinity of the Proposed Wind Farm site may be subject, we must consider the following extracts from the Standardised European Rules of the Air (SERA).

2.4.2. SERA.2005 *Compliance with the rules of the air*, state:

'The operation of an aircraft either in flight, on the movement area of an aerodrome or at an operating site shall be in compliance with the general rules, the applicable local provisions and, in addition, when in flight, either with:

(a) the visual flight rules; or

(b) the instrument flight rules'.

2.4.3. Aircraft are subject to strict Minimum Heights rules as well; SERA .3105 Minimum heights states:

'Except when necessary for take-off or landing, or except by permission from the competent authority, aircraft shall not be flown over the congested areas of cities, towns or settlements or over an openair assembly of persons, unless at such a height as will permit, in the event of an emergency arising, a landing to be made without undue hazard to persons or property on the surface. The minimum heights for VFR flights shall be those specified in SERA.5005(f) and minimum levels for IFR flights shall be those specified in SERA.5015(b)'.

This means that, in the first instance, any flight must be at such an altitude or Flight Level that will enable it to, as much as circumstances permit, land clear of any persons or property. Put another way, it means that any aircraft must fly high enough so as to be able to glide or otherwise, away from people or property on the ground if it experiences some kind of emergency.

2.4.4. SERA.5005(f) – (Minimum heights for) *Visual flight rules*, states:

f) Except when necessary for take-off or landing, or except by permission from the competent authority, a VFR flight shall not be flown:

(1) over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 m (1 000 ft) above the highest obstacle within a radius of 600 m from the aircraft;

(2) elsewhere than as specified in (1), at a height less than 150 m (500 ft) above the ground or water, or 150 m (500 ft) above the highest obstacle within a radius of 150 m (500 ft) from the aircraft.

It is assumed the paragraph in (2) would be relevant to the Proposed Wind Farm site's location.

This means that if an aircraft is flying in an area with no obstacles, it may fly at a height of 150m or 500ft above the surface of the ground or water. If, however, it is flying within a lateral distance of 150m or 500ft from an obstacle then it must be 150m or 500ft above that obstacle.

2.4.5. This is important to note as it relates directly to the point made in the DOD's reply Point 2 (d) about the ability of aircraft to transit the area and remain clear of the relevant EI-R16 sector.

Applying the height restriction in paragraph 2.4.4 (2) to the highest of the Proposed Turbine heights at the Proposed Wind Farm we would see an aircraft wanting to route over the Proposed Turbines having to apply 500ft vertical separation to the elevation of a Proposed Turbine (Structure height + ground height above mean sea level). Therefore, this would be 722ft + 250ft + the required 500ft above the obstacle. This would result in an altitude required of 1472ft AMSL.

The base altitude of EI-R16 C is 1500ft AMSL. Therefore, although not particularly practical, an aircraft could pass over the proposed windfarm site - and below the restricted airspace above it - whilst complying with minimum heights rules.

2.4.6. As noted in 2.1.6, as well as shown in Figure 1, approximately 40% of the Proposed Wind Farm site is situated beneath EI-R16 H, which has a base altitude of 2500ft AMSL. Using the same criteria and figures as in 2.4.5 an aircraft could easily transit overhead that part of the Proposed Wind Farm site at 1500ft altitude and be 1000ft below the restricted airspace above it.

2.4.7. A pilot may consider it more appropriate to fly over a modest portion of the Proposed Wind Farm if it were deemed more practical, for instance, than routing around the perimeter. Flying over the Proposed Wind Farm would remain an option, whilst complying with the minimum heights rule. However, in the interests of safety and airmanship (especially with regards to single-engined aircraft) most civilian pilots would avoid direct flight over any wind farm of appreciable size.

2.5. Visual / Instrument Meteorological Conditions

2.5.1. A pilot flying in accordance with VFR must, as explained, be looking out of the windscreen, and flying with visual reference to the ground and the natural horizon. In order to do this the weather conditions must also be able to support that flying. This is termed Visual Meteorological Conditions (VMC). Thus, an aircraft flying in accordance with VFR flies in VMC.

