 <small>Total Communications Solutions</small>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

# Report


## *Ballincor Wind Farm Aviation Review Statement*

**Document Number:** 001/BR1025

**Author:** PT\DMG

**Approved for Release:** Rev 3.0      KH      **Date:** 11/03/26

**Document Filename:** *Ballincor Wind Farm - Aviation Review Statement*

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

# Executive Summary

Ai Bridges Ltd have been commissioned to review the possible impacts of the proposed wind farm on aviation systems in the vicinity of the proposed wind farm development at Ballincor, Co Offaly. As part of the review, the following subjects were considered:

- Annex 14 - Obstacle Limitation Surfaces (OLS)
- Annex 15 – Aerodrome Surfaces
- Building Restricted Areas (BRAs)
- Minimum Sector Altitudes (MSA)
- Instrument Flight Procedures
- Permitted Wind Farms in vicinity of Proposed Wind Farm
- Communication and Navigation Systems
- Radar Surveillance Sensors
- Flight Inspection and Calibration
- Aeronautical Obstacle Warning Light Scheme
- Private Airfields (VFR Flying)
- Irish Air Corps / Department of Defence Safeguarding
- Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)


## Annex 14 - Obstacles Limitation Surfaces (OLS)

A review shows that the proposed wind farm would be located outside the Outer Horizontal Surface of the Shannon Runway Obstacle Limitation Surfaces (OLS), as defined in ICAO (International Civil Aviation Organization) Annex 14.

As the proposed wind farm is situated outside the Outer Horizontal Surface and there is no penetration of the take-off or approach surfaces, it is unlikely that there will be any impacts to the OLS surfaces for Shannon Airport.

## Annex 15 - Aerodrome Surfaces

Following a review of “Terrain and Obstacle Requirements” as defined in ICAO Annex 15, turbines at the proposed development would need to be registered if they are more than 100 meters above terrain. The distance from the centre point (ARP – Airport Reference Point) of Shannon Airport to the boundary of Area 1 of the Annex 15 Aerodrome Surface is 45 km. This area encloses the TMA area i.e. Total Maneuvering Area and this is used for circling and maneuvering by aircraft. Should the proposed windfarm be permitted, the turbines would be outside 45 km of Shannon Airport’s ARP and would not cause an impact on the Annex 15 Aerodrome Surface. However, the proposed turbines would be required to be included in the IAA Electronic Air Navigation Obstacle Dataset.

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

### **Building Restricted Areas (BRA)**

A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with the potential for causing unacceptable interference to navigation facilities. A review shows that the proposed wind farm is over 65 km from the BRAs at Shannon Airport. At this distance there will be no impacts to the BRAs due to wind turbines at Ballincor.

### **Minimum Sector Altitudes (MSA)**

The Minimum Sector Altitudes (MSA) is the lowest altitude which may be used to provide a minimum obstacle clearance of 1000ft above all obstacles within a sector of 25 nautical miles (46km) from the VOR/DME at Shannon Airport. As the proposed wind farm is located outside the MSA Sectors for Shannon Airport, there should be no impact on the published MSA altitudes.

### **Instrument Flight Procedures**

There are nine published Instrument Flight Procedures for flights to/from Shannon Airport. A review of the IFPs show that due to the distance of the proposed wind farm from the airport, and as there are existing obstacles nearer to the airport than the proposed development, there should be no impacts to the published instrument flight procedures.

### **Communications, Navigation Systems**


As the proposed wind farm is more than 70 km from the Localizer and transmitting antennas at Shannon Airport, it is very unlikely that wind turbines at the proposed development will have any impact on these ATS communications and radio navigational aids.

### **Radar Surveillance Sensors**

For Radar Surveillance Systems, EUROCONTROL Guidelines require a 16 km safe distance from the surveillance radar system (SSR), for a “Zone 4 - No Assessment” condition. It has been highlighted in the analysis that turbines located at the proposed farm would be located at a distance of more than 60 km from the radar stations at Shannon and Woodcock Hill, and in Assessment Zone 4 of the EUROCONTROL Guidelines. As turbines at the proposed development would be located in Assessment Zone 4, a detailed impact assessment on Radar Surveillance Systems will not be required by the IAA.

### **Flight Inspection and Calibration**

Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an IAA approved Flight Inspection Service Provider. The checks are carried out during annual inspections consisting of radial and orbital test flights around Shannon Airport for calibration of instrument landing systems. It is unlikely that the Flight Inspection Procedures will be impacted as the

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

proposed wind farm is sufficiently far from the airport runways and the flight inspection procedures should already account for the existing obstacles (e.g. terrain and existing wind farms).

### **Aeronautical Obstacle Warning Light Scheme**

In the event of a grant of planning consent the IAA are likely to request lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed development would be considered as an en-route obstacle.

### **Private Airfields**

The nearest of the proposed turbines at Ballincor would be 3.9 km from Birr Airfield. The airfield is a privately owned airfield with a grass-strip runway. The airfield is licensed with the IAA but has a relatively small runway (Code 1) and operates in Class G uncontrolled airspace under VFR (Visual Flight Rules) only. For licensed code1 runways, a 2.7 km Obstacle Free Zone around the runway should be observed. The proposed turbines would not penetrate this zone and would have no impact to flights to/from the airfield.


It should also be noted that the Irish Skydiving Club also conduct occasional parachute drops at this airfield. The landing area designated by a parachute center for a parachutist to land on is usually known as the Drop zone (DZ). In Ireland the DZ is not regulated by the IAA (Ref. *IAA – Information for Persons engaged in Parachuting in Ireland*), however the Civil Aviation Authority (CAA) states that a Drop Zone should be at least 2.8 km from the center of the Parachute Landing Area. The proposed turbines would not penetrate this zone and would have no impact to aviation activity in the airfield (i.e. including parachute drops).

### **Irish Air Corps / Department of Defence (DoD) Safeguarding**

The Irish Air Corps position on wind farms / tall structures are outlined in the paper which was published in 2014: “*Air Corps Wind Farm/ Tall Structures Position Paper*”. In the position paper the Irish Air Corps outlines restricted areas where they would object to the installation of wind turbines /tall structures. The areas defined by the Air Corps have been mapped and analysis shows that the proposed wind farm site is located outside the restricted areas. As the proposed wind farm is not located in a restricted area it should have no impacts on the Irish Air Corps activities.


### **Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)**

The standard concerns that are being raised in recent consultations with the Irish Air Corps highlight the potential for obstacles to impact the operations of the Garda Air Support Unit (GASU) and the Emergency Aeromedical Service (EAS). An assessment of the GASU and EAS operations indicate that they are unlikely to be impacted by the proposed wind farm development.

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## Abbreviations

AGL	Above Ground Level
AIP	Aeronautical Information Publication
AMSL	Above Mean Sea Level
ARP	Airport Reference Point
BRA	Building Restricted Area
DME	Distance Measuring Equipment
DoD	Department of Defence
EAS	Emergency Aeromedical Service
GASU	Garda Air Support Unit
GP	Glide Path
HLS	Helicopter Landing Site
ICAO	International Civil Aviation Organization
IFP	Instrument flight Procedure
ILS	Instrument Landing System
OLS	Obstacle Limitation Surface
PSR	Primary Surveillance Radar
RWY	Runway
SID	Standard Instrument Departure Route
STAR	Standard Arrival Route
SSR	Secondary Surveillance Radar
NATS	National Air Traffic Services (UK)
NM	Nautical Miles
OLS	Obstacle Limitation Surface
VOR	VHF Omni-directional Range Station


	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## Sections

1. Introduction .....	7
1.1 Wind Farm Site Information .....	7
1.2 Shannon Airport .....	8
2. Aviation Review .....	9
2.1 Annex 14 Obstacle Limitation Surfaces (OLS) .....	10
2.2 Annex 15 Aerodrome Surfaces .....	11
2.3 Building Restricted Areas (BRAs) .....	13
2.4 Minimum Sector Altitudes .....	14
2.5 Instrument Flight Procedures .....	15
2.6 Permitted Wind Farms in vicinity of Proposed Wind Farm .....	16
2.7 Communication and Navigation Systems .....	17
2.8 Radar Surveillance Sensors .....	18
2.9 Flight Inspection and Calibration .....	22
2.10 Aeronautical Obstacle Warning Light Scheme .....	23
2.11 Private Airfields (VFR Flying) .....	24
2.12 Irish Air Corps / DoD Safeguarding .....	27
2.13 Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS) .....	29
3. Summary .....	34

## Appendices

Appendix A – ICAO Annex 15 Area 1 and Area 2 Surfaces .....	35
Appendix B – ICAO Building Restricted Areas .....	36
Appendix C – Air Corps Wind Farm / Tall Structures Position Paper .....	37

 Total Communications Solutions	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

# 1. Introduction

This section provides a brief summary of the proposed wind farm development at Ballincor and of the nearest significant aviation installation at Shannon Airport.

## 1.1 Wind Farm Site Information

The proposed wind farm development is located in County Offaly approximately 75 km northeast of Shannon Airport. Figure 1 shows the proposed wind farm site with respect to Shannon Airport, and the IAA radar stations at Shannon, County Clare and Woodcock Hill, County Clare.



Figure 1. Location of proposed wind farm at Ballincor

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 1.2 Shannon Airport

Table 2 below shows the co-ordinates of Shannon Airport and the distance from the Airport reference Point (ARP) to the proposed wind farm site. Shannon Airport operates in Class C controlled airspace with Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) Flight rules.


Location	Installation	Description	Airport Ref. Point ARP	ARP Distance to Proposed Wind Farm
Shannon, Co Clare	International Airport	Single Asphalt Runway Airspace: Class C	52 42 07 N 008 55 29 W (Mid-point of Runway 06/24).	75 km

**Table 1. Shannon Airport Details**

The aeronautical navigation aids at the aerodrome include DVOR/DME, NDB, ILS LOC and ILS GP.



**Figure 2. Shannon International Airport**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2. Aviation Review

In this section a review of the following Aviation topics is provided.

- Annex 14 - Obstacle Limitation Surfaces (OLS)
- Annex 15 – Aerodrome Surfaces
- Building Restricted Areas (BRA)
- Minimum Sector Altitudes (MSA)
- Instrument Flight Procedures
- Permitted Wind Farms in vicinity of proposed Wind Farm
- Communications, Navigation Systems
- Radar Surveillance Sensors
- Flight Inspection and Calibration
- Aeronautical Obstacle Warning Light Scheme
- Private Airfields (VFR Flying)
- Irish Air Corps / DoD Safeguarding
- Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.1 Annex 14 Obstacle Limitation Surfaces (OLS)

A review of the Annex 14 Obstacles Limitation Surfaces (OLS) was first carried out by first plotting the proposed wind farm location and the airport obstacle surfaces. The obstacle limitation surfaces for Shannon Airport are plotted based on the following:

- Annex 14 to the Convention on International Civil Aviation Aerodromes Volume I - Aerodrome Design and Operations Seventh Edition July 2016”
- Certification Specifications and Guidance Material for Aerodromes Design CS-ADR-DSN Issue 4, 8th of December 2017


Figure 3 below shows the Shannon Airport OLS in relation to the proposed wind farm at Ballincor. The distance from the ARP at Shannon Airport (i.e the runway centre-point), to the nearest point of the proposed turbines is 75 km. The analysis of the OLS plots indicates that turbines at the proposed development would not penetrate the Outer Horizontal Surface which extends to 15 km from the Airport Reference Point (ARP) or runway centre-point.



