

FORMAL SUBMISSION / OBSERVATION

To: An Coimisiún Pleanála
64 Marlborough Street
Dublin 1, D01 V902

Planning Authority: Tipperary County Council
Case Reference Number: 324164
Development Name: Carrow Wind Farm Development

1. Observer Details

Name: Joanne Sayer

Status: Owner of the residential property located at Carrow, Dundrum, Co. Tipperary, E34 EO42.

2. Introduction and Locus Standi

I, Joanne Sayer, hereby make this submission in objection to the proposed Strategic Infrastructure Development known as the Carrow Wind Farm (Case Ref: 324164).

As the owner of a nearby non-participating residential property, I am directly and materially affected by the proposed development. I am concerned that the scale, proximity, and operational impacts of the proposed 185 metre turbines would result in significant adverse effects on residential amenity, environmental quality, the structural integrity of my dwelling, and the security of my private water supply.

I respectfully submit that the Environmental Impact Assessment Report (EIAR) and accompanying documentation do not adequately demonstrate that these impacts can be avoided or satisfactorily mitigated.

3. Grounds of Objection

A. Residential Setback Distance and Visual Amenity

The proposed turbines are stated to have a maximum blade tip height of approximately 185 metres.

I understand that the Tipperary County Development Plan contains residential amenity setback guidance or policy provisions relating to turbine separation distances from non-participating dwellings and residential curtilages. Based on a four-times turbine height separation standard, a setback distance of approximately 740 metres would apply.

Given the scale and complexity of the application documentation, it is difficult to clearly determine the **exact** distances between the proposed turbines and my residential curtilage.

Accordingly, and given the recent court case (see below) whereby actual harm was determined by smaller scale wind turbines that were approximately 1km away, I respectfully request that An Coimisiún Pleanála require the applicant to provide all residents within say 3KM of the proposed wind farm turbines:

- a certified large-scale map which shows accurate metric measurements from all turbines to their residential curtilage; and

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- confirmation of compliance with all applicable Development Plan setback and residential amenity provisions.

In the absence of such clarity, I submit that the Board cannot be satisfied that the proposed development complies with local planning policy or adequately protects residential amenity.

I further submit that turbines of this scale have the potential to create an overbearing visual presence and materially diminish the enjoyment, character, and residential amenity of nearby homes and rural landscapes.

B. Noise, Amplitude Modulation, and Residential Amenity

The proposed development raises serious concerns regarding operational noise impacts, particularly during night-time conditions in a quiet rural environment.

While the EIAR contains acoustic modelling, the noise monitoring sites were some distance away from the residential properties around the sites and finally the EIAR did not see the need to concern itself with infrasound. I am concerned that insufficient consideration has thereby been given to:

- low-frequency noise also known as Infrasound;
- tonal characteristics;
- cumulative impacts; and
- amplitude modulation (“thumping” or rhythmic pulsing effects), which are frequently associated with wind turbine complaints.

I respectfully submit that prolonged exposure to such noise has the potential to materially interfere with sleep quality, residential amenity, and quality of life.

I further note that the World Health Organization Environmental Noise Guidelines for the European Region identify annoyance and sleep disturbance as recognised impacts associated with wind turbine noise exposure.

I also draw the Board’s attention to the High Court decision in *Byrne & Moorhead v Wexwind Limited & ABO Energy Ireland* (2025 IEHC 330), in which turbine noise was found to constitute an actionable private nuisance in the specific factual circumstances of that case. While each development must be assessed individually, the case demonstrates the importance of ensuring that residential amenity impacts are comprehensively and conservatively assessed at planning stage, particularly given that in this case the wind turbines were smaller than those proposed for the Carrow wind Farm development and located 1KM from the residential property

In light of the above, I submit that the Board should seek independent scrutiny of the acoustic assessment including an assessment of infrasound and require robust, enforceable mitigation measures and monitoring conditions.

C. Sub-audible low-frequency noise and infrasound

I wish to strongly object to the applicant’s decision to exclude sub-audible low-frequency noise and infrasound monitoring from the Environmental Impact Assessment Report (EIAR)...

(EIAR) for the proposed Carrow Wind Farm.

The applicant's reliance on the Environmental Protection Agency's (EPA) "Guidance Note on Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3)" from 2011 to justify this omission could be construed as fundamentally flawed and dangerously outdated. When the NG3 framework was published in 2011, standard onshore wind turbines were a fraction of the size of modern installations. To apply 2011 baseline criteria to the colossal 185-metre tip-height industrial turbines proposed for Carrow completely ignores the vastly altered acoustic profile, higher blade-tip speeds, and intensified aerodynamic low-frequency pressure waves inherent to modern large-scale turbine infrastructure.

