APPENDIX 15-6

Aviation Review Statement

Response to Irish Air Corps Position on 3 Nautical Mile Designated Road Restriction

Killoshulan Wind Farm

MKO Ireland

11 September 2026

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Executive Summary

The Proposed Wind Farm is located within Military Operating Area 5 and is outside of the 20 nautical mile notification distance from Casement Aerodrome as stated in the Air Corps Wind Farm/Tall Structures Position Paper. The site is also outside of any low flying areas designated by the Air Corps.

The Proposed Wind Farm is within the 3 nautical mile buffer associated with a small section of a national motorway, specifically the M8. Assessment shows that an aircraft using the motorway as a visual guide and passing the Proposed Wind Farm, would be less than the prescribed 3 nautical miles from a wind turbine for an extremely limited time.

The concerns the Irish Air Corps have in relation to flying relate directly to Visual Flight Rules flight and must therefore be judged on the criteria applicable to those flight rules. Minimum heights regulation requires pilots to increase their altitude by 500 feet above the highest obstacle within 500 feet laterally of the aircraft. The M8 motorway lies nearly *22 times* this distance from the closest wind turbine.

The viability of a 3 nautical mile safeguarding zone either side of a designated motorway is questionable. This safeguarding requirement is not formally documented, nor is it based on any Irish Aviation Authority or Eurocontrol legal requirement or operational guidance. There are also no published procedures for Department of Defence aircraft to route in reference to the motorways or formal requirements for this operation.

If indeed the motorways are being used as geographical line features by which to navigate in weather conditions of poor visibility the existence of a 3 nautical mile distance either side of the road median will not be able to be utilised, as attempting to maintain visual contact during the flight would be impossible at that distance.

The Air Corps cannot expect an obstacle-free environment in which to train or conduct its daily flight tasks. Obstacles are a normal, everyday part of aviation and are mitigated against by assessment, regulation, documentation, notification and by compliance with the Rules of the Air.

Indeed, in a marked response to the consultant, the Irish Aviation Authority, as the Country's aviation regulator, did not refer to the 3 nautical mile Air Corps policy in any way whatsoever. This bears testament to the fact that this Air Corps policy has no basis in aviation regulation. The regulator is responsible for writing aviation regulation, regulatory compliance, and the upholding of standards relating to airports, airspace and flight operations.

It is this report's opinion that the position adopted by the Irish Air Corps is no longer compatible with the aspirations of the onshore renewables industry in attempting to meet climate change related targets and that the 12-year-old *Air Corps Wind Farm/Tall Structures Position Paper* requires urgent updating to accommodate Ireland's zero-carbon targets.

Unless this onerous buffer distance can be negotiated with the Air Corps through constructive engagement, the onshore wind farm industry in Ireland is likely to face continued objection by the Defence Forces on at least this one issue.

Abbreviations

AGL	Above Ground Level
ALT	Altitude
AMSL	Above Mean Sea Level
ATC	Air Traffic Control
CAS	Controlled Airspace
DOD	Department of Defence
EU	European Union
FL	Flight Level
FT	Feet
hPA	Hectopascal
IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
KM	Kilometre
M	Metre
MOA	Military Operating Area
NM	Nautical Mile
SARPs	Standards and Recommended Practices
SERA	Standardised European Rules of the Air
VFR	Visual Flight Rules

References

[1] *Air Corps Wind Farm/Tall Structures Position Paper*, 2014.

[2] Air Corps – Defence Forces https://www.military.ie/en/who-we-are/air-corps

[3] SERA https://www.easa.europa.eu/en/document-library/easy-access-rules/easy-access-rules-standardised-european-rules-air

[4] Irish Air Corps – Wikipedia https://en.wikipedia.org/wiki/Irish_Air_Corps

[5] The Author of the report spent 12 years as an Air Traffic Controller, both Military and Civilian, has been an Airline and Corporate Pilot for 23 years, and retains both UK CAA and FAA Airline Transport Pilots Licences.

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1. Introduction

1.1. Overview

1.1.1. MKO Ireland are progressing a wind farm project in Killoshulan, Co. Kilkenny approximately 4.6 kilometres (KM) west of the village of Freshford.

1.1.2. The Proposed Development will likely comprise of 10 no. wind turbines with a maximum tip height of 185 metres (M) Above Ground Level (AGL).

1.1.3. An initial round of scoping was conducted in September 2022 under a scoping request titled *'211027 - EIA Scoping Document for the Proposed Renewable Energy Development in the townland of Killoshulan and adjacent townlands in County Kilkenny'*. As part of an on-going, updated scoping exercise, additional contact was made in May 2026 when the Department of Defence (DOD) was scoped and a response was received on 15 June 2026.

1.1.4. The DOD response made the following observations:

- *The N8 route is identified as an Irish Air Corps low level route. The location of structures higher than 45m above ground within 3NM of the route centreline of low level routes should be considered.*
- *The proposed wind farm may affect the Air Corps ability to access regional areas to the south especially in poor weather conditions.*
- *The cumulative effect of renewable energy developments has the potential to impede the Irish Air Corps operability.*
- *All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent. If LED or other lighting types are used, should be a type visible to Night Vision equipment. Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.*
- *In the event of negative impacts on future military radar systems, the owner will engage with the Department of Defence and will provide suitable mitigations as soon as practical.*

1.1.5. Commentary was sought by the consultant from the Irish aviation regulator - the Irish Aviation Authority (IAA) on the 8th May 2026 and received a response on the 19th May 2026. This response will be explored later in the report.

