



Islandmore Wind Farm

Environmental Impact Assessment
Report

Annex 14.4: Technical
Safeguarding Assessment

Islandmore Wind Farm Limited

Technical Safeguarding Assessment

Galetech Energy Services

Ireland West Airport

27 April 2026

CL-6069-RPT-002 V1.1

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Document Information	
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Document reference and Version	CL-6069-RPT-002 V1.1
Date of release	27 April 2026

Change History Record

Issue	Change Reference	Date	Details
V1.0	Initial Issue	24/06/2024	V1.0
V1.1	Turbine details updated	27/04/2026	V1.1

Executive Summary

Galetech Energy Services (the Client) has engaged Cyrrus Limited to undertake a Technical Safeguarding Assessment for a proposed windfarm development to the east of Ireland West Airport. There is potential for the development to have an undesirable impact on the Airport Air Navigation Equipment (AANE) at the Airport. The aim of this report is to understand the extent of any potential impact to the AANE.

The main findings of the Technical Safeguarding Assessment are as follows:

- The proposed windfarm development does not infringe any of the AANE safeguarded areas.

Full details of the investigation and findings are contained within the body of this report.

Abbreviations

AANE	Airport Air Navigation Equipment
BBP	Beam Bend Potential
BRA	Building Restricted Area
DME	Distance Measuring Equipment
DVOR	Doppler VHF Omnidirectional Range
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
IWA	Ireland West Airport
NDB	Non-Directional Beacon

References

- [1] ICAO, "EUR DOC 015 European Guidance Material on Managing Building Restricted Areas,"
Third edition, 2015

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1. Introduction

1.1. Background

- 1.1.1. Cyrrus Limited has been engaged by Galetch Energy Services (the Client) to assess potential Technical Safeguarding issues associated with a windfarm development to the east of Ireland West Airport (IWA).

1.2. General

- 1.2.1. Prior to the construction of new developments on or near an airport, it is important to consider the potential resultant effect on the performance of the Airport Air Navigation Equipment (AANE).
- 1.2.2. For example, the Instrument Landing System (ILS) provides both lateral and vertical guidance by means of radio signals to enable aircraft to approach and land without visual reference to the ground in times of poor visibility. By using this system, approach and landing may be carried out either automatically or by suitable instrument guidance to the pilot. To ensure the safety and integrity of such systems, it is necessary to provide a high level of safeguarding of the system performance.
- 1.2.3. Site modelling of ILS performance allows the potential impact of a new development to be assessed. This may allow the airport operator to support the development or propose changes which would make the development acceptable in terms of navigation aid performance and, hence, user safety.
- 1.2.4. Cyrrus can provide the airport operator with data and recommendations, but the final decision on the response to a proposed development must remain the responsibility of the airport operator once all factors affecting such a decision have been considered.

1.3. Rationale

- 1.3.1. The approach taken for this evaluation is detailed in the following paragraphs. Each study is unique, but the steps taken are similar.
- 1.3.2. The first stage is to evaluate the proposed development. This includes building details, position, and the local environment.
- 1.3.3. A detailed examination of flight inspection data follows if necessary, with due regard to equipment type and configuration. This gives an overview of the existing system performance and is also used later to validate the computer model.
- 1.3.4. A survey may be carried out to determine the building position and to record the local topography. The visibility of the development from the AANE under investigation is assessed; terrain or existing buildings may mask part or all of the proposed development. This is a data gathering exercise for computer modelling later.

- 1.3.5. The development is modelled using ILS modelling software. At this stage, a 'worst-case' scenario model is set up, i.e. reflecting objects are modelled to provide maximum reflection and hence potential disruption to the navigational aid performance.
- 1.3.6. The Beam Bend Potential (BBP) is evaluated from this worst-case model. If the subsequent degradation is substantial, iteration to a more representative model is taken, and significantly more data is entered. If the BBP is within acceptable limits, then this will be reported to the airport operator.
- 1.3.7. Often, the modelling tool can be used to mitigate the effects of new developments by using a 'what if' scenario to vary building, siting and equipment parameters which may optimise the performance of the radio navigation aid in the presence of the development.