2.5.2. A pilot flying in accordance with IFR would, as explained, be operating, and navigating the aircraft by sole reference to the flight and navigation instruments fitted in the aircraft. The pilot is required to be able to see outside during take-off and in the final stages of landing. Weather that is below that which would support visual flight, and requires this type of instrument flying, is termed Instrument Meteorological Conditions (IMC).

2.5.3. A VFR pilot may only fly in VMC; but an IFR pilot may fly in both VMC and IMC.

2.5.4. The VMC weather minima is shown in table 1 below:

Altitude Band	Airspace Class	Flight Visibility	Distance from Cloud
At and above 3050m (10000ft) AMSL	A - G	8 KM	1500m horizontally and 300m(1000ft) vertically
Below 3050m (10000ft) AMSL and above 900m (3000ft) AMSL, or above 300m (1000ft) above terrain, whichever is higher	A - G	5 KM	1500m horizontally and 300m (1000ft) vertically
At and below 900m (3000ft) AMSL, or 300m (1000ft) above terrain, whichever is higher	A - E	5 KM	1500m horizontally and 300m (1000ft) vertically
	F and G	5 KM(*)	Clear of cloud and in sight of the surface

Table 1: VMC visibility and distance from cloud minima

2.5.5. *(*) When so prescribed by the competent authority:*

(a) Flight visibility reduced to not less than 1500m may be permitted for flights operating:

1. *at speeds of 140 Kts IAS or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collisions; or*
2. *In circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume of traffic and for aerial work at low levels;*

(b) helicopters may be permitted to operate in less than 1500m but not less than 800m flight visibility, if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

2.6. Response to the DOD reply

2.6.1. Following their scoping response in 2021, the below provides a detailed response to the DOD; the scoping response received in 2025 was aligned with the detail provided in 2021 and therefore the below response covers the detail provided by the DOD in both 2021 and 2025. The DOD scoping reply comprised of 3 paragraphs of which paragraph 2 was further divided into 4 points. These paragraphs will be considered individually with a view to clarifying issues, commenting on points, and raising questions where further clarification may be sought. These comments do not seek to frustrate Irish Air Corps objectives but rather hope to encourage dialogue and collaboration. This report's response to DOD comment is in blue for clarity.

1. *The Irish Air Corps uses the EI-R16 and Military Operating Areas (MOA's) to conduct pilot training and to recover aircraft making approaches under instrument flight rules to Casement Aerodrome. Instrument approach procedures to Casement Aerodrome are primarily conducted from the West though the EI-R16. The airspace is in use nearly every day of the year. This area is designated in accordance with Section 68 of the IAA Act for use by the Defence Forces and published in ENR 5-2 of AIP IRELAND. Military aircraft in this airspace may not be flying in compliance with the rules of the air.*