**Figure 3. Ballincor Wind Farm in relation to Shannon Airport OLS.**

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Annex 14 Obstacle Limitation Surfaces	No action	None

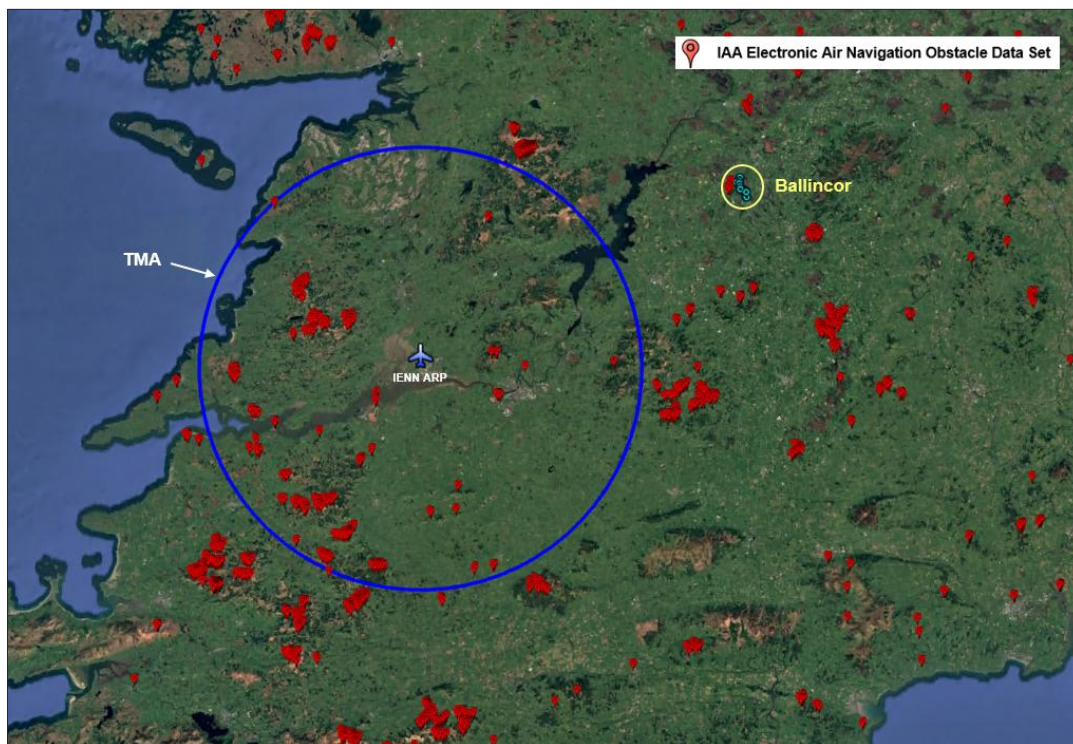
**Table 2. Aviation Impact Review - Annex 14 Obstacle Limitation Surfaces**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.2 Annex 15 Aerodrome Surfaces

Turbines at the proposed wind farm would not penetrate the ICAO Annex 15 Aerodrome Surface as shown in Figure 4. The “*Terrain and Obstacle Requirements Area*” is defined in ICAO Annex 15 as an area of up to 45 km from the Aerodrome ARP. (An illustration of ICAO Annex 15 Area 1 and Area 2 Surface is provided in Appendix A).

As the nearest turbine at the proposed wind farm would be more than 70 km from the ARP at Shannon Airport, there will be no penetration of the Annex 15 surface for the Shannon Aerodrome. All obstacles, if they are more than 100 meters above terrain for a distance of up to 45 km from the ARP, need to be registered in the IAA Air Navigation Obstacle Data Set. This area is known as the TMA area i.e. Terminal Maneuvering Area and is used for en-route circling and maneuvering and is shown in Figure 4.

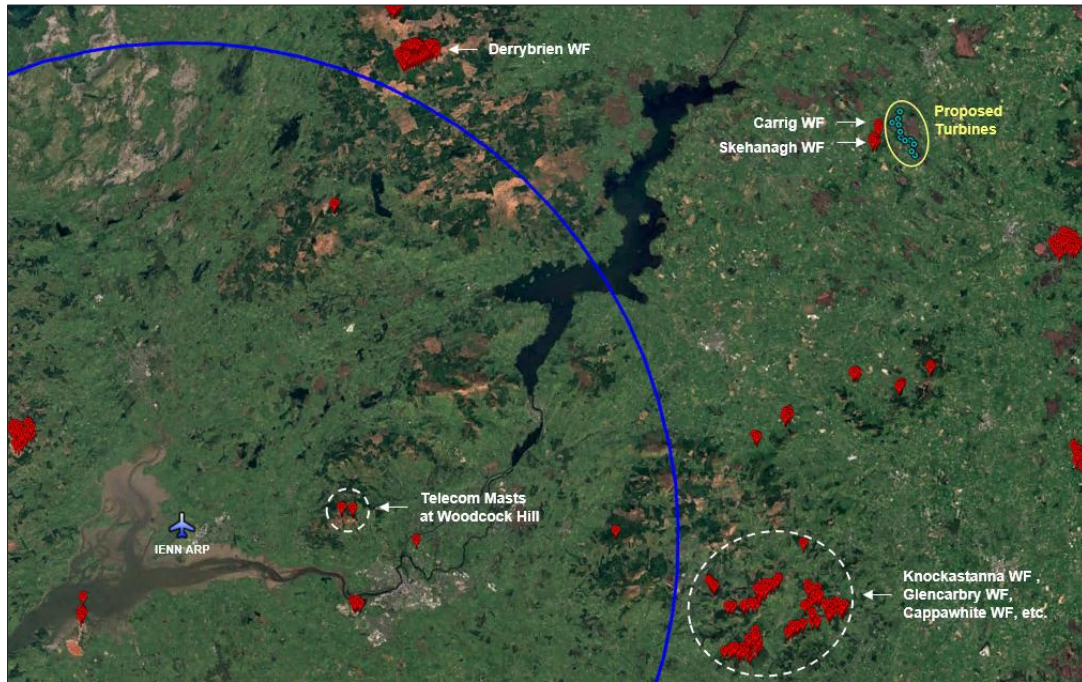


**Figure 4. Annex 15 Aerodrome Surface and IAA Electronic Air Navigation Obstacle Data Set**

It should also be noted that there are other existing tall structures (obstacles) nearer to the airport, e.g. the operational wind farms at Carrig, Skehanagh, Derrybrien, Knockastanna, Glencarbry, Cappawhite, etc, and the telecom mast-structures at Woodcock Hill

These existing obstacles would shield any potential impacts from the proposed wind farm at Ballincor. The IAA Electronic Air Navigation Obstacle Data Set of permitted obstacles is shown relative to the proposed turbines in Figure 5.

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26



**Figure 5. Permitted Obstacles in vicinity of Ballincor Wind Farm**

Although there are other obstacles closer to the airport than the proposed wind farm, all new obstacles must be considered and assessed to see if they cause a “hazard to air navigation” and all Terrain Obstacle Data (including man-made obstacles) have to be considered by the relevant Aviation Authorities.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Annex 15 Aerodrome Surfaces	The proposed wind turbines would not penetrate the ICAO Annex 15 Aerodrome Surface; however, they would be required to be included in the IAA Obstacle Data Set.	None

**Table 3. Aviation Impact Review - Annex 15 Aerodrome Surfaces**

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.3 Building Restricted Areas (BRAs)

A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with the potential for causing unacceptable interference to navigation facilities.

The navigation facilities to be considered at Shannon Airport include the ILS Localisers, Glidepaths and DMEs that provide guidance for aircraft landings. The minimum safeguarded areas for these facilities are defined by the International Civil Aviation Organisation (ICAO) in the document ICAO EUR DOC 015, Section 7. The BRA parameters as specified by the ICAO are provided in Appendix B of this report.


Figure 6 below illustrates that the proposed wind farm at Ballincor is over 65 km from the nearest BRA at Shannon Airport. At this distance, turbines at the proposed wind farm will have no impact on the navigation facilities associated with the Building Restricted Areas for Shannon Airport.



Figure 6. Proposed Wind Farm relative to Shannon Airport BRAs (RWY 08 and RWY 26)

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Building Restricted Areas	No action	None.

Table 4. Aviation Impact Review - Building Restricted Areas

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.4 Minimum Sector Altitudes

A review of the Minimum Sector Altitudes (MSA) shows that turbines at the proposed wind farm would not be inside 25 nautical miles of the VOR/DME at Shannon Airport. The MSA provides a minimum obstacle clearance of 1000 ft above the highest obstacle within specified sectors.

The proposed wind farm is located outside the MSA Sectors for Shannon Airport as shown in Figure 7. Therefore, there will be no impact on the published MSA altitude figures.

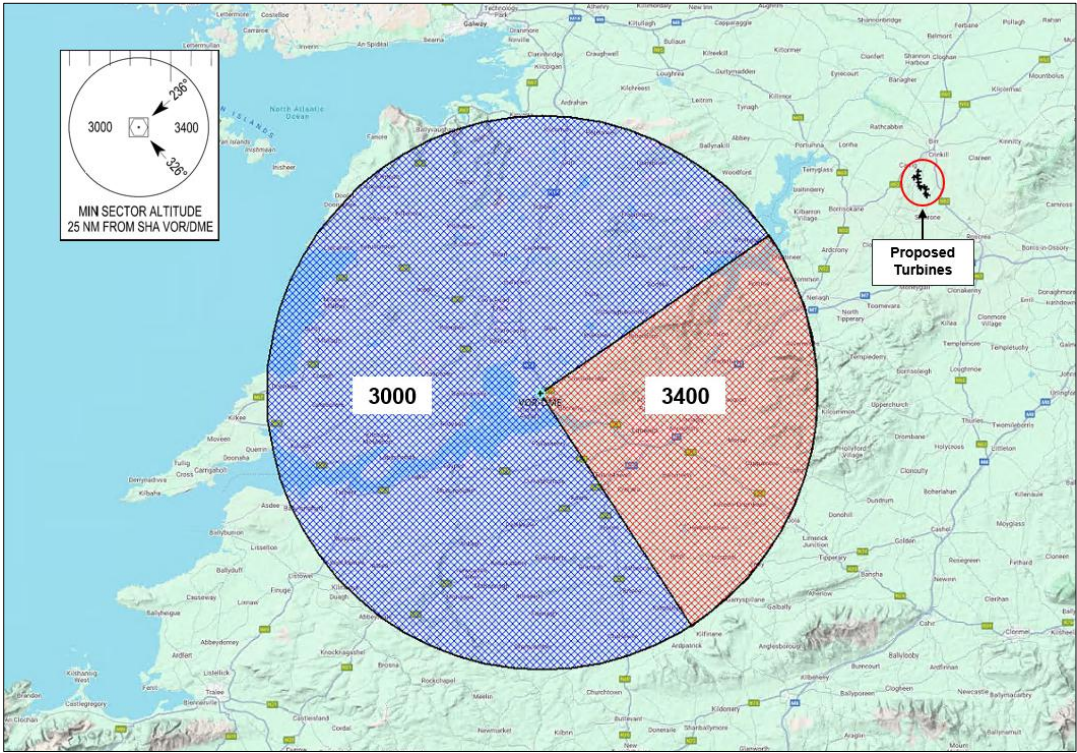



Figure 7. Shannon Airport (EINN) Minimum Sector Altitudes

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Minimum Sector Altitudes	No action	None.