2. Evaluation Tools and Data

2.1. Software

- ZWCAD 2022 SP2
- Global Mapper v21.1

2.2. Data provided by client

2.2.1. Turbine details, as supplied by the client on 16 April 2026, are presented in Table 1.

Turbine ID	Easting	Northing	Overall Tip Height (m)	Approximate Ground Level (m AOD)
T1	561862	800538	185	150
T2	562401	800480	185	163
T3	562695	800222	185	169
T4	562316	799576	150	156
T5	561920	799411	150	167
T6	561124	799382	150	154
T7	562209	798866	150	161
T8	562021	798429	150	150
T9	562413	798339	150	142
T10	561924	797528	150	143

Table 1: Turbine details

3. Development and Airport Air Navigation Equipment

3.1. Location of development

- 3.1.1. Figure 1 shows the proposed development in relation to IWA. The windfarm lies to the east of the Runway on its extended centreline.

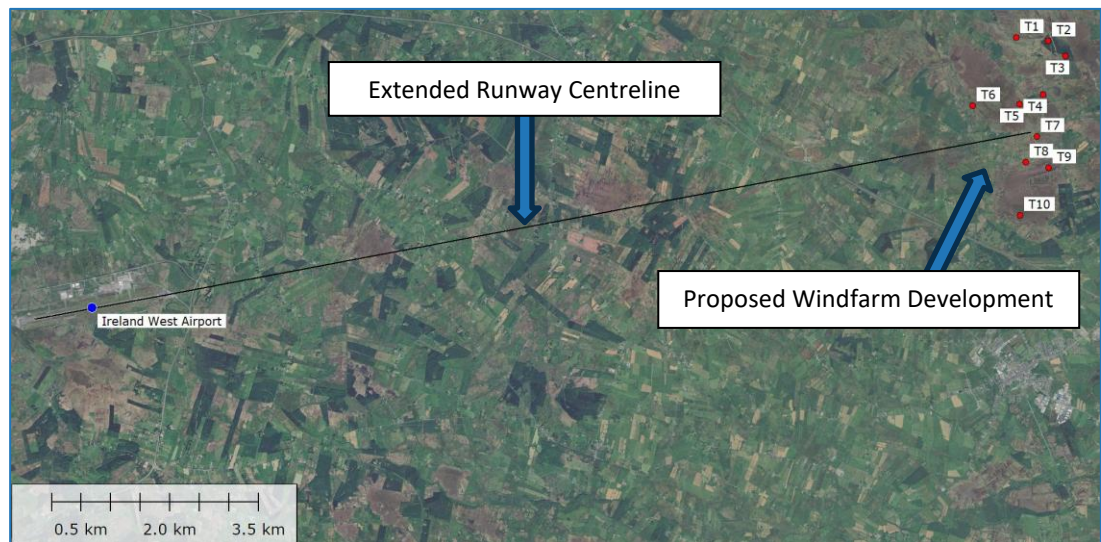


Image © 2026 Google

Figure 1 - Proposed development in relation to IWA

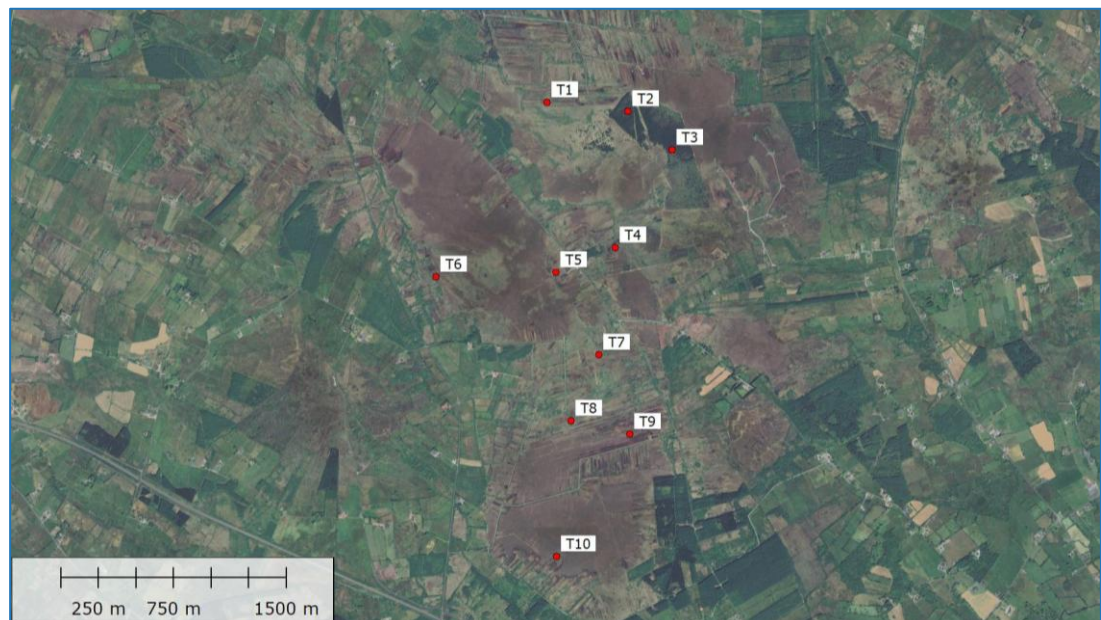


Image © 2026 Google

Figure 2 - Site Layout

3.2. Airport Air Navigation Equipment under consideration at IWA

- 3.2.1. The AANE under consideration at IWA consists of ILS Localiser and Glidepath facilities serving Runway 26, an ILS Distance Measuring Equipment (DME) facility, a Doppler VHF Omnidirectional Range (DVOR) and collocated DME facility as well as two Non-Directional Beacons (NDBs).