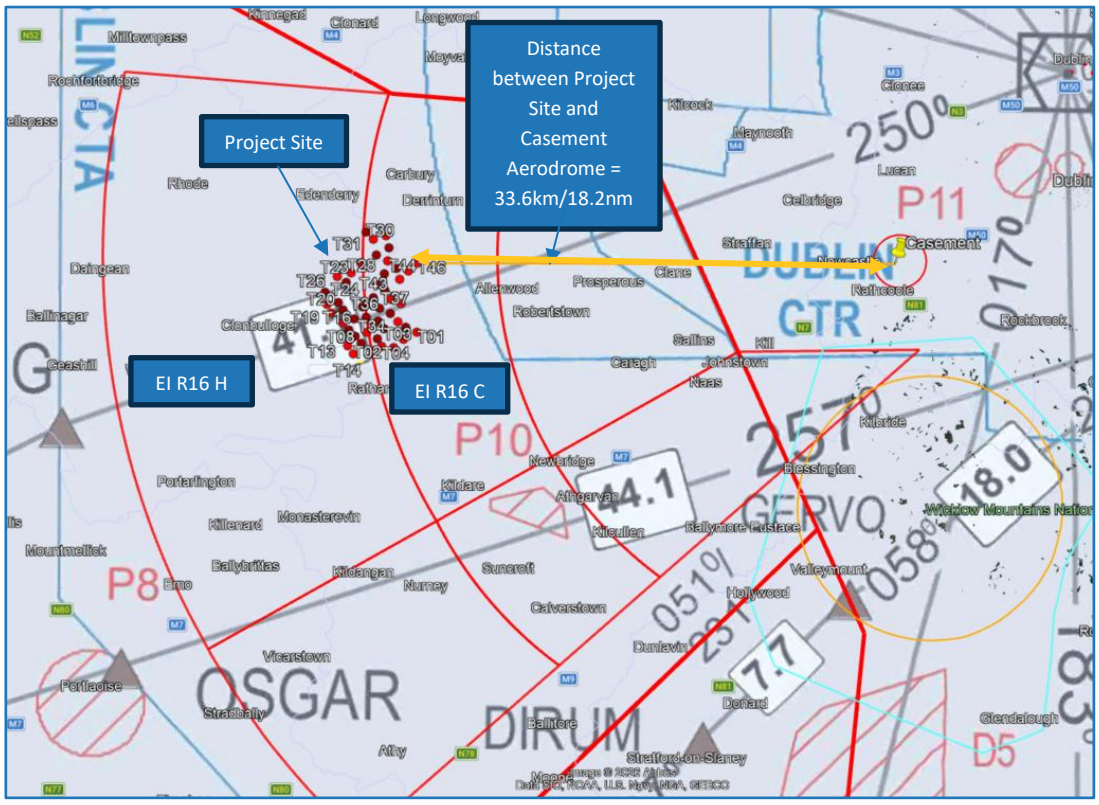
It is not disputed that the EI-R16 is correctly designated and promulgated as military restricted airspace in accordance with Section 68 of the IAA Act for use by the Irish Defence Forces and is published appropriately within the Irish AIP. Military aviation makes use of restricted airspace to conduct pilot training. Aircraft flying in the EI-R16 under IFR could be routed north of the Proposed Wind Farm site to a point where they would be vectored (provided with radar-derived headings) or would self-position to an instrument approach. However, with the height of the highest of the Proposed Turbine at approximately 972ft above sea level and the R16 airspace having a base of 1500ft AMSL there would appear to be no reason why an aircraft flying under IFR, and within the R16 sector, could not route directly over the project site at an appropriate altitude. The Project Site is approximately 18.2NM from Casement Aerodrome and it is unlikely that any initial approach fix would be at that distance from the airfield. Although the DOD, quite correctly states that military aircraft in the airspace 'may not be flying in compliance with the rules of the air' it nevertheless remains a requirement for pilots to avoid obstacles and to exercise the principle of 'see and avoid' other aircraft. Militaries worldwide generally have this proviso regarding the rules of the air but, due to safety, the rules of the air are rarely completely disregarded. Military aircraft are also aware of the fact that there may be civilian aircraft

operating in the airspace at the same time who would be complying with the Rules of the Air

2. ***The Department of Defence is opposed to the erection of wind farms or other obstacles which will affect the ability of the Air Corps to train and operate in a safe and economic manner. Some of our key concerns of the proposed wind farm at Ballydermot are as follows:***

The following 4 points (marked a-d) are preceded with the above statement which appears to be a general generic comment on all windfarm development seen as affecting Air Corps operations. Potentially, the DOD could present this comment to any application for windfarm development within the country. Irish Government policy on the development of Green Energy is outside the scope of this report.

a. ***The proposed development lies on lands underlying military airspace EI-R16 and MOA 4 within the 20 nautical miles (NM) area of Casement Aerodrome that is protected against tall structures. The nearest turbine position to Casement Aerodrome is 17.73NM from Casement Aerodrome. The approximate centre point of the wind farm as a whole is 19.5NM from Casement Aerodrome.***



© GoogleEarth

Figure 2: The Project Site shown relative to Casement Aerodrome

The distances stated are correct. The relevance of the phrase '….within the 20 nautical miles (NM) area of Casement Aerodrome that is protected against tall structures.' to any published aviation regulation is not apparent. Cyrrus is, however, familiar with the 'Air Corps Wind Farm/Tall Structures Position Paper' which appears to have been published in 2014 as a result of an internal Air Corps meeting and states the Air Corp position on tall structures and