Table 5. Aviation Impact Review - Minimum Sector Altitudes

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.5 Instrument Flight Procedures

There are nine published Instrument and Visual Flight Procedures for arrivals to, and departures from Shannon Airport. These flight procedures are listed below in Table 6.

Due to the distance of the proposed wind farm from the Airport (and as there are existing obstacles (e.g. existing wind farms)) it is unlikely that there will be any impacts on the Instrument Flight Procedures for flights to/from Shannon Airport.


Aerodrome	Aerodrome Procedure	Procedure / Chart ID
Shannon	RNAV Standard Instrument Departure Chart RWY 06	EINN AD 2.24-5
Shannon	RNAV Standard Instrument Departure Chart RWY 24	EINN AD 2.24-6
Shannon	RNAV Standard Arrival Chart RWY 06	EINN AD 2.24-7
Shannon	RNAV Standard Arrival Chart RWY 24	EINN AD 2.24-8
Shannon	Instrument Approach Chart ILS or LOC RWY 06	EINN AD 2.24-10
Shannon	Instrument Approach Chart VOR RWY 06	EINN AD 2.24-11
Shannon	Instrument Approach Chart ILS CAT I & II or LOC 24	EINN AD 2.24-13
Shannon	Instrument Approach Chart VOR RWY 24	EINN AD 2.24-14
Shannon	Visual Approach Chart – ICAO	EINN AD 2.24-15

**Table 6. Instrument and Visual Flight Procedures – Shannon Airport**

A detailed instrument flight procedure analysis is outside of the scope of this report; however, from the review of IFPs, it is envisaged it is unlikely that the Air Navigation Service Provider (ANSP) at Shannon Airport will require a detailed assessment on the possible impact of the proposed wind farm on flight procedures.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Instrument Flight Procedures	No action	None.

**Table 7. Aviation Impact Review - Instrument Flight Procedures**


 Total Communications Solutions	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.6 Permitted Wind Farms in vicinity of Proposed Wind Farm

The Planning References for the permitted wind farms in the vicinity of the proposed wind farm are shown below in Table 8. None of these wind farms required a Full Assessment of Instrument Flight Procedures.

Wind Farm	Planning Reference	Description
Carrig	<a href="https://www.eplanning.ie/TipperaryCC/">https://www.eplanning.ie/TipperaryCC/</a>	Operational Wind Farm
Skehanagh	<a href="https://www.eplanning.ie/TipperaryCC/">https://www.eplanning.ie/TipperaryCC/</a>	Operational Wind Farm
Ballinlough	<a href="https://www.eplanning.ie/TipperaryCC/">https://www.eplanning.ie/TipperaryCC/</a>	Operational Wind Farm
Ballinveny	<a href="https://www.eplanning.ie/TipperaryCC/">https://www.eplanning.ie/TipperaryCC/</a>	Operational Wind Farm
Curraghraigue	<a href="https://www.eplanning.ie/TipperaryCC/">https://www.eplanning.ie/TipperaryCC/</a>	Operational Wind Farm
Templederry	<a href="https://www.eplanning.ie/TipperaryCC/">https://www.eplanning.ie/TipperaryCC/</a>	Operational Wind Farm

**Table 8. Permitted Wind Farms in vicinity of Proposed Wind Farm**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.7 Communication and Navigation Systems

The AIP document EINN AD 2-18/19 provides the relevant information for communication and navigation facilities for Shannon Airport. Table 10 below shows the channel frequencies for the ATS communications Facilities and the Radio Navigation and Landing Aids at the airport.


Aerodrome	ATS Communications Facilities Channel Frequency	Radio Navigation and Landing Aids Channel Frequency	Approximate Distance to Localizer and Transmitting antennas	Impacts of wind farm
Shannon	118 MHz –130 MHz	339 KHz – 330 MHz	75 km	No impacts

**Table 9. Impacts on Communications and Navigation Systems**

As the proposed wind farm is approximately 75 km from the Localizers and transmitting antennas, it is very unlikely that turbines at the proposed wind farm will have any impact on these ATS communications and radio navigational aids. Typically, interference to VHF communications systems will only occur when obstacles are in close proximity to the VHF transmitter. e.g. less than 500m.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Communication and Navigation Systems	No action	None

**Table 10. Aviation Impact Review - Communication and Navigation Systems**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.8 Radar Surveillance Sensors

The tables below show the EUROCONTROL Guidelines Assessment Zone arrangement for the two types of aviation radar surveillance systems; Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR).

Zone	Description	Assessment Requirements
Zone 1	0 - 500m	Safeguarding
Zone 2	500m - 15km and in radar line of sight	Detailed Assessment
Zone 3	Further than 15km and in radar line of sight	Simple Assessment
Zone 4	Not in radar line of sight	No Assessment

**Table 11. PSR Zone Arrangements**

Zone	Description	Assessment Requirements
Zone 1	0 - 500m	Safeguarding
Zone 2	500m - 16km but within maximum instrumented range and in radar line of sight	Detailed Assessment
Zone 4	Further than 16km or not in radar line of sight	No Assessment

**Table 12. SSR Zone Arrangements**

The EUROCONTROL Guidelines require a 16 km safe distance for a “Zone 4 - No Assessment” condition and detailed assessments are required for any proposed wind within 16km of a secondary surveillance radar.


It should be noted that in the UK, NATS (Air Traffic Control) safeguards SSR to a distance of 10 km. The guidelines used by NATS (*CAP 764: Chapter 2: Impact of wind turbines on aviation*) state that:

*“Wind turbine effects on SSR are traditionally less than those on PSRs but can be caused due to the physical blanking and diffracting effects of the turbine towers, depending on the size of the turbines and the wind farm. These effects are typically only a consideration when the turbines are located very close to the SSR i.e. less than 10 km.”*

A review of the potential impact of the proposed wind farm on Radar Surveillance Sensors is presented below in Section 2.8.1. The review shows that the IAA should not require a radar assessment, as turbines at the proposed development would be located in Assessment Zone 4 for all of their radar installations (PSR and SSR).

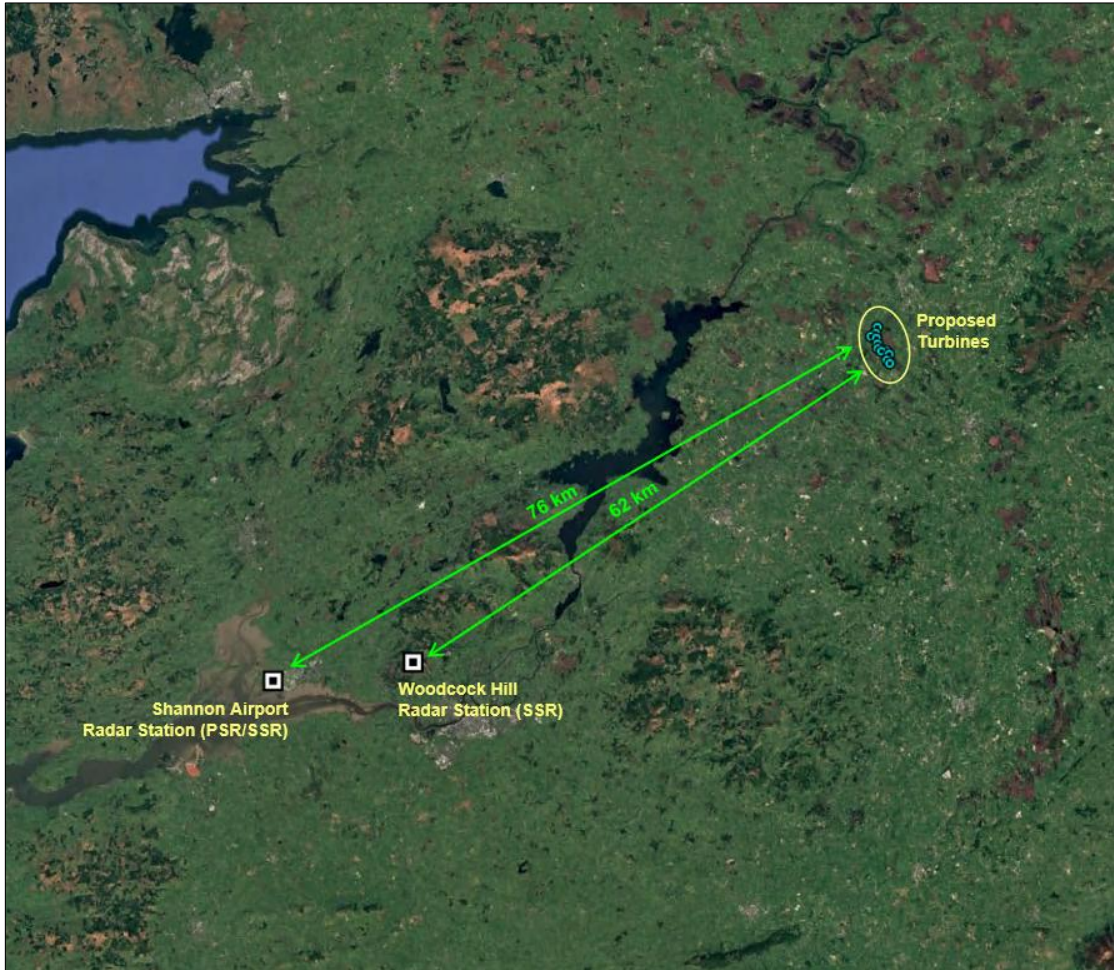
Aviation Impact Review	Mitigation Measure Action	Residual Impact
Radar Surveillance Sensors	No action	None.

**Table 13. Aviation Impact Review - Radar Surveillance Sensors**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

**2.8.1 Irish Aviation Authority (IAA) Radar Surveillance Sensors**

To determine which Assessment Zones are applicable to the proposed wind farm a desktop assessment was carried out. The nearest radar surveillance sites to the proposed wind farm development are at Shannon Airport and Woodcock Hill.



**Figure 8. Radar Surveillance Sites relative to Ballincor Wind Farm.**

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

### 2.8.1.1 Shannon Airport Radar Assessment

The radar surveillance site at Shannon Airport consists of a PSR and a SSR. The PSR and the SSR antennas are co-located on the same structure at Shannon Airport (Figure 9).