- 3.2.2. The ILS Localiser provides lateral guidance to approaching aircraft and is capable of guiding aircraft to less than 200 feet (Category II minima) above the runway at IWA without the pilot having a visual reference.
- 3.2.3. The ILS Glidepath provides vertical guidance to approaching aircraft and is capable of guiding aircraft to less than 200 feet (Category II minima) above the runway at IWA without the pilot having a visual reference.
- 3.2.4. The ILS-DME provides the pilot of an aircraft with a direct and continuous visual indication of the distance between the aircraft and the landing threshold.
- 3.2.5. The DVOR/DME provides bearing and range information to suitable equipped aircraft, supporting en-route navigation and non-precision instrument approaches to IWA.
- 3.2.6. The NDB is a radio transmitter that enables suitable equipped aircraft to establish their relative bearing from the transmitter.
- 3.2.7. The Minimum safeguarded areas for these technical facilities are defined by the International Civil Aviation Organisation (ICAO) in the document ICAO EUR DOC 015^[1].
- 3.2.8. Figure 3 and Figure 4 show an example of the Building Restricted Area (BRA) shape for directional facilities such as ILS Localisers, Glidepaths and DMEs, as depicted in ICAO EUR DOC 015^[1] Figures 3.1, 3.2, 3.3 and 3.4.