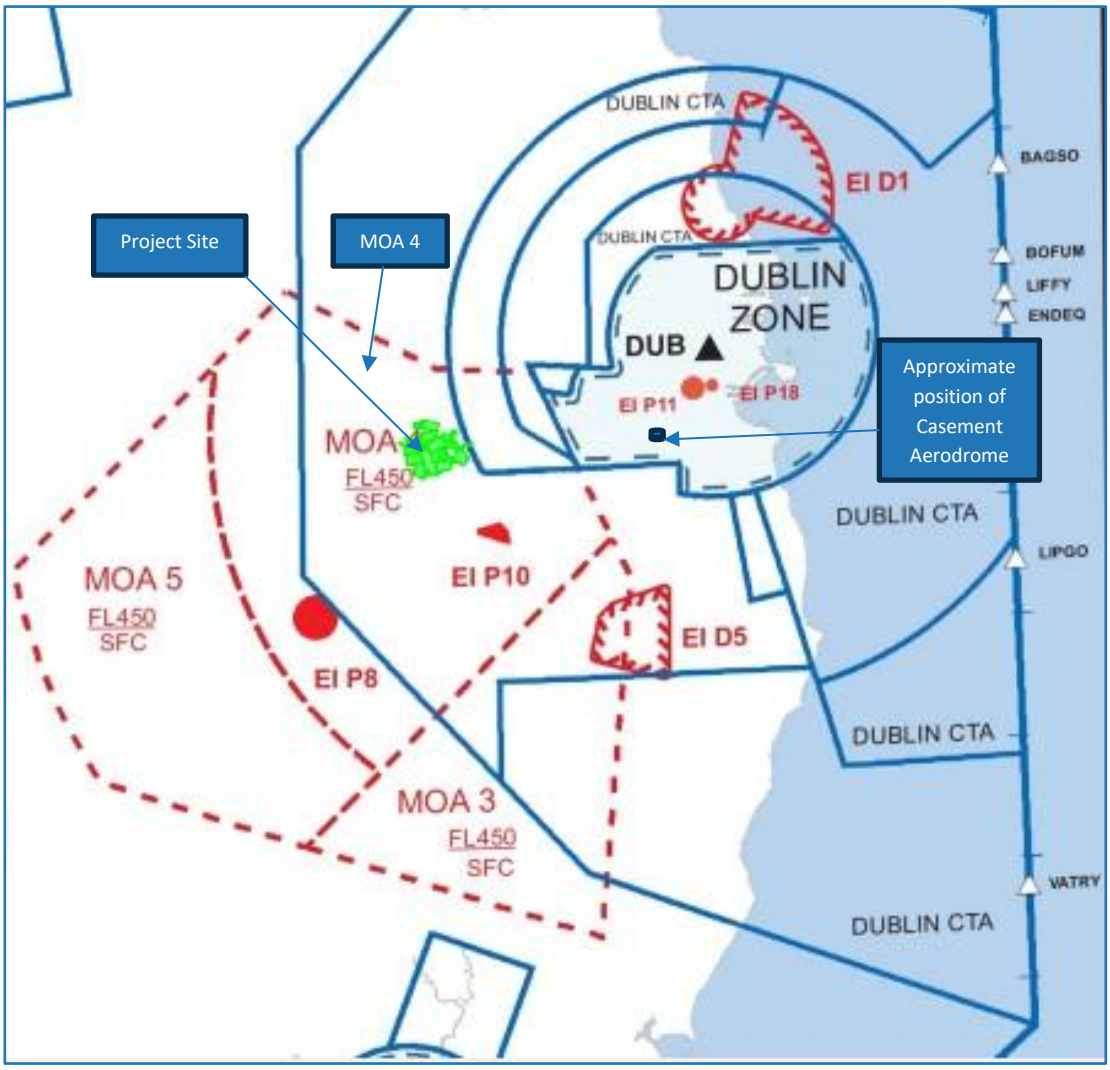
windfarms. Additionally, it presents policy restricting distances from the military aerodrome at Baldonnel and roads that form 'critical low-level routes'. The Position Paper has no basis in published aviation regulation. The Position Paper was then to be forwarded to the 'Department of the Environment, Heritage and Local government to inform its policies and guidance in respect of windfarms'. It is assumed that these departments are consultees during any planning process by developers of proposed windfarms.

b. The proposed development lies within the EI-R16 and MOA 4 and the Edenderry/Allenwood/Rathangan Low Flying Training Area. The proposed wind farm would negatively impact Air Corps low level pilot training in the area.