**Figure 9. Shannon Airport Radar Station**

Table 14 below shows the (EuroControl) Assessment Zone applicable to the proposed turbines at Ballincor. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight (LOS) condition exists.

Radar	Distance from Proposed Turbines	Radar LOS to Proposed Turbines	Radar Assessment Zone (EuroControl Guidelines)
PSR	76 km	No	Zone 4 (No Assessment Required)
SSR	76 km	No	Zone 4 (No Assessment Required)

**Table 14. Radar Assessment Zones (EuroControl Guidelines) – Shannon Airport Radar Station**

As the table above shows, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which indicates that a detailed technical assessment would not be required for the impact on the PSR/SSR Radar Station at Shannon Airport.

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

### 2.8.1.2 Woodcock Hill Radar Assessment

The radar surveillance site at Woodcock Hill consists of a SSR system housed in the dome-shaped structure shown in Figure 10.




**Figure 10. Woodcock Hill Radar Station**

Table 15 below shows the (EuroControl) Assessment Zone applicable to the proposed turbines at Ballincor. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight (LOS) condition exists.

Radar	Distance from Proposed Turbines	Radar LOS to Proposed Turbines	Radar Assessment Zone (EuroControl Guidelines)
SSR	62 km	No	Zone 4 (No Assessment Required)

**Table 15. Radar Assessment Zones (EuroControl Guidelines) – Woodcock Hill Radar Station**

As the table above shows, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which indicates that a detailed technical assessment would not be required for the impact on the SSR Radar Station at Woodcock Hill.

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.9 Flight Inspection and Calibration

Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an IAA approved Flight Inspection Service Provider. The checks are carried out during annual inspections consisting of radial and orbital test flights around Shannon Airport for calibration of instrument landing systems.

It is unlikely that the Flight Inspection Procedures will be impacted as the proposed wind farm is sufficiently far from the airport runways and the flight inspection procedures should already account for the existing obstacles (e.g. terrain and existing wind farms).

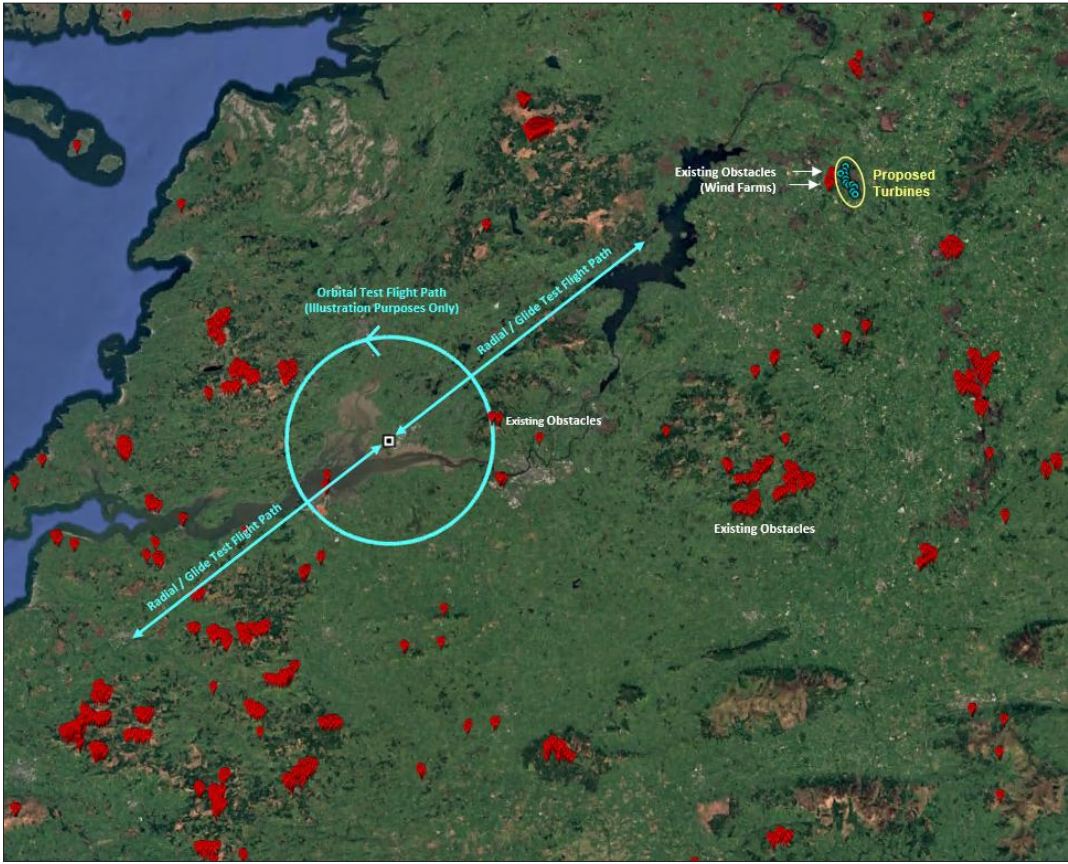



Figure 11. Flight Inspection and Calibration Test Procedures should account for existing obstacles (e.g. terrain and existing wind farms)

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Flight Inspection and Calibration	No action	None.

Table 16. Aviation Impact Review - Flight Inspection and Calibration

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.10 Aeronautical Obstacle Warning Light Scheme


In the event of a grant of planning consent the IAA-ANSP would require the lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed development may be considered as an en-route obstacle. The developers of the proposed turbines would intend to implement an aeronautical obstacle warning lighting scheme.

It is recommended that lighting requirements should be in accordance with Chapter Q – Visual Aids for denoting Obstacles; CS ADR.DSN.Q.851 and GM.ADR.DSN.Q.851 (Pages 729/730) of the EASA Easy Access Rules for Aerodromes (Reg (EU) No. 139/2014) where it states that

*“Applicability: When considered as an obstacle a wind turbine should be marked and/or lighted.”*

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Aeronautical Obstacle Warning Light Scheme	It is likely that the IAA would request that the wind farm, if permitted, would be fitted with Aeronautical Obstacle Warning Lights in accordance with industry standards. Subject to further consultation with the IAA.	None

**Table 17. Aviation Impact Review - Aeronautical Obstacle Warning Light Scheme**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.11 Private Airfields (VFR Flying)

For due diligence purposes, private airfields in the vicinity of Ballincor have been considered and it was found that there is one private airfield within 10 km of the proposed wind farm site: Birr Airfield. Figure 12 below shows the location of this airfield relative to the proposed turbines.

Airfield	Description	Airspace Classification	Published Flight Procedures	Permitted Air Traffic Type (IFR/VFR)	Distance to nearest of proposed turbines
Birr	Single grass-strip airfield	Class G (Uncontrolled)	None	VFR Only	3.9 km

**Table 18. Private Airfields within 10 km of proposed wind farm**

The airfield at Birr is a privately owned airfield which operates in Class G uncontrolled airspace. The airfield is licensed with the IAA and has a small grass-strip runway (Runway Code 1). As the airfield is located in Class G uncontrolled airspace any pilots flying to/from these airfields are obliged to fly by Visual Flight Rules (VFR) and in accordance with the *IAA Rules of The Air*.

The Irish IAIP contains the IAA Rules of The Air Order 2004, which outline the Visual Meteorological Conditions (VMC) minima for aircraft flying under Visual Flight Rules. The requirements for flying by VFR rules in Class G uncontrolled airspace are:

*Flights below 3,000 ft AMSL required to remain clear of cloud and in sight of the surface at all times. with a minimum flight visibility of 5 km. (This visibility minimum is reduced to 3 km for aircraft operating at an indicated airspeed of 140 knots (kts) or less and 1 km for helicopters operating below 1,000 ft.)*

*VFR flight are not permitted in conditions worse than the stated minima. If visibility conditions change pilots should adjust their route in accordance with regulation.*


*VFR pilots operating in the Class G uncontrolled airspace are legally obliged to avoid obstacles (e.g. turbines) by 500 ft.*

*VFR pilots operating in the Class G uncontrolled airspace are ultimately responsible for their own terrain and obstacle clearance.*

As the Rules of the Air state, in Class G uncontrolled airspace, it is the pilot's legal responsibility to be aware of and avoid any obstacles in his/her flight path and therefore he/she would be required to be aware of wind turbines if flying to/from the airfield in question. This can be achieved by prudent flight planning by the VFR pilot prior to flight.

As the licensed airfield has a code 1 runway, there should be a 2.7 km Obstacle Free Zone (OLS) around the center of the runway which should be free from obstacles for aircraft flying into and from the airfield.

It should be noted that the Irish Skydiving Club also conduct occasional parachute drops at this airfield. The landing area designated by a parachute center for a parachutist to land on is usually known as the Drop zone (DZ). In Ireland the DZ is not regulated by the IAA (*Ref. IAA – Information for Persons engaged in Parachuting in Ireland*), however guidance from the UK Civil Aviation Authority (CAA) states that a Drop Zone should be at least 2.8 km from the center of the Parachute Landing Area.

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

It should also be noted that the IAA were contacted regarding the proposed development and provided the email response(s) below. The operator of Birr Airfield (ORMAND Flying Club Ltd) was also contacted, but no response was received to the consultation request.

IAA Response to Consultation: 2020

*“This proposed site boundary appears to be relatively proximate to the licensed airfield at Birr, Co. Offaly. Do you have a set of coordinates for the most Northerly / Easterly position of any proposed wind turbines?”*

*In any case, we would recommend that you engage with the operator of the airfield to advise them of the proposed development and seek their views.”*

IAA Response to Consultation: 2022

*“Reviewing this at a high level, it appears that the new northern sites are within the safeguarding zone for the licensed aerodrome of Birr.*

*A 3 km radius is applied generally for safeguarding purposes for Code 1 runways.*


*In the event of planning consent being sought, we would expect the Aerodrome Licensee to furnish observations in this regard and the Authority would likely support those observations.*

*In the event of planning consent being granted, the obstacle lighting requirement for developments that penetrate the obstacle limitation surfaces of an aerodrome would likely be quite onerous. Similar type proposals have resulted in a requirement for a Type A High Intensity white flashing light to be operational during day light and switching to steady red during hours of darkness.*

*Again, I would request that you would ask the developer to consult directly with the Aerodrome Licensee in relation to these proposals:*

*ORMAND Flying Club Ltd.  
Streamstown  
Roscrea  
Co. Tipperary  
Phone: +353 57 912 1300  
Phone: +353 87 0664545  
Fax: +353 57 912 1300  
Email: [info@ormandflyingclub.ie](mailto:info@ormandflyingclub.ie)  
URL: <http://www.ormandflyingclub.ie>*

Figure 12 below shows that the proposed turbines would be more than 1 km outside the OLS and Parachute Drop Zone for Birr Airfield. As the proposed turbines would be located outside these zones there should be no impact to the aviation activities at Birr Airfield.

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26



**Figure 12. Birr Airfield OLS and Parachute Drop Zones**

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Private Airfields (VFR Flying)	No action	None.