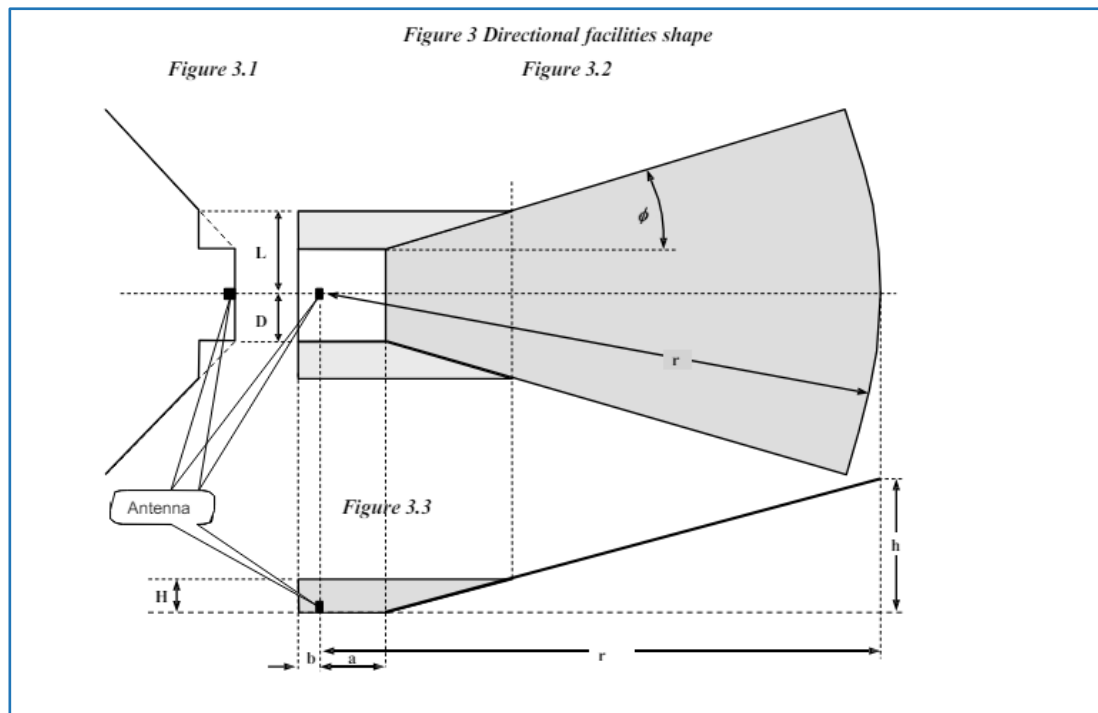


Figure 3 - ICAO EUR DOC 015 Figures 3.1-3.3 - Directional Facilities Shape

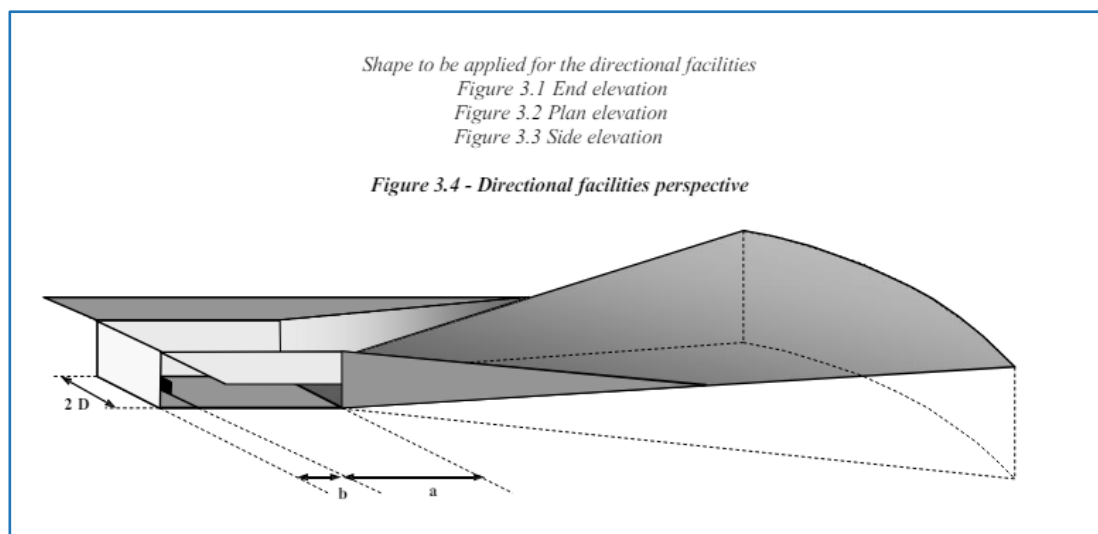


Figure 4 - ICAO EUR DOC 015 Figure 3.4 - Directional Facilities Perspective