The Proposed Wind Farm site is within one of the low flying areas – the Edenderry area. In a meeting with the DOD on 19th May 2026 the Air Corps stated they were using the low flying training area as off-airfield landing practice areas for helicopters.

c. The routes taken by Air Corps aircraft to multiple training areas in the MOA 4 and MOA 5 pass through the area of the proposed development. The proposed development will reduce aircraft navigability in a large portion of the EI-R16 and MOA 4.

If routes followed by the Air Corps into their training areas amount to simply following roads and / or other landmarks then these can be altered to incorporate other visual positions. If an aircraft took off from Casement Aerodrome and, once clear of built-up areas, took up a heading towards the proposed windfarm site, a small heading adjustment left or right of track would avoid the proposed site. The time and distance difference is negligible. However, this is only applicable to aircraft wishing to stay low level within the airspace below EI-R16. It would be more appropriate for a military aircraft departing from Casement Aerodrome to contact their military ATC and proceed to climb into the relevant R16 sector. It must be stressed that at the turbine height proposed, there would be no penetration from the Proposed Turbines of the restricted airspace above it. Apart from the Edenderry low flying area which is affected by the Proposed Wind Farm , It is difficult to see how the Proposed Wind Farm would '*….reduce aircraft navigability in a large portion of the EI-R16 and MOA 4'*. **Figure 3** shows the proposed Ballydermot windfarm area relative to the MOA 4.



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Figure 3: The Project Site relative to Casement Aerodrome and MOA 4

d. ***Military and civil aircraft transiting the EI-16 are often instructed by Military Air Traffic Control (ATC) to track underneath the base level of the relevant EI-R16 sector to provide required separation from aircraft above that are flying under Instrument Flight Rules (IFR). This required standard aircraft separation is a minimum of 1000 feet with the base level of restricted airspace above the proposed wind farm at 1500ft above mean sea level (AMSL). The proposed wind farm may impact the ability of aircraft to transit underneath and clear of military restricted airspace to provide IFR separation to traffic above.***

It is established practice and a common occurrence for aircraft to be instructed by military ATC that they cannot be accommodated within a restricted airspace such as EI-R16 due to the airspace being busy with military training flights. Aircraft could indeed be instructed to remain clear of the airspace (either laterally or vertically) and in the case of EI-R16 this would mean flying at an altitude lower than 1500ft AMSL beneath R16 C or 2500ft AMSL beneath R16 H. This is Class G uncontrolled airspace. There is no separation criteria established between aircraft, either IFR or VFR, in Class G airspace. IFR flight in cloud (IMC; refer 2.6.2) within Class G airspace is not something undertaken lightly, as apart from flying at certain altitudes, there is nothing to separate Instrument flights from other IFR aircraft or aircraft

flying VFR that do not remain clear of cloud, i.e. there is no 'control' being applied. Both IFR and VFR flights are responsible for separation from each other and also responsible for terrain and obstacle clearance. ATC will endeavour, if requested, to provide the best level of information service they can to the aircraft so as to enable it to avoid other traffic. The provision of this flight information is usually subject to controller workload.