1.2. Scope

1.2.1. The scope of this report will concern itself with the first point of the DOD observations, above.

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

2. Safety and Airspace Analysis

2.1. The Existing Environment

2.1.1. It is difficult to comment on the DOD's response to scoping – and in particular the ongoing objection the Air Corps has regarding tall structures built within 3 nautical miles (NM) of a national road or motorway within Ireland – without explaining the basic fundamentals of airspace and how it is used by aircraft flying under one of two flight rules.

2.1.2. 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. Classes B, D, E and F are not used in the Republic of Ireland. Only Classes A, C and G are in use within 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.

2.1.3. Aircraft are flown under rules which govern how a flight is conducted, what navigational equipment an aircraft carries and different pilot certifications. 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).

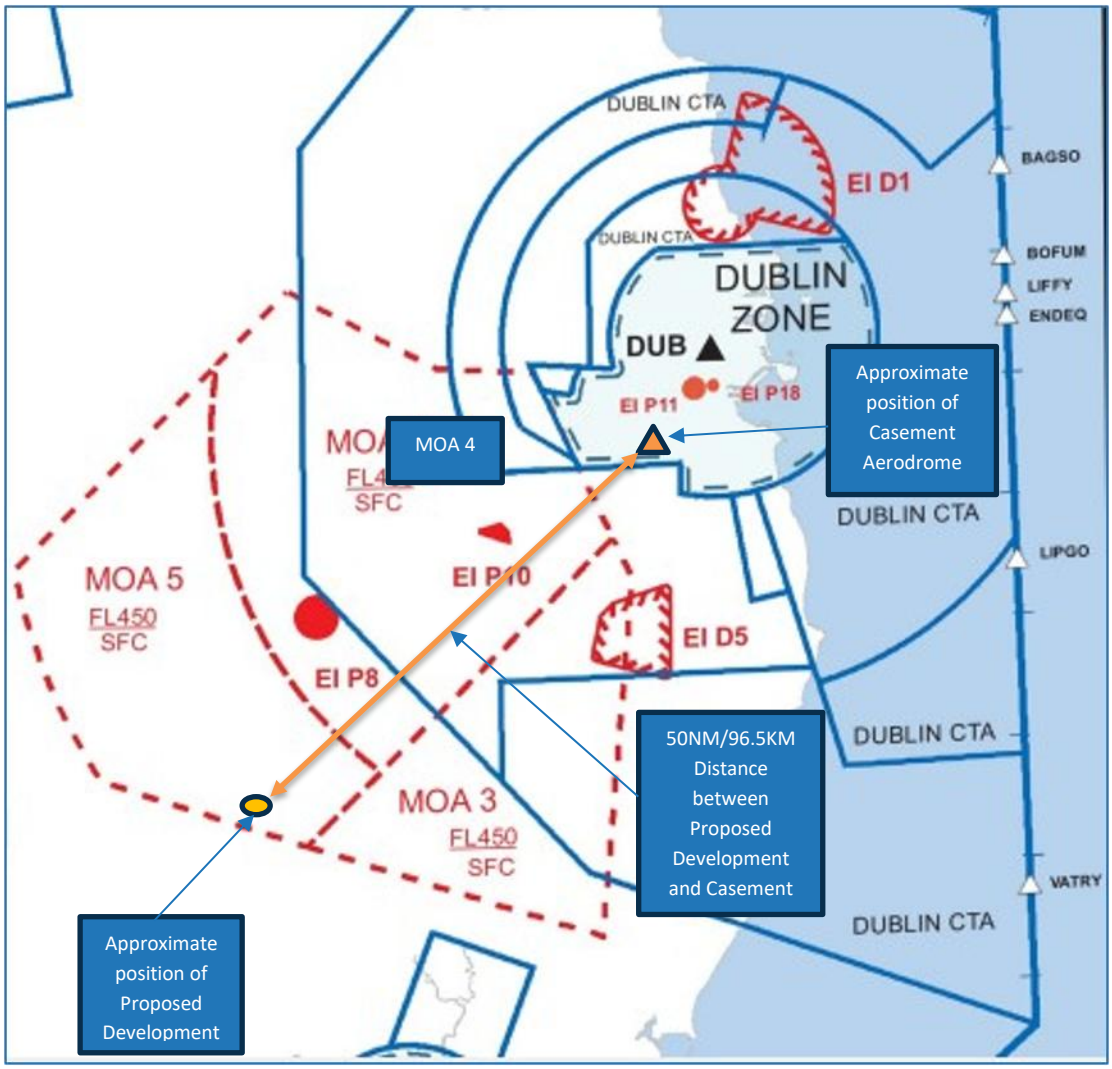
2.1.4. Aircraft are further flown with reference to different 'heights'. If an aircraft is flown with reference to a local atmospheric pressure setting, it is said to be at an Altitude (ALT) Above Mean Sea Level (AMSL). If it is flown with reference to an internationally mandated pressure setting (known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

2.1.5. An area of transition exists between these two different 'height' references known as the Transition Layer, which is made up of a lower boundary, termed the Transition Altitude and a top layer known as the Transition Level. Aircraft flying at or below the Transition Altitude fly with reference to the local atmospheric pressure and at or above the Transition Level with reference to the Standard Setting. The Transition Altitude at airports within the Shannon Flight Information region (FIR) is 5,000ft AMSL. This system allows aircraft to fly in proximity to one another with reference to a common datum, thereby facilitating separation by ATC or pilot-to-pilot of aircraft in uncontrolled airspace.