3.2.9. The ILS Localiser 26 BRA for IWA is illustrated in Figure 5.

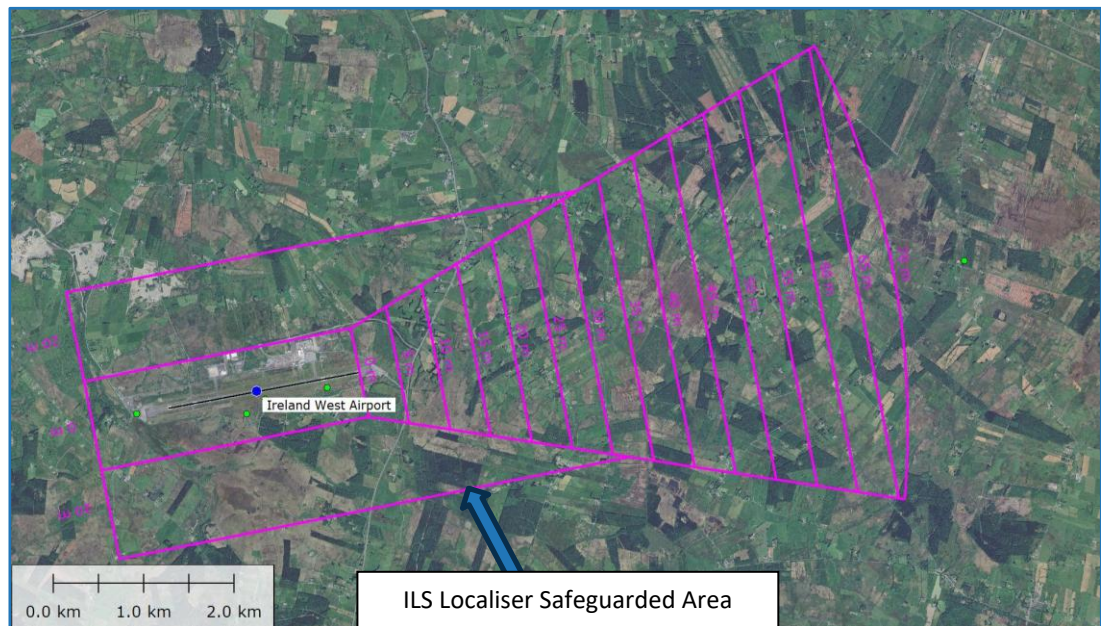


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Figure 5 – ILS Localiser 26 BRA at IWA