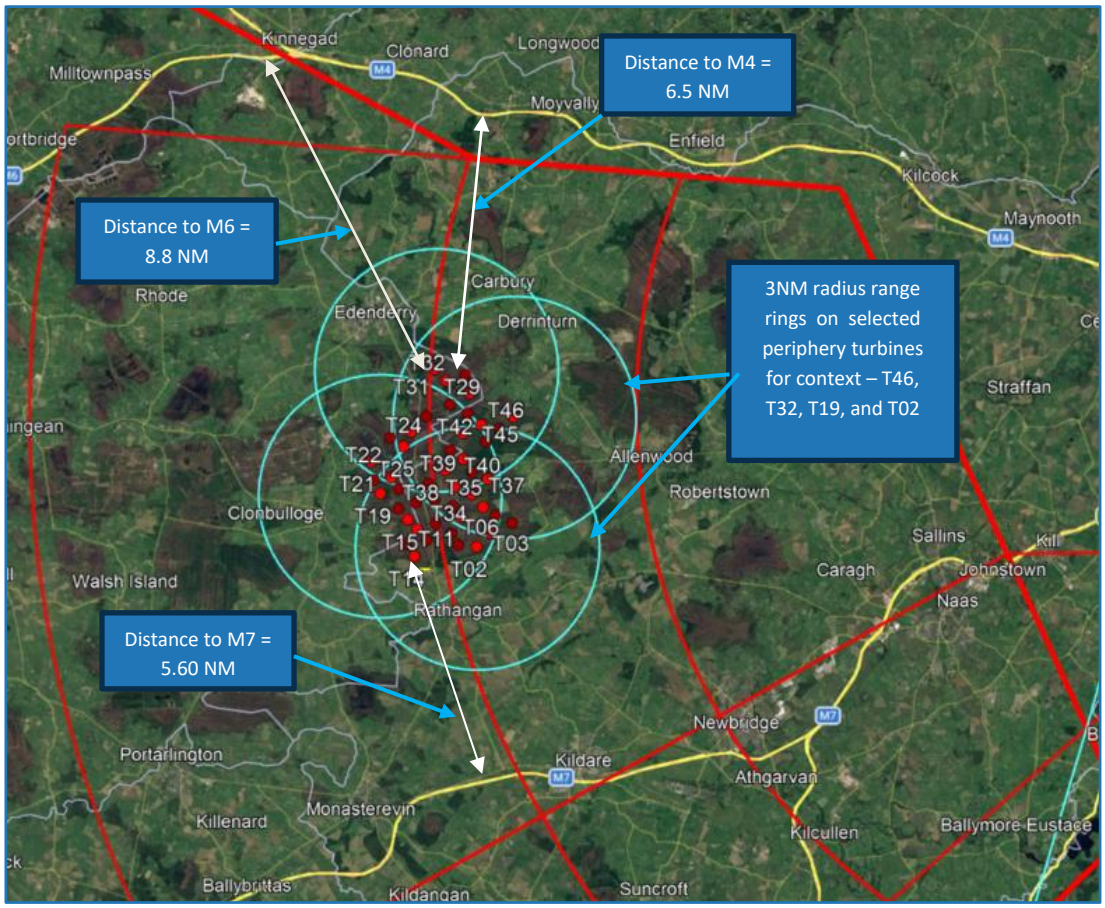
3. **The Scoping document refers to other wind farms already in the Kildare/Offaly area in support of the development. Conversely the cumulative impact of wind farms will negatively affect navigability for civil and military aircraft operating underneath and in the EI-R16 and MOA's.**

The Proposed Wind Farm site, and indeed, already established, or consented windfarm sites, are or will (if consented) be sited within Class G uncontrolled airspace. This airspace, to all intents and purposes, operates on a 'see and avoid' principle – both in terms of obstacle avoidance and aircraft to aircraft separation. VFR aircraft would have to comply with the minimum heights requirements outlined in 2.5.4 above. IFR flights would have to comply with minimum heights requirements of 300m (1000ft) above obstacles within 8 kilometres of the aircraft. In mountainous or high terrain areas (which is not applicable to the proposed site) a requirement of 600m (2000ft) above obstacles within 8 kilometres of the aircraft's position would apply. If an area is known to have several established windfarm sites, it would be easier to plan flights avoiding a particular area rather than avoiding individual windfarms in a section of airspace. This may make notification of the relevant windfarms to groups such as General Aviation (GA), simpler.