2.1.6. Just as aircraft use the above system to reference their altitude or Flight Level, so airspace has its vertical limits referenced in the same way. Thus, a section of airspace may have a

lower limit, or base, of 3,500ft AMSL and an upper limit of FL250, or approximately (due to the pressure difference) 25,000ft AMSL.

2.1.7. The Proposed Development is situated in uncontrolled Class G airspace within an area designated as MOA (Military Operating Area) 5. The MOA has vertical limits of the Surface (SFC) up to FL450. The three MOAs can be seen below in Figure 1;



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Figure 1: Military Operating Areas. The Proposed Development is located in MOA 5 and its approximate position is shown.

2.2. Statutory Instruments – S.I. No. 215/2005 – Irish Aviation Authority (Obstacles To Aircraft in Flight) Order, 2005

2.2.1. Statutory Instrument (S.I) 215 of 2005 outlines the following:

- Applicability
- Definition of an Obstacle
- Reporting and Information in respect of Obstacles

- Marking and Lighting of Obstacles
- Directions
- Guidance Material

2.2.2. **Applicability** - *This Order shall apply to existing and proposed manmade objects of permanent or temporary construction or alteration and apparatus of a permanent or temporary nature or any alteration thereto objects of natural growth and terrain. The standards shall apply to the use of navigable airspace by aircraft and to existing or proposed air navigation facilities, licensed aerodromes, air traffic services routes including approach and departure routes to and from instrument and other runways.*

2.2.3. **Definition of an Obstacle** - An existing object, including a mobile object, is and a future object would be, an obstacle to air navigation if it is of greater height than any of the following heights or surfaces:

(a) A height of 45 metres above ground or water surface level at the site of the object or an object which otherwise constitutes an en-route obstacle or a potential en-route obstacle in accordance with this Order;

(b) A height within a runway approach area, a runway departure area or a circling approach area, which would result in the vertical distance between any point on the object and the established minimum instrument flight altitude or height as specified for the aerodrome concerned in the "AIP Ireland" within that area to be less than the required obstacle clearance. The analysis of the significance of such obstacles may have to be determined by an aeronautical study in accordance with subparagraph (4) of Article 5 of this Order;

(c) The surface of an obstacle limitation surface as defined in Chapter 4 of Annex 14 to the Convention;

(d) The surface of an obstacle protection surface as defined in Chapter 5 of Annex 14 to the Convention;

(e) An inclined plane surface, with a slope of either 1.2 per cent or 1.0 per cent superimposed on a take-off flight path area and extending either to 10 kilometres or 12 kilometres respectively from the end of the runway concerned as specified in Chapter 3 of Annex 4.

(2) The surfaces specified in paragraph (1) above may also be defined in relation to a specific aerodrome on a safeguarding map prepared by or on behalf of the aerodrome licensee and lodged with the local Authority responsible for planning in the vicinity of that aerodrome under the Planning and Development Act 2000 .

(3) The dimensions, orientation and characteristics of these surfaces are defined in Annexes 4 and 14 to the Convention as appropriate in relation to runway size and use at the aerodrome concerned.

2.2.4. **Reporting and Information in respect of Obstacles –**

(1) A person shall not cause to be erected or constructed an object as defined in sub-paragraph (a of paragraph (1) of Article 4 of this Order without first notifying the Authority in writing of that intended erection or construction at least thirty days prior to such erection or construction and shall provide such information in relation thereto to the Authority as may be requested under paragraph (3) of this Article.
(Note: This requirement is separate from any permission required to be obtained under the Planning and Development Act, 2000 in respect of the said erection or construction).

(2) A person shall not cause to be erected or constructed any object as defined in Article 4 of this Order within a radius of 10 kilometres of a licensed aerodrome without first notifying the aerodrome licensee of that aerodrome in writing of that intended erection or construction at least thirty days prior to such erection or construction and shall, additionally and where requested provide such information in relation thereto to the Authority as may be required under paragraph (3) of this Article.
(Note: This requirement is separate from any permission required to be obtained under the Planning and Development Act, 2000 in respect of the said erection or construction).

(3) The Authority may require a person as specified in paragraphs (1) or (2) of this Article to make available to it information relating to an obstacle, including its geographic latitude and longitude, elevation and height.

(4) The Authority may require the conduct of an aeronautical study for the purposes of sub-paragraph (b) of paragraph (1) of Article 4 of this Order or otherwise if it considers it necessary in a particular case.

2.2.5. **Marking and Lighting of Obstacles –**

The Authority may require the marking and lighting of an obstacle defined in accordance with Article 4 of this Order in accordance with such instructions as the Authority may give in a particular case or by a direction under this Order to a person as specified in paragraphs (1) or (2) of Article 5 of this Order or to any other person or organisation as appropriate.