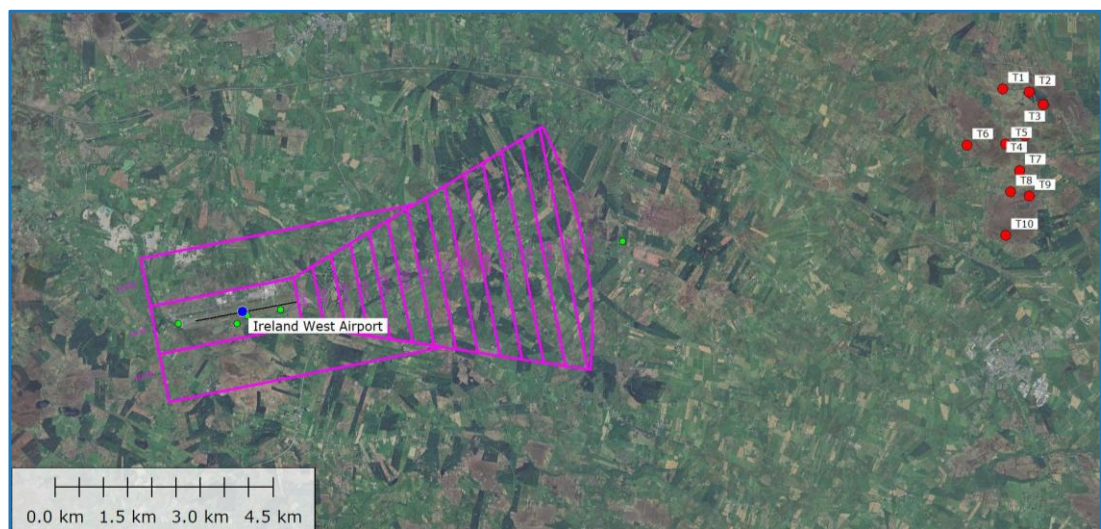


Image © 2026 Google

Figure 6 – ILS Localiser 26 BRA relative to the proposed development

3.2.10. The ILS Localiser 26 BRA is not infringed by the proposed windfarm development. An assessment of the potential impact on the localiser is not necessary.

3.2.11. The ILS Glidepath 26 BRA for IWA is illustrated in Figure 7.

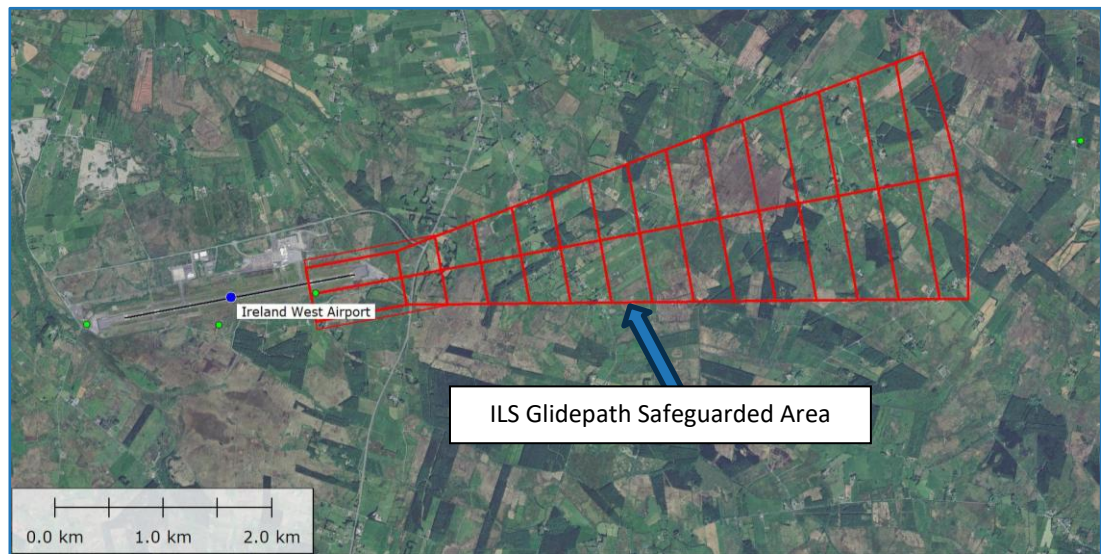


Image © 2026 Google

Figure 7 - ILS Glidepath 26 BRA at IWA



Image © 2026 Google

Figure 8 - ILS Glidepath 26 BRA relative to the proposed development

3.2.12. The proposed windfarm development does not infringe the ILS Glidepath 26 BRA. An assessment of the potential impact on the glidepath is not necessary.