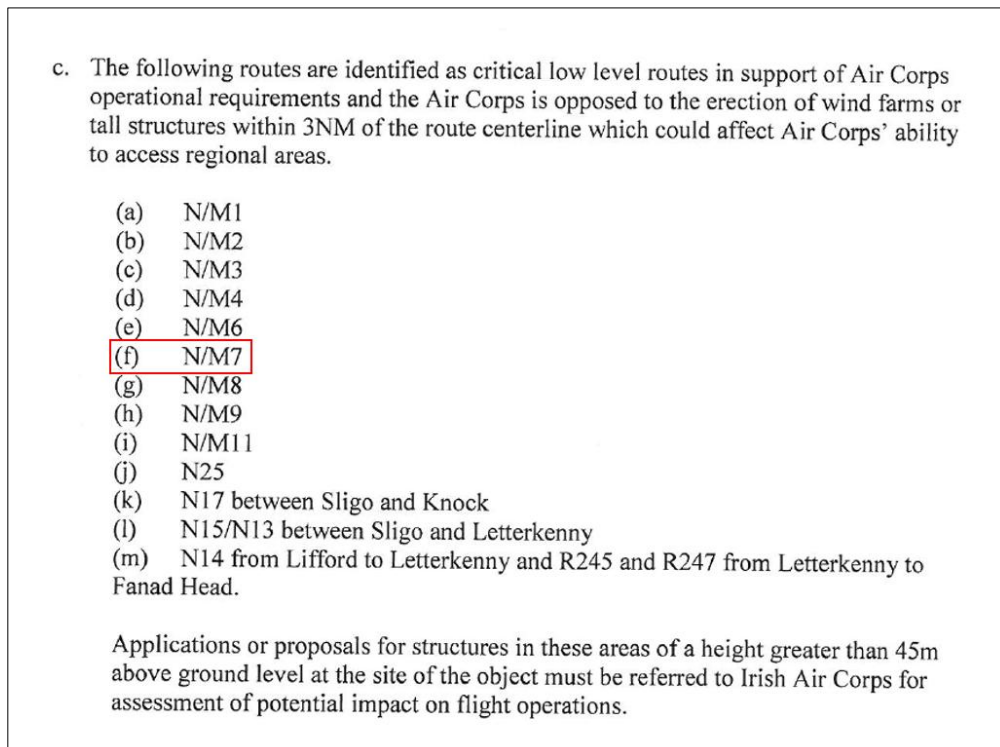
**Table 19. Aviation Impact Review - Private Airfields (VFR Flying)**

<b>AiBridges</b> <small>Total Communications Solutions</small>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.12 Irish Air Corps / DoD Safeguarding


The Irish Air Corps Position Paper “*Air Corps Wind Farm/ Tall Structures Position Paper*” published on 08<sup>th</sup> August 2014 (Appendix C), states that the Air Corps are likely to oppose any wind farm / tall structure in the following restricted areas:

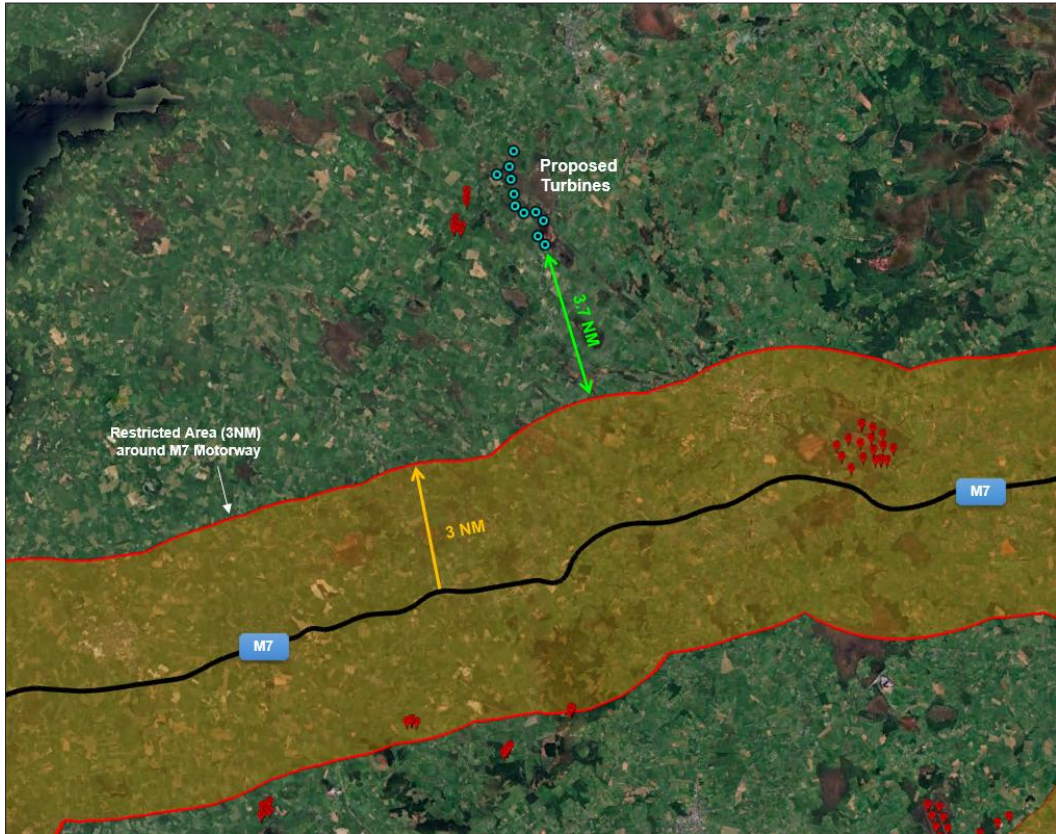
- Lands underlying military airspace for flying activity. (Areas contained in Danger Areas EI-D1, EI-D5, EI-D6, EI-D13, EI-D14, Restricted Areas EI-R15, EI-R16 within 20 NM of Baldonnel, MOAs 3 and 4 within 20 NM of Baldonnel.
- Low Flying Training Areas within MOA 4 in the areas of; Blessington, Edenderry/Allenwood/Rathangan, Kilmeague/Newbridge.
- Low Flying Training Area West – LFTA WEST.
- A distance of 5 NM or less from military installations.
- Critical low level flying routes in support of Air Corps operation requirements as described in Figure 13 below.



**Figure 13. Irish Air Corps – Critical Low Level Routes**

The nearest of the Air Corps restricted areas to the proposed wind farm is the 3NM restricted area around the M7 Motorway, as shown in Figure 14 below. As the proposed wind farm is located outside the restricted area, there should be no impacts on Irish Air Corps activities.


	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26



**Figure 14. Proposed Wind Farm relative to Critical Low-Level Flight Route (M7)**

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Irish Air Corps / DoD Safeguarding	No action.	None

**Table 20. Aviation Impact Review - Irish Air Corps / DoD Safeguarding**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## 2.13 Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)

The standard concerns that are being raised in recent consultations with the Air Corps also highlight the potential for obstacles that could impact the operations of the Garda Air Support Unit (GASU) and the Emergency Aeromedical Service (EAS). The excerpt below is taken from a response received from the IAC in relation to a third-party wind farm project:


*“Having consulted with the subject matter experts in the Irish Air Corps, the Department of Defence wishes to make the following observations:*

- *The Department of Defence cannot support, based on military advises, the erection of wind farms or other tall structures within 3 NM of roads identified as critical low level routes in support of operational requirements. The erection of obstacles within low-level helicopter routes could affect the Irish Air Corps ability to access regional areas and to fulfil its role.*
- *If this proposed development was to go to the planning stage, the Department of Defence would be obligated to raise the following concerns and advise the planning authorities that the proposed windfarm*
  - a) *lies wholly within 3 nautical miles of the [Motorway/National Road] which is identified as a critical low level route used by state aircraft on operational taskings. A windfarm or any other tall structures within a low-level route will be an obstacle to state aircraft not operating within the civil rules of the air;*
  - b) *The [Motorway/National Road] low level route requires protection from obstacles for low level state aircraft on operational tasking’s such as:*
    - (i) The Garda Air Support Unit (GASU)*
    - (ii) The Emergency Aeromedical Service (EAS)”*

An assessment of the possible impacts of the proposed wind farm on the Garda Air Support Unit and the Emergency Aeromedical Service operations is provided in Sections 2.12.1 and 2.12.2 that follow. The review shows that GASU and EAS operations are unlikely to be impacted by the proposed development.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)	No action.	None

**Table 21. Aviation Impact Review - Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

**2.13.1 The Garda Air Support Unit (GASU)**

The Garda Air Support Unit is based at Casement Aerodrome, Baldonnel and is typically deployed to incidents in the following cases:

- Immediate threat to life
- Incidents of a criminal, terrorist or other nationally important nature
- Immediate threat of serious public disorder
- Tasks leading to the prevention or detection of crime
- Evidence gathering
- Intelligence gathering
- Photographic tasks
- Traffic Management/Monitoring


The unit consists of one fixed-wing aircraft (a Pilatus Britten-Norman BN 2T-4S Defender 4000) and two helicopters (Eurocopter EC 135 T2).



**Figure 15. GASU - Pilatus Britten-Norman BN 2T-4S Defender 4000**



**Figure 16. GASU - Eurocopter EC135 T2**


	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

The proposed wind farm is located in an area that is sparsely populated and on boggy / agricultural terrain. For these reasons, it is highly unlikely that the proposed wind farm development would have any significant impacts on GASU operations.

In the unlikely event of GASU operations in the general area, it should be noted that all modern aircraft are equipped with a range of Global Navigation Satellite Systems (GNSS), e.g. GPS, GLNASS, Galileo, etc. These GNSS systems provide pilots with accurate navigation information including data to avoid obstacles during VFR operations. Should the proposed wind farms be permitted the associated turbine locations would be submitted to the IAA and aviation charts and GNSS databases would be updated accordingly.

GASU Aircraft	Impact of proposed wind farms - Opinion
Fixed-wing Airplane (Pilatus Britten-Norman BN 2T-4S Defender 4000)	<p>Low – Fixed-wing aircraft are unlikely to be deployed in low level activity in the subject areas.</p> <p>In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.</p>
Helicopter (Eurocopter EC135 T2)	<p>Low – Helicopter landings in the subject area would not occur as the proposed wind farm located in boggy / agricultural terrain.</p> <p>In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.</p>

**Table 22. Impact of proposed wind farm on GASU Operations**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

**2.13.2 The Emergency Aeromedical Service (EAS)**

The air ambulance service in Ireland is known as the Emergency Aeromedical Service (EAS). The EAS crew (which include National Ambulance Service (NAS) paramedics) deal with time-critical emergency callouts to major emergencies such as road collisions and urgent medical events. The EAS currently operate two air ambulance helicopters operating from two bases:

- Custume Barracks, Athlone, Co Westmeath.
- Rathcoole Aerodrome, Rathcoole, Mallow, Co Cork.