2.2.6. **Direction** –

The Authority may give directions in relation to such matters to which the Order relates. Directions under this Order may be issued as Notices to Aerodrome Licensees, Aeronautical Information Circulars, by public notice or by private notice in writing sent by post or by electronic means to the organisation, person or persons affected.

2.2.7. **Guidance Material** –

The Authority may from time to time publish or otherwise provide guidance documentation on the determination and classification of obstacles for the purposes of this Order.

3. Instrument and Visual Flying

3.1. Overview

3.1.1. In considering the 3NM restriction that the Air Corps seeks to impose on developers of tall structures across Ireland, the two rules under which flight must be conducted – and the regulation that accompanies the rules – must be understood.

3.1.2. 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).

3.1.3. As explained previously, aircraft are flown under one of two rules: IFR or 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. In general, the IFR flight is conducted in accordance with rules that must assume the pilot cannot see anything outside. Minimum altitudes, procedures, obstacle, and terrain clearance must all assume the pilot is flying with no outside visual reference at all and are therefore very strictly devised, published, and adhered to. IFR aircraft use ground-based electronic navigation aids and, increasingly, satellite-based en-route navigation and approach procedures.

3.1.4. 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. Electronic navigation aids are frequently used (if the pilot is qualified to do so), but the primary focus remains that of visual navigation.

3.1.5. IFR flight, depending on the ATC service being provided, and the airspace it is being provided in, is very dependent on ATC for determining where the aircraft is routed and at what altitude/level it flies. Visual flight, which to a large extent is conducted in uncontrolled airspace, is largely the responsibility of the pilot. They are 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.

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

3.1.7. SERA.2005 *Compliance with the rules of the air*, states:

'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'.

3.1.8. Therefore, we can clearly see that any flight *must* be conducted in accordance with one of the above.

3.2. Visual / Instrument Meteorological Conditions

3.2.1. 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.

3.2.2. 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. Apart from the obvious exception of thunderstorms, extreme weather, and icing, the IFR pilot is not concerned with weather conditions per se and has no requirement to be able to see outside. The pilot is required to be able to see outside during take-off and in the final stages of landing. Weather that requires this type of instrument flying is termed Instrument Meteorological Conditions (IMC).

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

3.2.4. The VMC weather minima are 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

©Standardised European Rules of the Air (SERA)

Table 1: VMC visibility and distance from cloud minima

(*) 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.

3.3. Rules of the Air (Minimum Heights)

3.3.1. The Irish Air Corps are concerned about the ability of military aircraft to navigate the MOAs and to transit from one area to another, especially during poor weather.

3.3.2. The table above clearly states the flight visibility and distance from cloud requirements associated with lower-altitude flight. In Class G airspace, at and below 900m (3,000ft) AMSL, or 300m (1,000ft) above terrain, whichever is higher, the flight visibility required is 5KM. This can be reduced for helicopters to 1,500m, but not less than 800m.

3.3.3. However, what does not change is the distance from cloud requirement which maintains a condition to fly '*clear of cloud and in sight of the ground'.*

3.3.4. In order to comply with this condition a pilot cannot simply fly beneath cloud at a very low altitude. The pilot is required to observe a rule which prevents low level flight in order to simply comply with the VMC table. This rule is known as Minimum Heights.

3.3.5. SERA .3105 *Minimum heights* states:

3.3.6. '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)'.

3.3.7. This simply 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 any malfunction which prevents the aircraft from remaining airborne.

3.3.8. 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.

3.3.9. It is assumed the paragraph in (2) would be relevant to the proposed site's location.

4. Air Corps Wind Farm/Tall Structures Position Paper

4.1. Overview

4.1.1. Cyrrus is familiar with the '*Air Corps Wind Farm/Tall Structures Position Paper'*. This position paper was published in 2014 as a result of an internal Air Corps meeting and puts into place, firstly, the Air Corps position on tall structures and windfarms and, secondly, restrictive distances from the military aerodrome at Baldonnel and roads that form *'critical low-level routes'*, that the Air Corps saw fit to impose at the time. This paper appears to have no basis in aviation law or regulation and seems to be purely a result of an internal Air Corps process. The 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*.'.

4.1.2. The Paper has as its objective the following:

- *Air Corps operations and training may be accomplished in a safe and economical manner;*
- *Baldonnel remains a viable aerodrome for IFR and VFR traffic;*
- *The ability to train military flying skills is protected;*
- *Vital navigation routes to and from the regions to Baldonnel and the Dublin area are protected to safeguard the ability of the Air Corps to fulfil its role.*

4.1.3. The Air Corps states in Section 2 of the Paper, Statement of position, that;

a. The Air Corps is opposed the erection of wind farms or other obstacles which will affect its ability to train and operate in a safe and economic manner.

b. The Air Corps is opposed to any wind farms or tall structures in the following areas:

(1) Lands underlying military airspace used for flying activity

(a) The area contained in Danger Area EI-D1.
(b) The area contained in Danger Area EI-D5.
(c) The area contained within Danger Area EI-D6.
(d) The area contained within Danger Area EI-D13.
(e) The area contained within Danger Area EI-D14.
(f) The area contained within Restricted Area EI-R15.
(g) The area contained within Restricted Area EI-R16 within 20NM of Baldonnel.
(h) *The area contained within Military Operating Areas, MOAs 3 and 4 within 20NM* of Baldonnel.