3.2.13. The ILS-DME BRA for IWA is illustrated in Figure 9.

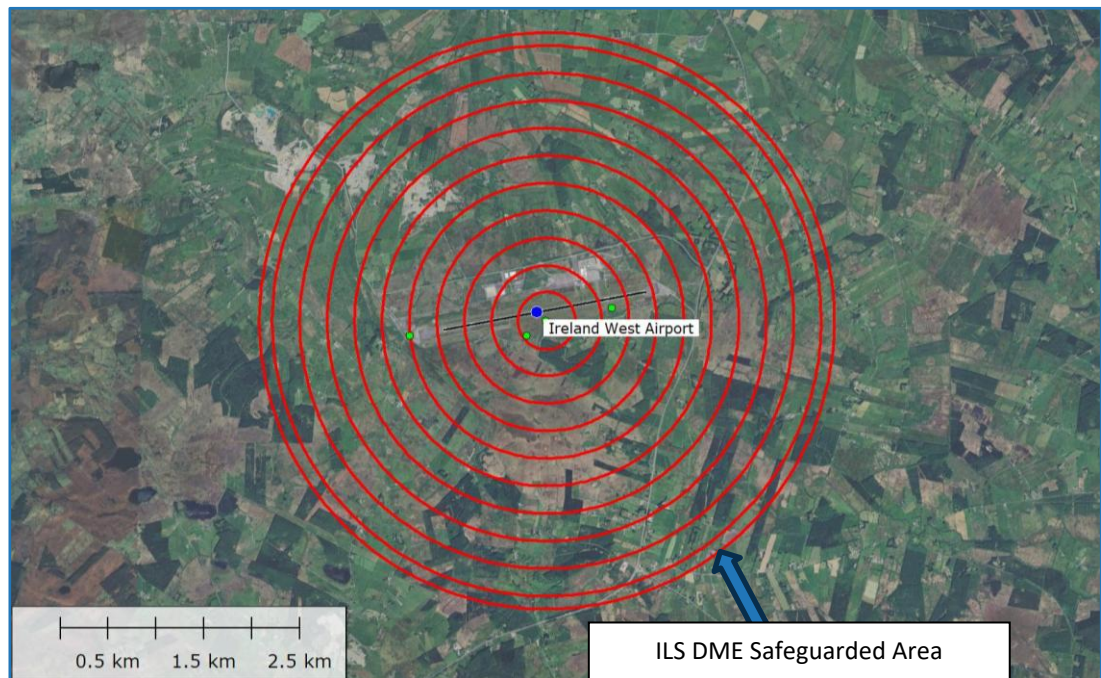


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Figure 9 - ILS DME BRA at IWA



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Figure 10 - ILS DME BRA relative to the proposed development

3.2.14. The DME BRA is not infringed by the proposed windfarm development. An assessment of the potential impact is not necessary.