The two helicopter borne emergency air ambulances consist of an Air Corps operated aircraft based at Custume Barracks in Athlone, and an aircraft located at Rathcoole Aerodrome in North County Cork. The nearest EAS base to the proposed wind farm at Ballincor is the base in Athlone. The flight times from the EAS base at Athlone are shown in Figure 17.

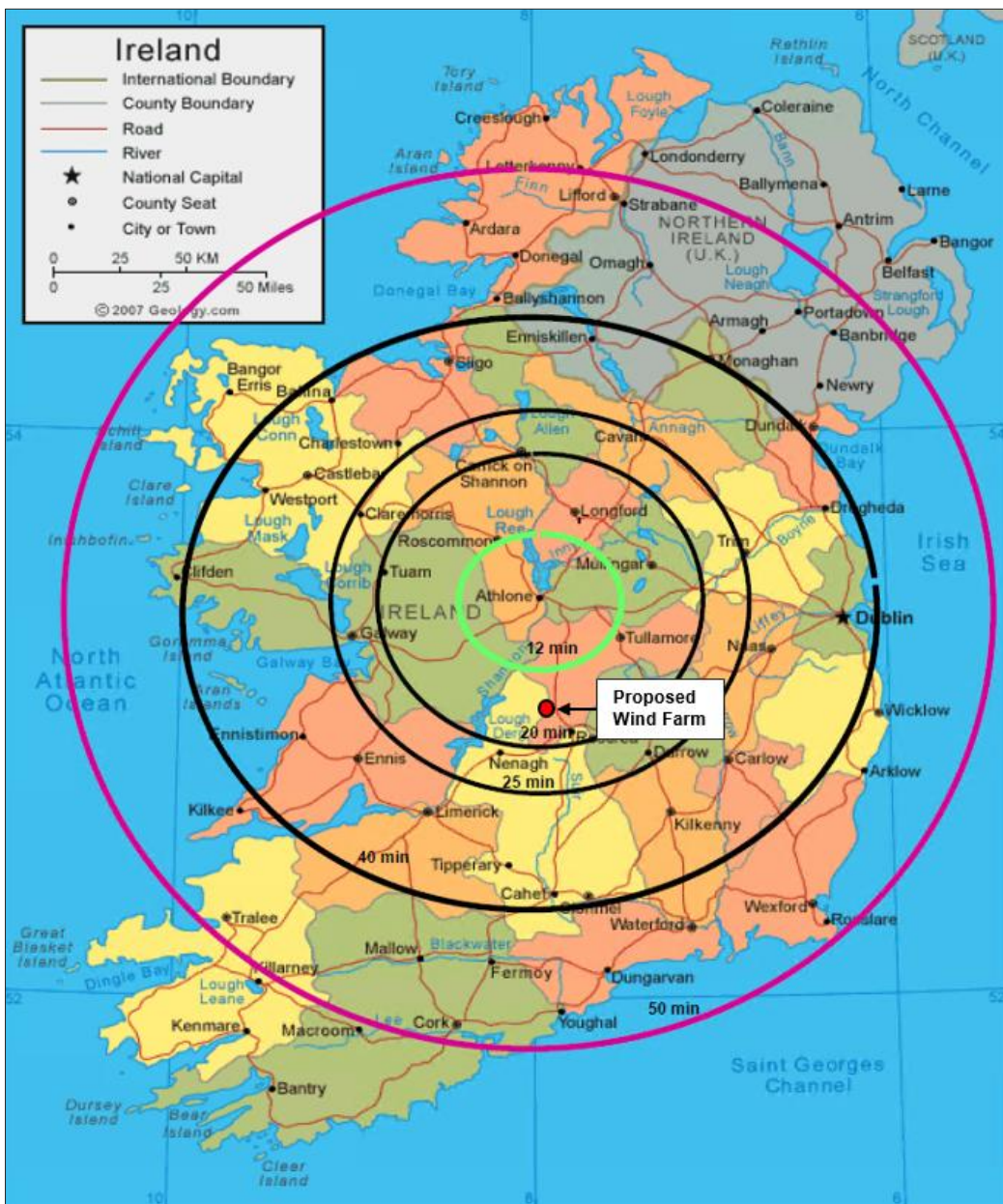



Figure 17. EAS – Flying Times from Athlone

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26


Helicopter landings are highly unlikely to occur in the subject area due to the boggy /agricultural terrain of the proposed site.

Also, should the proposed wind farms be permitted the associated turbine locations would be submitted to the IAA and aviation charts and GNSS databases would be updated accordingly. EAS helicopters would also be fitted with GNSS systems which would clearly identify any potential objects in the operational area (e.g. wind turbines).

In addition, the footprint of the proposed wind farm development is small and any flight diversions for EAS operations would have negligible time impacts. For these reasons, turbines at the proposed wind farm should have no impact on EAS flights from Athlone.

EAS Aircraft	Impact of proposed wind farms – Opinion
Helicopter (Eurocopter EC135)	<p>Low – Helicopter landings at the subject area are highly unlikely to occur as the proposed wind farm site is located on boggy / agricultural terrain.</p> <p>In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.</p>

**Table 23. Impact of proposed wind farm on EAS Operations**

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

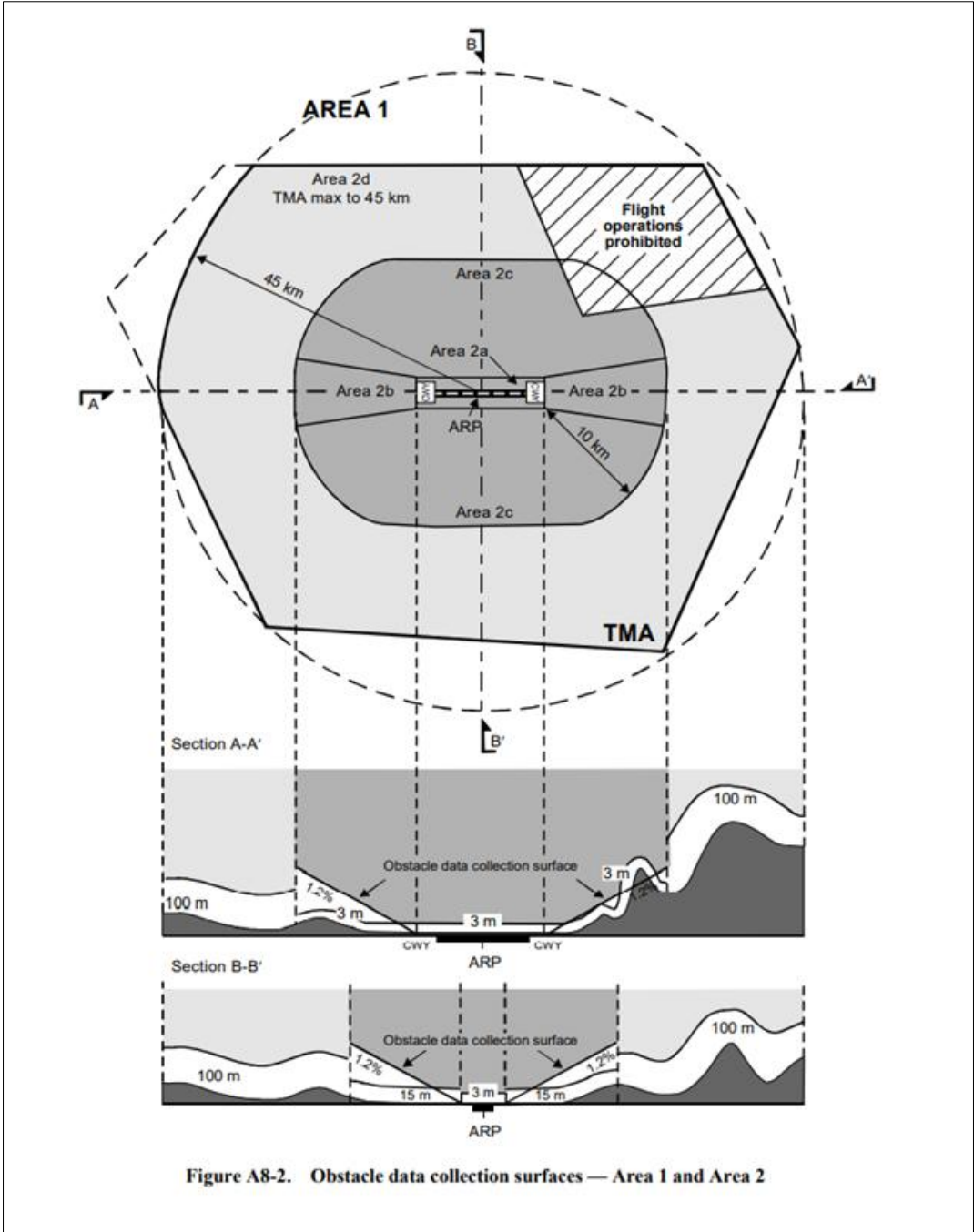
### 3. Summary

A summary of the aviation review for the proposed wind farm at Ballincor is provided in Table 24 below.

Item	Impact	Summary
Annex 14 - Obstacle Limitation Surfaces (OLS)	None	Turbines at the proposed wind farm site would be located outside the OLS Surfaces for Shannon Airport.
Annex 15 - Aerodrome Surfaces	Observation	Turbines at the proposed wind farm would not penetrate the ICAO Annex 15 Aerodrome Surface for Shannon Airport. All obstacles, if more than 100 meters above terrain for a distance of 45km from center point of Shannon Airport, need to be registered in the IAA Air Navigation Obstacle Data Set. The IAA may request that the turbines be included in the IAA Aeronautical Electronic Obstacle Data Sets. It should be noted that other existing tall structures nearer to Shannon Airport (e.g. existing turbines at Cr Carrig, Skehanagh, Derrybrien, Knockastanna, Glencarbry, Cappawhite, etc.) are also located within the ICAO Annex 15 Aerodrome Surface and are already listed in the IAA Aeronautical Electronic Obstacle Data Sets.
Building Restricted Areas	None	A review shows that the proposed turbines at Ballincor would be over 65 km from the BRAs at Shannon Airport. At this distance there would be no impacts due to the proposed wind farm.
Minimum Sector Altitudes (MSA)	None	A review of the Minimum Sector Altitudes (MSA) shows that the proposed wind farm is 25 nautical miles from the VOR/DME at Shannon Airport. Therefore the MSA of the relevant sector will not be affected and there will be no impact on the published MSA altitude figures.
Instrument Flight Procedures	None	A review shows that the instrument flight procedures for RWY 06 and RWY 24 standard instrument departures are unlikely to be impacted for precision aircraft.
Communication and Navigation Systems	None	As the proposed wind farm is approximately 75 km from the Localizer and transmitting antenna at Shannon Airport, it is very unlikely that the proposed development will have any impact on these ATS communications and radio navigational aids.
Radar Surveillance Sensors	None	The proposed wind turbines would be located in Assessment Zone 4 (EuroControl guidelines) for SSR and PSR instruments and a detailed Impact Assessment will not be required
Flight Inspection and Calibration	None	The annual Flight Inspection Procedures will not be impacted by the proposed wind farm as the proposed site is sufficiently far from the ARP at Shannon Airport that there would be no impacts. In addition, the Flight Inspection Procedures should already account for existing obstacles.
Aeronautical Obstacle Warning Light Scheme	Observation	It is possible that the IAA may request that the wind farm, if permitted, would be fitted with Aeronautical Obstacle Warning Lights in accordance to industry standards. Subject to further consultation with the IAA.
Private Airfields (VFR Flying)	None	The nearest of the proposed turbines would be 3.9 km from Birr Airfield. At this distance, the proposed development would have no impact on the aviation activities at the privately owned airfield.
Irish Air Corps / DoD Safeguarding	None	The proposed wind farm is located outside the Irish Air Corps Restricted Areas.
Garda Air Support Unit and Emergency Aeromedical Service	None	An assessment of GASU and EAS operations indicate that they are unlikely to be impacted by the proposed wind farm development.