(2) Areas wherein military flying occurs at low level as identified in the annexes listed below.

(1) Low flying training areas within MOA4 in the areas of
a. Blessington
b. Edenderry/Allenwood/Rathangan
c. Kilmeague/Newbridge

(2) Low flying training area West (LFTA WEST)

(3) A distance of 5NM or less from military installations.

(C) The following routes are identified as critical low level routes in support of Air Corps operational requirements and 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.

(a) N/M1
(b) N/M2
(c) N/M3
(d) N/M4
(e) N/M6
(f) N/M7
(g) N/M8 
(h) N/M9
(i) N/M11
(j) N25
(k) N17 between Sligo and Knock
(l) N15/N13 between Sligo and Letterkenny
(m) N14 from Lifford to Letterkenny and R245 and R2476 from Letterkenny to Fanad Head

Applications or proposals for structures in these areas of a height greater than 45m above ground level at the site of the object must be referred to Irish Air Corps for assessment of potential impact on flight operations.

5. The Wind Farm

5.1. Overview

5.1.1. It is apparent that the Proposed Development does not infringe any of the airspace set out in (1) and (2) in 4.1.3 above. The development site is also approximately 50NM (96.5KM) from Baldonnel/Casement Aerodrome which is outside of all aviation safeguarding considerations.

5.1.2. However, the wind farm lies in the vicinity of a section of the M8 motorway (arrowed) which is aligned approximately in a northeast – southwest orientation and is located at a distance of 1.8NM at the closest point of the wind farm - Turbine 7 (T7) - and the motorway.

5.1.3. This places the majority of turbines less than the 3NM distance within which the *'Air Corps is opposed to the erection of wind farms or tall structures*'.

5.1.4. The wind farm will have 10 no. turbines at a maximum tip height of 185m AGL. With elevations ranging from a highest turbine foundation of 317m to the lowest of 195.5m, the maximum tip heights AMSL will range from the highest (T5) at 502m (1,647ft) to the lowest (T2) at 380m (1,247ft).

5.1.5. The airspace in which the wind farm is located is Class G, uncontrolled airspace. However, this section of Class G airspace is notified as an MOA. This affords it recognition as airspace in which the military operate and serves as a reminder for civilian pilots to exercise caution during flight within the area.

5.1.6. MOA 5 has vertical dimensions of SFC (the earth's surface) to FL450. This equates to approximately 45,000ft AMSL. The approximation is due to variances in atmospheric pressure against which altimetry is measured. Therefore, the wind farm is located inside the MOA.

5.2. The Air Corps

5.2.1. The Air Corps has historically held the position that they require a 3NM 'buffer', free of any wind turbines or other tall structures, either side of the centreline of a list of major roads within Ireland.

5.2.2. The type of flight the Air Corps is conducting must be established in terms of under what flight rules the flight is being operated.

5.2.3. The Position Paper states: *'The following routes are identified as critical low level routes in support of Air Corps operational requirements and 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.'* The paragraph mentions '*low Level routes*' and '*…. route centreline which could affect Air Corps' ability to access regional areas'*. These indicate that the type of flying which is of concern to the Corps is being conducted under VFR. As was noted in paragraphs 2.1.3 and 3.1.4, VFR flight is flown in such a way that visual reference to the natural horizon is being maintained in order to orientate the aircraft spatially and

man-made and natural features are used to determine the aircraft's position in order to facilitate navigation.

5.2.4. Such visual flying requires visual weather conditions. Should these weather conditions fall below those required for VFR flight then the flight *must* comply with IFR. Flight in accordance with IFR requires a step change in compliance with regulation and minima and requirements such as distance from obstacles (man-made or natural), separation from other aircraft and aircraft equipment all increase significantly.

5.2.5. It is shown in Table 1 that at lower altitudes which are aligned with the Air Corps words '*low level'* at 'at or below 900m (3,000ft)…' and within Class G airspace, the flight visibility should be 5KM. The distance an aircraft should be from cloud is 'clear of cloud and in sight of the surface'.

The flight visibility may be reduced to 1,500m or even 800m (for helicopters) when '*at speeds of 140 Kts IAS or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collisions'* and '*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'.*

Finally, the caveat for helicopters reads '*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.'*

5.2.6. It has therefore been established that:

- The Air Corps aircraft concerned with the issue of the 3NM 'buffer' are being operated under VFR
- VFR flights (military or civilian) operate by orientating the aircraft and navigating by the pilot looking out of the window
- A table of weather conditions, established under Standardised European Rules of the Air, provides the visibility and distance-from-cloud requirements for visual flight
- The visibility requirements, including those reduced for helicopters, all provide the reason for certain visibility requirements which is '…..*adequate opportunity to observe other traffic or* ***any obstacles*** *in time to avoid collision.'* (Author's emphasis)

5.2.7. Further facts associated with VFR flight are the *Minimum Heights* requirements:

- A VFR flight must not operate lower than 500ft above the ground unless taking off or landing
- A VFR flight must pass no less than 500ft above the highest obstacle within 500ft of the aircraft

5.2.8. Should a VFR flight wish to operate in close proximity to the proposed wind farm then the highest obstacle would be T6 (see paragraph 5.1.4) at 1,647ft AMSL. The pilot would be required, **if** within 500ft laterally of the turbine, to add 500ft to this height therefore making 2,147ft AMSL. This would be the minimum legal altitude a VFR flight could maintain whilst passing within 500ft laterally of the wind turbine.