2.6.2. *The Air Corps Wind Farm/Tall Structures Position Paper identifies National roads that are 'identified as critical low-level routes' and goes on to advise that 'the Air Corps is opposed to the erection of wind farms or tall structures within 3NM of the route centreline which could affect Air Corps' ability to access regional areas'. It lists 15 National and Regional roads that the Air corps consider critical to their low-level operations and a map was included, marked as Annex D in their paper, depicting the roads. Included in this list, and pertinent to the proposed Ballydermot windfarm site are the following National roads:*

- *N/M4*
- *N/M6*
- *N/M7*

Figure 4 shows the proposed site boundary relative to the above National roads, with distances in nautical miles;



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Figure 4: The Project Site relative to National Roads and Motorways

2.6.3. From the above it is clear that distances from the Proposed Wind Farm site show values well in excess of the 3NM within which '*the Air Corps is opposed to the erection of windfarms and tall structures'*. Therefore the Proposed Project does not impact this element of the Air Corps response in any way.

2.6.4. Following the DOD scoping response in 2025, a follow up was issued to the DoD on 14th April 2026 requesting a meeting to discuss the observations made in the scoping response and aviation constraints associated with the Proposed Wind Farm. A meeting was held on 19th May 2026 with BnM, MKO, Cyrrus and Ai Bridges.

2.6.5. At the meeting on the 19th of May 2026 discussion points were centred around the restricted airspaces established above the Proposed Wind Farm as well as Low Flying Areas and the manner in which they are utilised by the Irish Air Corps. A Radar Line of Sight study has been completed for this EIAR, which was included in the presentation to the DoD. Additional points flagged by the DoD and Irish Air Corp were Aerodrome Safeguarding and Cumulative effects. The requirement to assess the potential impact on Instrument Flight Procedures (IFP) at Casement Aerodrome was outlined and the DoD recommended that a dedicated IFP assessment be carried out for the Proposed Wind Farm and included in the EIAR / planning application documents. An IFP assessment was procured and t this scope of work has been completed by Sagentia. The IFP Assessment provided as Appendix 16-4.

2.6.5.1. The DoD stated that low flying was a core skill of military flying and had to be practised. The DoD also noted the use of Edenderry Low Flying Area as a helicopter practise area for off-airfield landing training below 500ft AGL.

2.7. Fixed and Rotary Wing Aviation

2.7.1. The Irish Air Corps operate a small, modern fleet of aircraft designed to suit not only specific roles, but to lend themselves adequately to numerous other roles when required.

2.7.2. The fixed wing fleet consists of advanced training aircraft as well as multi-role light transport aircraft. The fixed wing aircraft most likely to use the EI-R16 airspace and, in doing so, also use the aircraft during low-level training, is the Pilatus PC-9. This aircraft is a highly manoeuvrable, advanced light training / close air support aircraft that may be flown by 2 pilots in a training role. It is equipped with Head-Up display to allow the pilot to monitor important flight information whilst still looking outside through the windscreen. This is useful when flying low level, allowing the crew 'see-and-avoid' potential whilst maintaining situational awareness of aircraft flight performance. The aircraft is also capable of aerobatic flight, although this would be performed at higher levels.

2.7.3. The Republic of Ireland does not currently operate any Air Combat or Interceptor Fast Jet Aircraft.

2.7.4. In addition to the fixed wing aircraft, the Air Corps also operate a number of helicopters in various roles. A helicopter is also seconded to Garda duties. The helicopter squadrons of the Air Corps appear to fill numerous and varied roles in its support of the National interest and wider community. The roles include firefighting, Search and Rescue (SAR), Medevac and other duties in the public amenity.

2.7.5. Helicopters, to a large degree, operate in the low-level environment and also under VFR a great deal of the time. Helicopter operations by institutions such as the military, Garda and Coast Guard would have robust Standard Operating Procedures (SOPs), along with highly trained crews and, in recent times, equipped with Night Vision Devices (NVDs). With the addition of Infra-Red lighting to a windfarm environment, the Proposed Turbines would be easily seen and avoided by crews wearing Night Vision Goggles (NVGs). With up to 300 windfarms in operation in Ireland at the time of writing, helicopter pilots would be familiar with flight operations in the vicinity of these sites.