**Table 24. Ballincor Wind Farm – Aviation Review Summary**

# APPENDIX A - ICAO Annex 15 Area 1 and Area 2 Surfaces.



ICAO Annex 15 Area 1 and Area 2 Surfaces.

# APPENDIX B - ICAO Building Restricted Areas.

Figure B1 below shows an example BRA shape for directional facilities. Table B1 provides harmonized guidance figures for the directional navigational facilities in accordance with Figure B1.

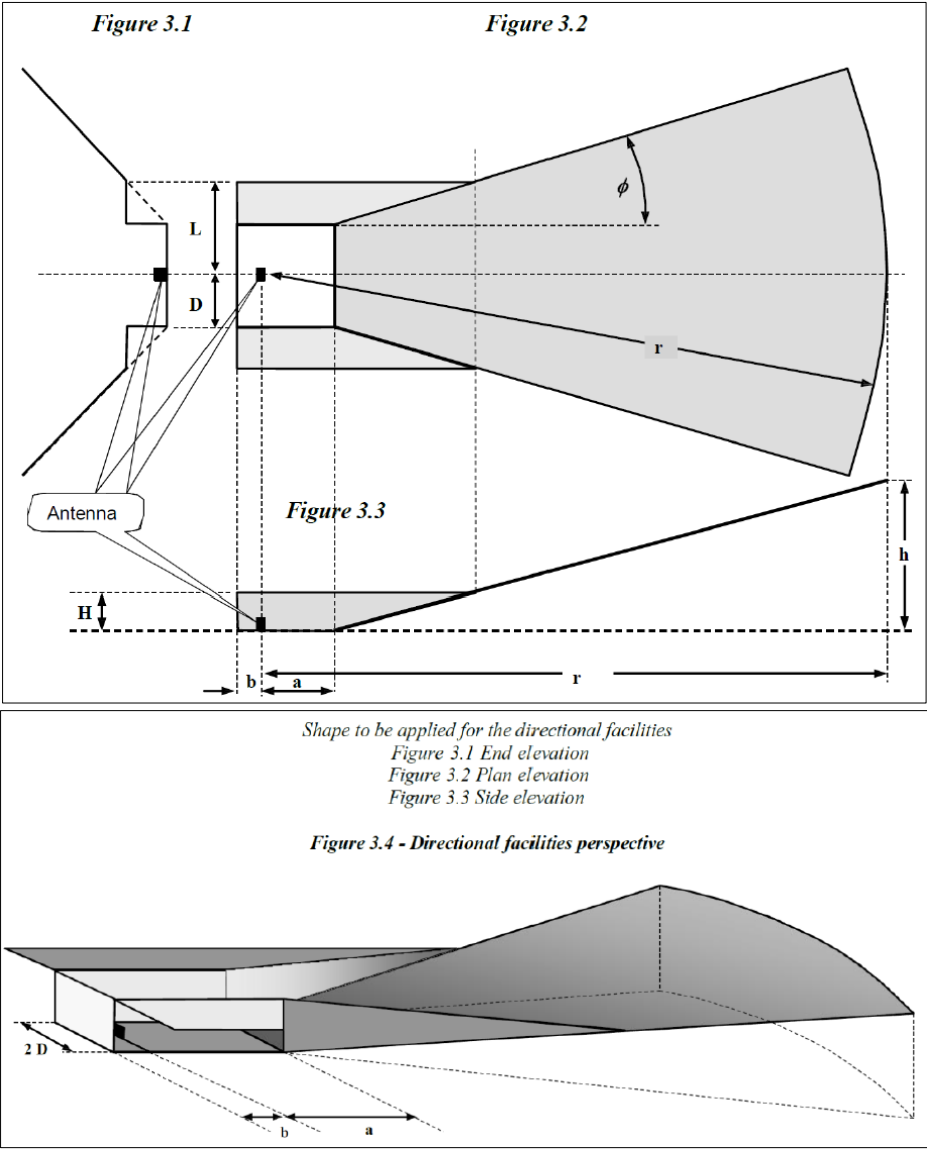



Figure B1 - Example BRA shape for directional facilities (ICAO EUR DOC 015 Figures 3.1-3.4)

Type of navigation facilities	A (m)	b (m)	h(m)	r (m)	D (m)	H (m)	L (m)	$\phi$ (°)
ILS LLZ (medium aperture single frequency)	Distance to threshold	500	70	a+6000	500	10	2300	30
ILS LLZ (medium aperture dual frequency)	Distance to threshold	500	70	a+6000	500	20	1500	20
ILS GP M-Type (dual frequency)	800	50	70	6000	250	5	325	10
MLS AZ	Distance to threshold	20	70	a+6000	600	20	1500	40
MLS EL	300	20	70	6000	200	20	1500	40
DME (directional antennas)	Distance to threshold	20	70	a+6000	600	20	1500	40

Table B1 - Harmonized guidance figures for the directional navigational facilities (ICAO EUR DOC 015 Table 2)

<b>AiBridges</b> <small>Total Communications Solutions</small>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

## APPENDIX C – Air Corps Wind Farm / Tall Structures Position Paper, August 2014




**Óglaigh  
na hÉireann**  
DEFENCE FORCES IRELAND

Ceanncheatru an Aer Chór  
*Air Corps Headquarters*

08 August 14


GOC AC 

Air Corps Wind Farm/Tall Structures Position Paper

Sir,

1. The attached is the draft Air Corps Position Paper agreed and developed in concert with the flying units under the auspices of CAS Ops.
2. It is recommended that it be forwarded to the Directorate of Operations for transmission to the Department of Defence.
3. The AC position contained within this paper should be notified to planning authorities including An Bord Pleanála. It should also be forwarded to the Department of the Environment, Heritage and Local Government to inform its policies and guidance in respect of wind farms.



Raymond Martin, Lt Col  
CATSO

---

CATSO, Ceanncheatru an Aer Chór, Aerodrom Mhic Easmuinn, BAC 22.  
 CATSO Air Corps Headquarters, Casement Aerodrome, Baldonnel, Dublin 22  
 Ph +353 (0)1 403 7513 Fax: +353 (0)1 403 7850

<b>AiBridges</b> <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26



Ceanncheatru an Aer Chor  
*Air Corps Headquarters*

Air Corps Wind farm/Tall Structures Position Paper.

**1. Objective:**

This position paper is intended to ensure that

- a. Air Corps operations and training may be accomplished in a safe and economical manner;
- b. Baldonnel remains a viable aerodrome for IFR and VFR traffic;
- c. The ability to train military flying skills is protected;
- d. 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 fulfill its role.

**2. Statement of position.**


- 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.

- (a) Annex A: Low flying training areas within MOA 4 in the areas of
  - a. Blessington
  - b. Edenderry/Allenwood/Rathangan
  - c. Kilmeague/Newbridge
- (b) Annex B: low flying training area West (LFTA WEST).

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

(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 centerline 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 R247 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.

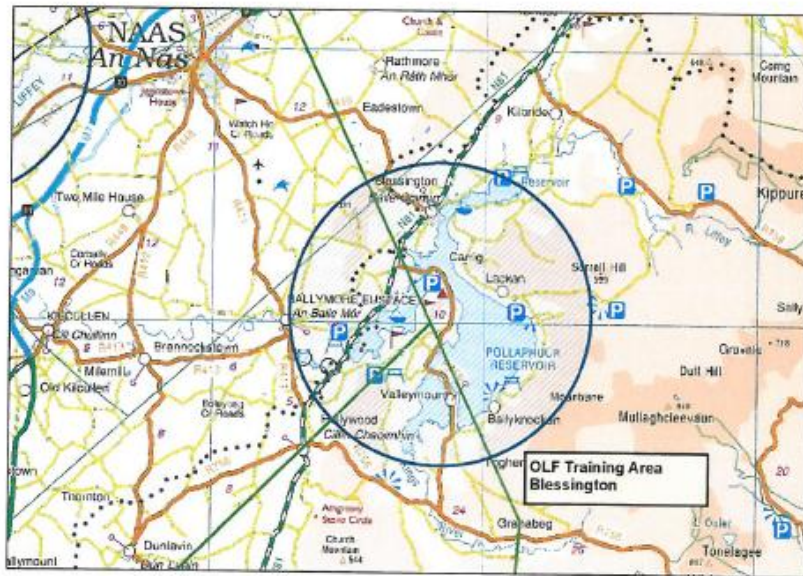
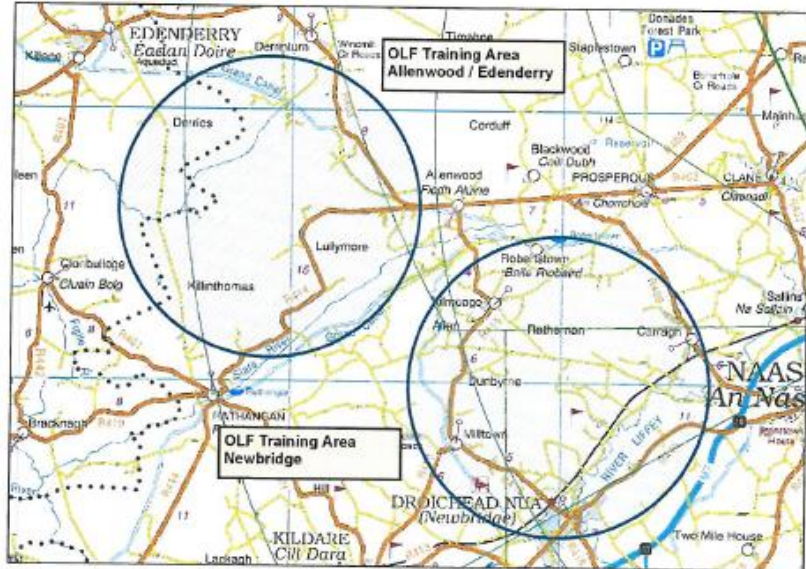
d. In MOA 4 outside of the areas identified in b.(1) (2) and (3), and in MOA 5, applications or proposals for objects of a height greater than 45m above ground level at the site of the object must be referred to the Irish Air Corps for assessment of potential impact on flight operations.


e. 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 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.