5.2.9. However, **outside** of 500ft lateral distance from a wind turbine, or any other obstacle, the pilot of a VFR flight is legally entitled to fly at 500ft above the ground.

5.3. Flight in the Area – Practical Application

5.3.1. Obstacles are encountered everywhere in aviation. From airport equipment as aircraft manoeuvre around an airport, to terrain en-route - obstacle such as trees, buildings, masts and wind turbines in the vicinity of the airport, are required to be avoided by pilots.

5.3.2. Whilst flying VFR, pilots are responsible for identifying obstacles and flying their aircraft a safe distance from them in a process known as 'see-and-avoid'. This, for the most part, also applies to avoiding other aircraft in the vicinity as well.

5.3.3. IFR flight is different in that the pilot may be in weather conditions that preclude them from seeing obstacles such as terrain, buildings, masts and, indeed, other aircraft. Therefore, far stricter criteria and regulation is applied to the IFR flight. Flight paths across countries are safeguarded against high terrain and once the aircraft descends towards an airport it will enter a highly regulated and designed environment of procedures that are safeguarded by very specific criteria in order to land safely – sometimes in little or zero visibility.

5.3.4. Therefore, there is a completely different approach when comparing the two different flight rules.

5.3.5. The 3NM buffer that the Air Corps require as a condition in their Position Paper can only relate to VFR flight. This is because the requirement directly links it with navigation along motorways. There are no aviation electronic aids established on these roads so the only way to use these roads for navigation is visually – hence this requirement can only be applied to VFR flight.

5.3.6. Military aviation world-wide generally publish a caveat to its flight documentation that military aircraft do not always adhere to civil flight rules. Whilst this is easily done in an area where no civil aircraft are allowed and the flight is responsible simply to itself, it becomes a somewhat more complex issue when civil aircraft may be in the vicinity; and more importantly, entitled to be in the area.

5.3.7. Military aircraft are under the same obligation as civil flights when flying under VFR to utilise the 'see-and-avoid' principle, especially when in airspace that may be used by both. In such airspace it would be potentially unsafe to fly in contravention of civilian regulation as the civil flights would be adhering to that convention.

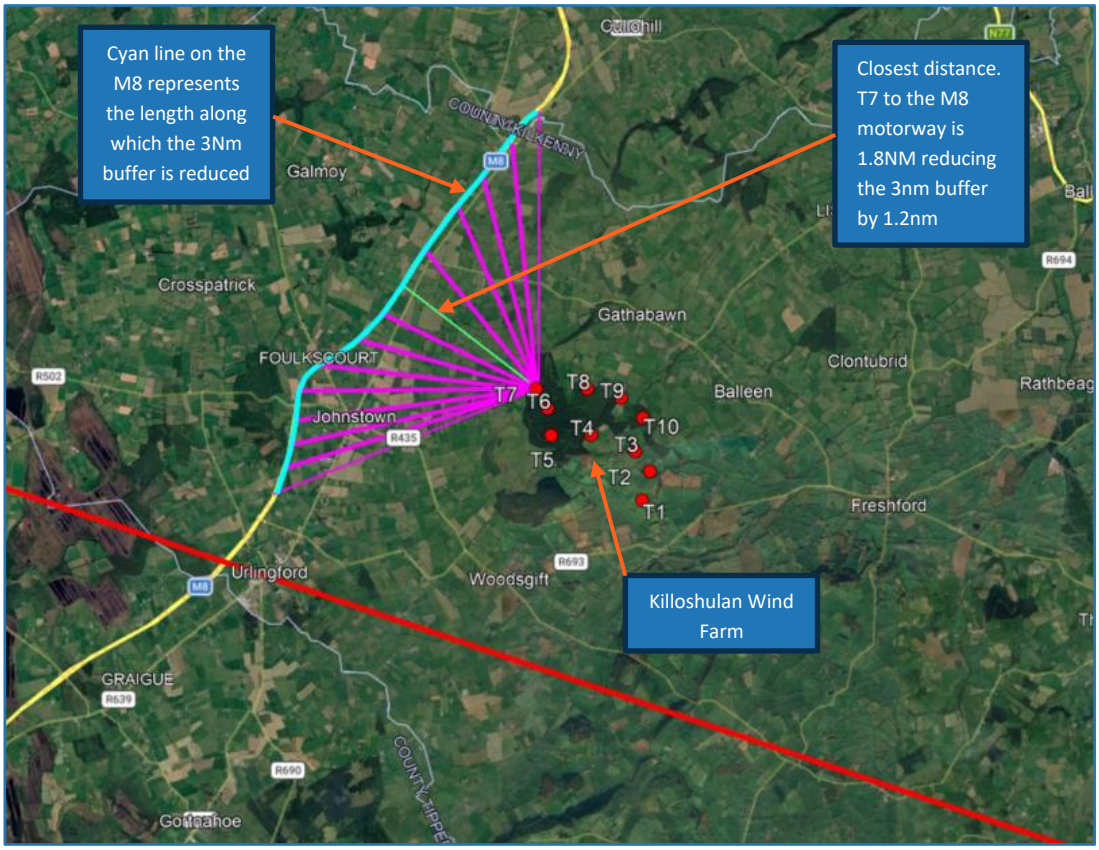
5.3.8. Some countries' Air Forces have an additional caveat that notes that military aircraft will not conform to civil regulation only in times of war or national emergency.