2.7.6. As previously stated, the 'cumulative effect' of several windfarms within an area may have flight-planning benefits in that having an area to avoid or to fly over at a certain altitude, rather than planning different routes and/or altitudes to avoid several wind farms along the length of a flight path would be easier.

2.8. Wind Farm Lighting

The *Air Corps Wind Farm/Tall Structures Position Paper* notes the following under point e;

2.8.1. *In all locations where wind farms or masts are permitted it should be a condition that they meet the following lighting requirements*

(1) Single turbines or structures, or turbines delineating corners of a wind farm, should be illuminated by high intensity strobe lights (Red).

(2) Obstruction lighting elsewhere in a wind farm will be of a pattern that will allow the hazard to be identified and avoided by aircraft in flight.

(3) Obstruction lights used should be incandescent or of a type visible to Night Vision Equipment. Obstruction lighting fitted to obstacles must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.

2.8.2. It is assumed the developer of the Proposed Project would agree an obstacle lighting scheme to satisfy both the Irish Aviation Authority and the DoD.

3. Conclusion

3.1. The Proposed Project consists of 46 wind turbines, 19 no. having a tip height of 200mAGL and 27 no. having a tip height of 220m AGL. .

3.2. The Proposed Wind Farm site is situated in Class G, uncontrolled airspace. Although Class G, it is designated as a MOA in the first instance and secondly as Restricted airspace EI-R16. The EI-R16 is further divided into sections B to H with vertical lower limits varying between 1000ft AMSL to 4500ft AMSL. Upper limits are generally up to FL240, although one section, 'D' only has a 4500ft upper limit.

3.3. Approximately 40% of the Proposed Wind Farm site is situated beneath section 'H' (with a lower limit of 2500ft AMSL) and 60% beneath section 'C' (with a 1500ft AMSL lower limit). There is no penetration of either sections of the restricted airspace above the proposed site by either the 200 or 220 - metre-high turbines. Therefore, the Proposed Wind Farm site is wholly contained beneath the EI-R16. Given the proposed dimensions of the 200m and 220m turbines, the Proposed Wind Farm would be approximately 515ft below the base altitude of EI R16 C and 1515ft below EI R16 H. This would allow VFR traffic to transit the proposed site remaining clear of the military restricted airspace above.

3.4. As can be seen in Figure 3, the Proposed Wind Farm would comprise a small percentage of area in relation to MOA's 3, 4 and 5. Even seen individually against the MOA 4 in which it is proposed to be sited, it only constitutes a small area and thus would not 'reduce aircraft navigability in a large portion (of) the EI R16 and MOA 4'.

3.5. One of the low flying areas, namely the Edenderry Area, would appear to be in the vicinity of the Proposed Wind Farm site; during consultation on May 19th 2026, the DOD and Air Corp identified that the Edenderry Area was being used as a helicopter practise area for off-airfield landing training below 500ft AGL.

3.6. Although helicopter traffic generally operate at predominantly lower altitudes it is, in the main, flying in accordance with VFR and as such is responsible for their own separation from other aircraft, obstacles, and the surrounding terrain. Helicopter crews are very well versed in the avoidance of obstacles due to the nature of the majority of the type of flying undertaken.

3.7. Civil aircraft are able to request permission to enter the restricted R16 airspace by contacting Military ATC at Casement Aerodrome. They will be handled appropriate to the flight situation within the restricted airspace and controller workload and may or may not be granted permission to route through the airspace. The height of the Proposed Turbines at the Project Site would allow civil aircraft to fly across, or in the vicinity of, the Proposed Wind Farm site without entering the restricted airspace above the Proposed Turbines.

3.8. The Proposed Wind Farm site is located further than the 3NM from any of the National roads that the Irish Air Corps note in their Air Corps Wind Farm/Tall Structures Position Paper.

3.9. With a world-wide embracing of green energy and Governments setting ambitious targets on the road to a Zero Carbon future, the landscape of our daily lives will feature wind turbines, both on and offshore. Any potential impact on aviation will require consultation with, and the co-operation of, stakeholders.

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