3.2.15. The DVOR/DME BRA for IWA is illustrated in Figure 11.

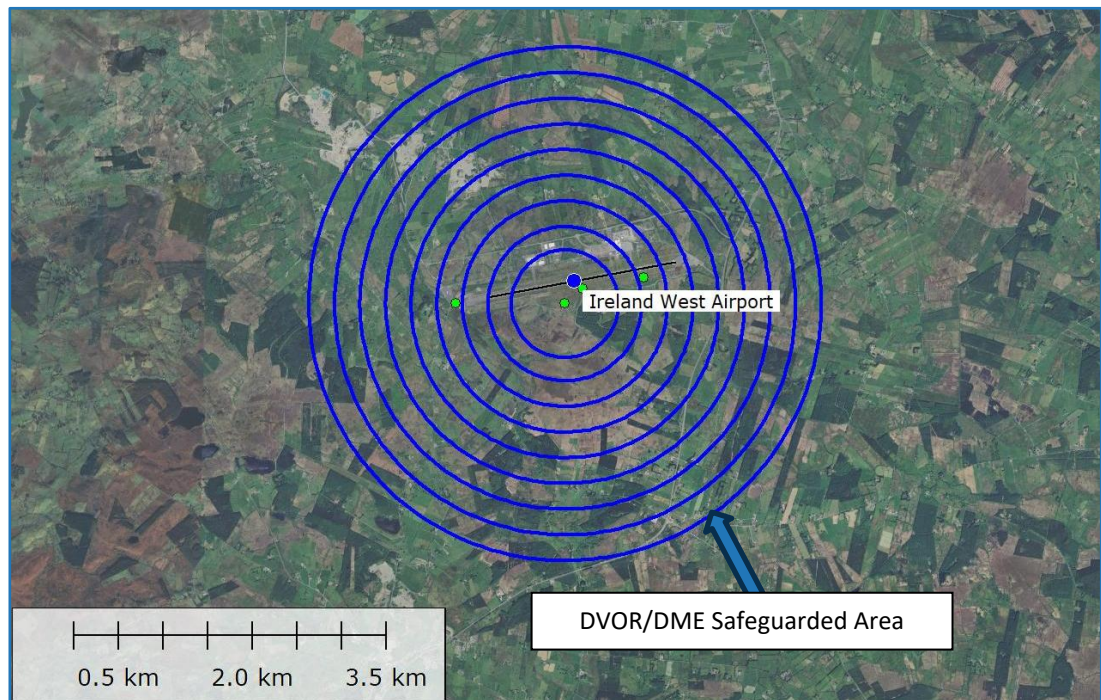


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Figure 11 - DVOR/DME BRA at IWA

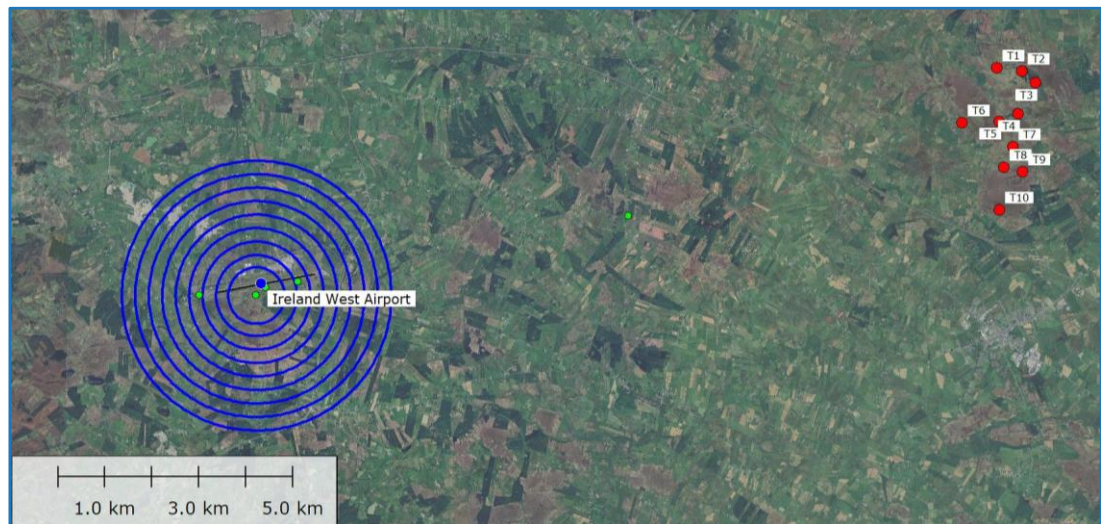


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Figure 12 - DVOR/DME BRA relative to the proposed development

3.2.16. The DVOR/DME BRA is not infringed by the proposed windfarm development. An assessment of the potential impact is not necessary.

3.2.17. The NDB BRAs at IWA are illustrated in Figure 13.



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Figure 13 - NDB BRAs relative to the proposed development

3.2.18. The NDB BRAs are not infringed by the proposed windfarm development. An assessment of the potential impact is not necessary.

3.3. Conclusions

3.3.1. The proposed windfarm development does not infringe any of the AANE safeguarded areas at IWA.



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