5.3.9. As stated in Section 3.3, certain minimum heights must be observed whilst operating an aircraft under VFR. This, quite simply, states that if an aircraft is being flown within 500ft laterally or vertically of an obstacle, it must ensure it is 500ft above that obstacle.

5.4. The 3 Nautical Mile 'Buffer'

5.4.1. The wind farm is at a distance of 1.8NM from the M8 motorway at its closest point (T7). Therefore, the 3NM buffer is infringed by 1.2NM or a 40% reduction in buffer distance.

5.4.2. 1NM = 6076 feet. Therefore the 1.8NM distance equates to 10,937ft. This is nearly 22 times the required distance laterally from an obstacle which would require a pilot to add 500ft to their altitude in order to meet minimum heights requirements.



©GoogleEarth/Cyrrus

Figure 2: Killoshulan Wind Farm, its distance from the M8, and length of motorway affected

5.4.3. The length of motorway which represents a reduction in the 3NM buffer is 5.15NM long. A helicopter is used as an example as this is the principal area of concern for the Air Corps. A helicopter of the types used by the Air Corps would cruise at an airspeed of approximately 140 knots. The length of road subject to the reduction in the 3NM buffer distance would be flown in 2 minutes 12 seconds in still air conditions at that speed. Even if a lower speed of 100 knots were assumed due to weather conditions of reduced visibility, the distance would be completed in a little over 3 minutes. At higher speeds such as that associated with the fixed-wing turbo-prop training aircraft used by the Air Corps, a distance of 5.15Nm would be completed in 1 minute 24 seconds at a speed of 220 knots.

5.4.4. A 3-minute period where a reduction in distance from an obstacle is reduced from 3NM to a *minimum* of 1.8Nm is not significant. Especially where the distance involved is not in line with, nor required by, any conventional obstacle clearance criteria for VFR flight.

5.4.5. A flight along this portion of the M8 would also need to take into account the sharply rising terrain to the east of the motorway. Terrain is also an obstacle to flight. This steeply rising terrain starts at 1.6NM from the motorway. Even if the wind farm were not being considered, the likelihood of the aircraft being able to utilise the full extent of the 3NM buffer under reduced visibility conditions due to the rising terrain is questionable.

5.4.6. Flying along a motorway at low level, and in reduced visibility, is not without risk. The greatest risk, at the extremes of low level flight and manoeuvring , would be bridges and overhead gantries. Telecoms masts and High Mast Lighting (HML) would also pose a threat. However, any flight in such weather would also have to remain in sight of the motorway as the Air Corps have stated they use it for navigation. The utility of the 3NM buffer must be questioned under such conditions as, during flight under reduced visibility conditions, even a displacement several hundred metres laterally from a visual target can result in the loss of visual contact.

5.4.7. Aircraft should also, when following a line feature, for example roads, railway lines, rivers etc, keep the line feature on their left. This provides a small degree of separation between opposite-direction flights. This does not, however, allow pilots to stop using the see-and-avoid technique and they would remain responsible for the aircraft's separation from terrain, obstacles, and other aircraft.

5.4.8. It is acknowledged that the Air Corps provide vital support to communities, especially the more rural ones, in terms of emergency medical support and search and rescue flights. These flights would, at times, operate in poor weather conditions across the country and the motorway system may very well be helpful to a limited degree. However, with the use of Global Positioning Systems (GPS) being commonplace, modern aircraft – even small, privately owned ones – provide capabilities in navigation and situational awareness far greater than large passenger jets did just a decade ago.

5.4.9. The Irish Air Corps provides helicopters and crews for Garda duties and for emergency medical evacuation taskings. These helicopter missions will be flown by highly trained and experienced crews, and it would be unusual for helicopters engaged on such missions to be following roads and not flying direct routes to hospitals etc.

5.4.10. Taking the Air Corps position into account, one may form the view that the motorways should provide an 'obstacle-free' zone as an alternative to needing to avoid obstacles such as wind turbines if a more direct route were flown. The environment that modern aircraft and their pilots operate in have numerous obstacles. The VFR pilot is required to adhere to a 'see-and-avoid' regime. Obstacles are marked and/or lit and they are published within flight documentation by the IAA. Pre-flight planning is a requirement of *any* flight and pilots are required to make themselves familiar with the route, airspace, weather, airport details and any obstacles en-route such as high terrain, wind farms or high masts.

6. Addressing the Reduction of the 3NM Buffer

6.1. Overview

6.2. It is unreasonable for the Air Corps to expect a completely obstacle-free environment in which to both train and carry out their daily tasks. All pilots, civil and military, are trained to plan their flights in accordance with national regulations, taking note of obstacles, airspace, and altitude restrictions and to fly accordingly. Military pilots are amongst the most highly trained pilots in the aviation industry and very often have to operate in extremely adverse conditions. An environment in which obstacles would have to be mitigated against by appropriate flight planning should not present any undue operational difficulties to military aircrew.