	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

**Annex A**  
**Low Flying Areas - MOA 4**




 <small>Total Communications Solutions</small>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26

Annex B

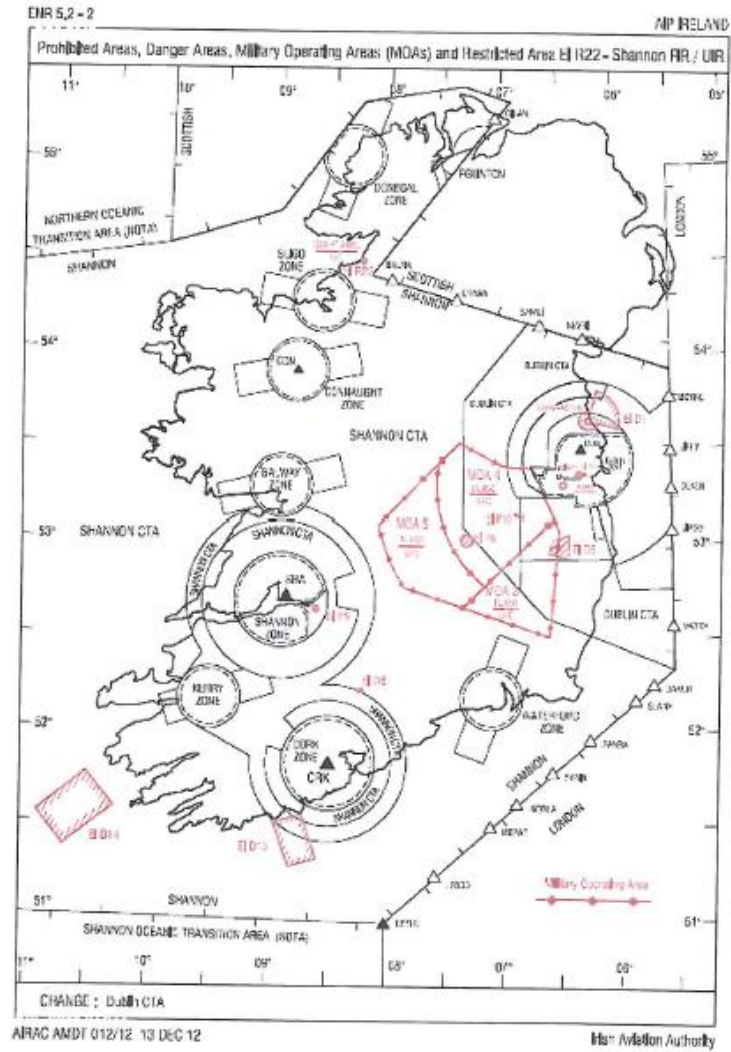
Low Flying Area – LFTA WEST


1. Area contained within the following grid L6972; L6945; M0745; M0772
2. Routes are primarily within valley areas.
3. Applications for wind farms/masts should be referred to Air Corps Operations for assessment against low flying routes.

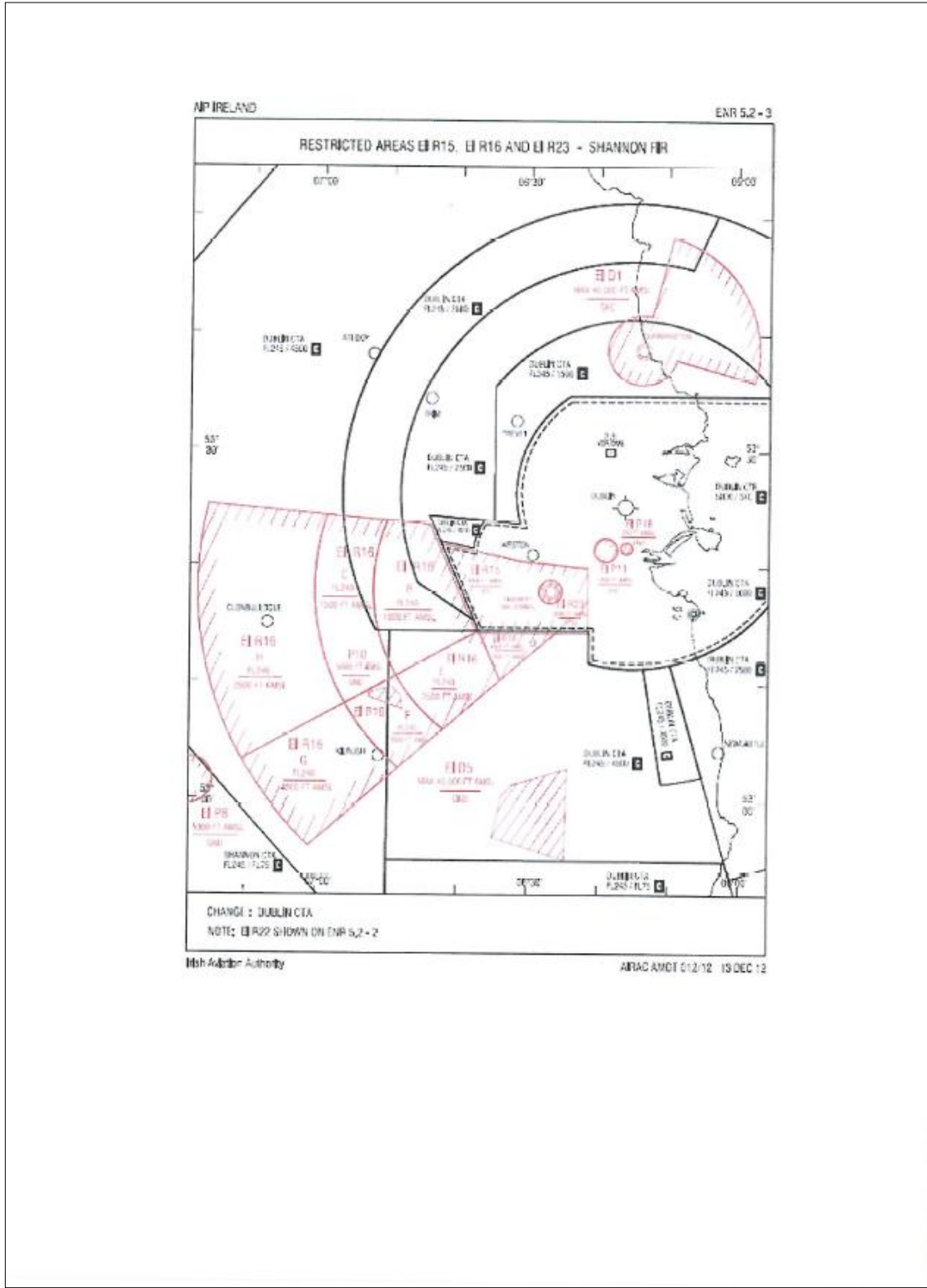
	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26


Annex C

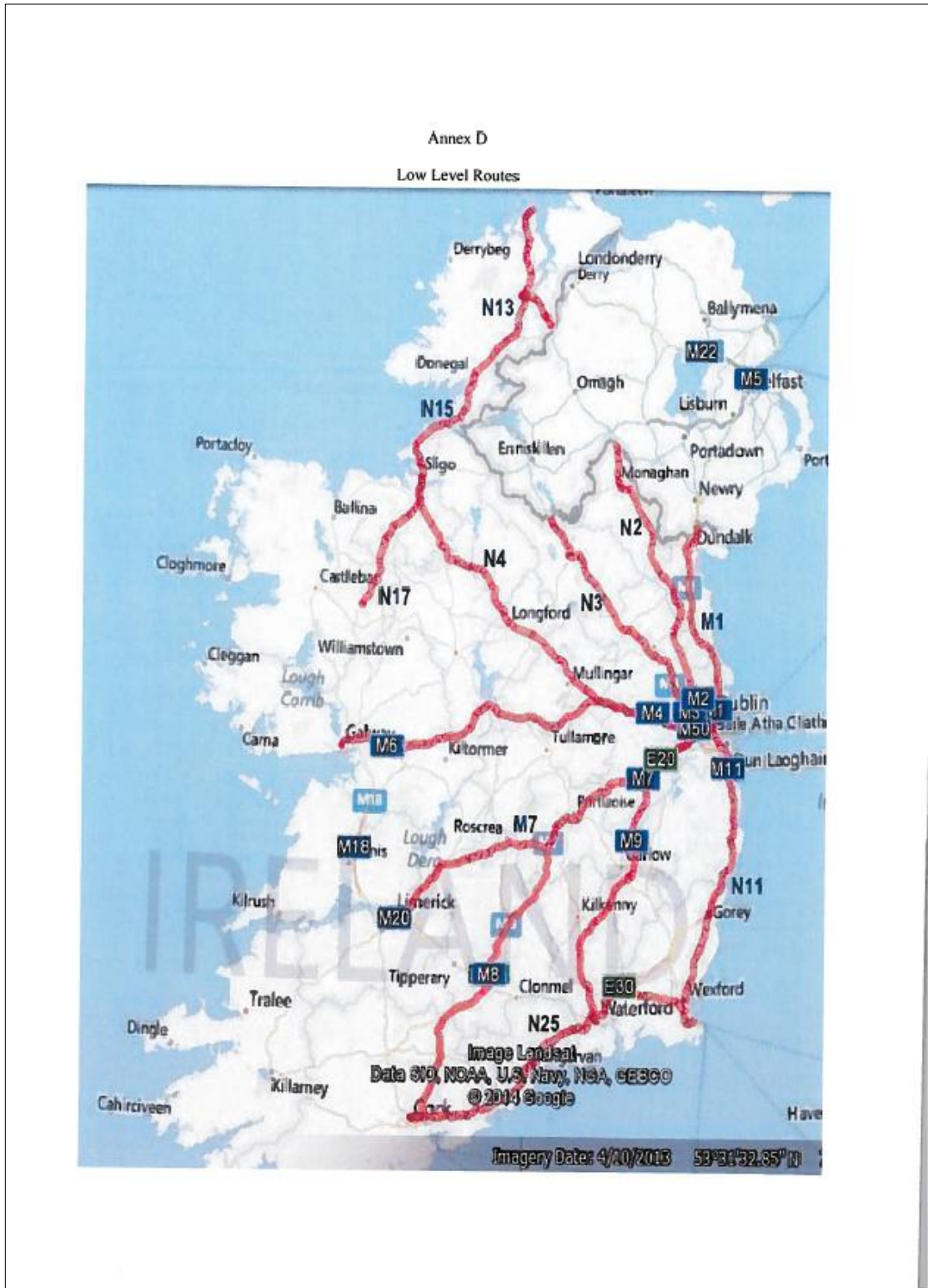
Designated Airspace  
Restricted Areas, Danger Areas and Military Operating Areas




	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26



	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26



 <i>Total Communications Solutions</i>	Procedure: 001	Rev: 3.0
Ballincor Wind Farm – Aviation Review Statement	Approved: KH	Date: 11/03/26