6.3. The Position Paper was published in 2014 as a result of an internal Air Corps meeting. It has no basis in aviation regulation, and appears to be purely a result of an internal Air Corps process. The 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*.'.

6.4. Apart from being presented with this Paper, it is not known whether any clarification was requested by the above mentioned Department in order for it to better understand what it was being asked to consider when forming '*… its policies and guidance in respect of windfarms'.*

6.5. The Department of Defence was scoped in May 2026 and responded in June 2026. In this response the DOD stated their concern at the proposed wind farm's location within 3NM of the M8.

6.6. As stated in the introduction to this report, the consultants sought comment from the aviation regulator, the IAA, on 8th May 2026 with regard to the proposed wind farm and received a response on the 19th May 2026.

6.7. The response addressed three areas which appeared to be of importance to the regulator, namely:

- Advice to the consultant regarding early engagement with AirNav Ireland in order to identify potential impact to elements of aviation safeguarding falling under Communication, Navigation, Surveillance (CNS);
- Engagement with the DOD with regard to the '*…safety of helicopter operations in the general area.';* and
- General requirements relating to notification of obstacles, use of cranes during construction, and provision of an '*..aeronautical obstacle warning light scheme*..' to the completed wind farm.

6.7.1. It is important to note that the regulator, in their capacity of writing and oversight of aviation regulation, did not mention the 3NM buffer which is unfortunately often misconstrued as *regulation,* which it is not. It cannot be emphasised enough that the 3NM buffer policy position as presented by the Air Corps has no standing within aviation regulation and therefore, correctly, was not mentioned in the IAA's response to the consultant.

6.8. Helicopters are very often engaged in aeromedical missions and are ideally suited to this role. Many smaller countries, such as the Republic of Ireland, operate these services which are critical to rural communities through the country's Defence Forces. Civilian helicopters on these types of tasks safely deal with a complex obstacle environment on a daily basis and there should be no difference whatsoever when such flight taskings are undertaken by the military.

6.9. From a practical point of view there is very little, if anything, a developer can do when a project is being considered within the 3NM buffer of an Air Corps-named motorway. Redesign of turbine layouts may or may not be an option, as would removal of certain turbines within wind farm sites. These options would obviously only be available should the wind farm site be a certain distance from the motorway. If a site, as in Killoshulan's case, had the majority of its turbine positions infringing the 3NM buffer the number of turbines requiring deletion from the site plan would almost certainly make the project commercially unviable. Even at a distance at which these options could possibly be considered, the deletion of even one or two turbines may make a wind farm project impossible to consider.

7. Conclusion

7.1. Overview

7.1.1. Although wind turbines *do* constitute an obstacle to aviation, the risk is managed through regulation and the regulated dissemination of obstacle information to the sector.

7.1.2. The Proposed Wind Farm is within the 3NM buffer zone that the Air Corps has noted in its Air Corps Wind Farm/Tall Structures Position Paper. The site is 1.8NM at its closest point (T7) from the M8 motorway, which is one of the designated roads noted in the Paper.

7.1.3. VFR flight is conducted on a principle known as see-and-avoid. The onus, in unregulated and uncontrolled airspace, is firmly on the pilot to fly in such a way that the aircraft is safely separated from risk of collision with other aircraft and a regulated distance, both vertically and laterally, from obstacles. A military aircraft is no different. Despite the Air Corps possible intention of using the right of military aircraft to fly contrary to civil regulation to justify its policies, the military will always endeavour to fly safely. It is not in their interest to disregard their crew's safety along with the safety of civilian aircraft and the general public.

7.1.4. This issue remains predicated on visual flying – if one is stating that aircraft are using the motorways '*..as vital navigation routes…'*, then one cannot conclude otherwise. This would require the pilot to not only be keeping the motorway in sight (for navigation) but looking for obstacles as well. This may take the form of lighting at junctions or telecoms masts, etc. It remains unclear where the 3NM distance restriction originates. If any low level flight in poor weather were being carried out with visual reference to a motorway, then having an aircraft displaced 3NM from the road would preclude any opportunity for flight with visual reference to it.

7.1.5. In a response to the consultants seeking comment from the IAA regarding the proposed wind farm it is notable and important that the IAA did not mention the Air Corps 3NM buffer policy in any way whatsoever. This is understandable and aligns with the fact that the policy has no standing in aviation regulation - for which the IAA is directly responsible as the country's aviation regulator.

7.1.6. It is this report's contention that the Air Corps Wind Farm/Tall Structures Position Paper no longer aligns with current thinking in the era of climate change and renewable energy Government targets. If the motorways *are* actually being used as navigational routes by the Air Corps, then some form of obstacle-free zone either side of the road median may be a good idea. However, given the enormous task facing Ireland, and other nations, in meeting the targets of a carbon-free future, onerous restrictions like these may prevent this being achieved. A more pragmatic solution should be developed by the Air Corps.

7.1.7. Unless this buffer distance can be negotiated with the Air Corps through constructive engagement, the onshore wind farm industry in Ireland is likely to face continued objection by the Defence Forces on at least this one issue.

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