Furthermore, as highlighted in comprehensive critiques by the Independent Noise Working Group (INWG), relying on industry-standard engineering guidelines—such as the Institute of Acoustics (IOA) statements—creates a severe regulatory vacuum regarding human health. The INWG has repeatedly demonstrated that acoustic engineering bodies possess no clinical or medical qualifications to dictate human physiological safety. By treating a lack of audibility as an automatic proof of a lack of physiological effect, the EIAR dismisses a well-documented body of otoneurological science. As the INWG emphasizes, sub-audible acoustic pressure still interacts directly with the human vestibular (balance) system, causing sleep disruption, chronic stress, and systemic distress for rural residents living in close proximity to major wind developments. Indeed the windfarm and health literature review, which is included as appendix 5, is dated 2015 so more than 11 years old when turbines were smaller and less concentrated, which appears to overwhelming support little to no ink between health and wind turbines. It fails to note any of the more recent research into the affects of wind farms on health such as van Kamp I, van den Berg F. *Health Effects Related to Wind Turbine Sound: An Update*. Int J Environ Res Public Health. 2021 Aug 30;18(17):9133. doi: 10.3390/ijerph18179133 or Freiberg et al's *Health effects of wind turbines on humans in residential settings: Results of a scoping review*. Environ Res. 2019 Feb;169:446-463. doi: 10.1016/j.envres.2018.11.032. Epub 2018 Nov 25. PMID: 30530085 to name but tow more recent reviews.

The applicant's EIAR fails to assess the unique vulnerability of local traditional housing stock. The area features numerous historical dwellings with solid 60cm stone masonry. While standard acoustic modelling incorrectly assumes thick walls attenuate sound, environmental acoustics dictates that high-mass, rigid stone boundaries are completely transparent to the long wavelengths of turbine-generated infrasound. Instead of blocking the energy, these rigid structures create internal standing waves and room resonance, resulting in elevated low-frequency pressure fields inside residential bedrooms compared to the outdoor environment. Omitting specific monitoring for these traditional structures represents a considerable deficit in the applicant's noise impact assessment.

Given the above, An Coimisiún Pleanála must apply the precautionary principle. The applicant must not be allowed to self-regulate using a obsolete 2011 framework. I urge the Commission to refuse planning permission unless a robust, modern framework for continuous pre- and post-construction infrasound monitoring is legally mandated.

D. Structural Vulnerability of Historic Stone Dwelling

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My dwelling is a traditional farmhouse constructed with substantial solid stone masonry walls approximately 60cm in thickness and potentially around 750m from one of the wind turbines.

Such historic structures differ materially from modern reinforced concrete construction and may be more vulnerable to vibration, settlement, and heavy construction activity.

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I am concerned that:

- excavation works;
- heavy construction traffic;
- turbine foundation works;
- associated ground disturbance; and
- Vibrations from the operational wind turbines

may adversely affect the structural integrity of the property.

I respectfully submit that the EIAR does not appear to contain a detailed site-specific structural or vibration assessment relating to nearby historic masonry dwellings.

Accordingly, I request that prior to the planning application being passed then for all properties that lie within 3 KM of any turbine or associated site works:

- a pre-construction structural survey be carried out

Should planning be approved then:

- independent monitoring be required during construction,
- and appropriate protective conditions and remediation mechanisms be imposed post construction.

E. Protection of Private Well and Groundwater

My household has a private well located on the property.

I am concerned that extensive excavation and construction activity associated with turbine foundations, access roads, drainage infrastructure, and cabling may interfere with groundwater pathways or create contamination risks affecting the integrity of my well

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supply.

In particular, I am concerned regarding:

- potential disturbance of bedrock and groundwater flows,
- sediment release,
- concrete leachate,
- fuel or chemical contamination,
- and long-term hydrogeological impacts.

I respectfully submit that the EIAR should contain detailed hydrogeological assessment and site-specific mitigation measures addressing risks to nearby private wells and groundwater resources.

I request that the Board require:

- baseline water quality testing,
- ongoing groundwater monitoring,
- well protection measures,
- and remediation obligations in the event of any adverse impact on private water supplies.

F. Shadow Flicker and Residential Amenity

Given the height and scale of the proposed turbines, I am concerned regarding the potential for shadow flicker impacts on my dwelling and residential curtilage during periods of low-angle sunlight.

Shadow flicker has the potential to materially interfere with the enjoyment and amenity of residential properties where exposure is prolonged or repetitive.

I am further concerned that the assessment of shadow flicker within the EIAR lacks sufficient transparency and technical detail. While shadow flicker is referenced within Chapter 5 (Population and Human Health), and goes into great detail on the methodology, the application does not appear to include a standalone technical appendix containing the underlying modelling data, receptor calculations, GIS mapping outputs, or full assumptions used in the analysis. At least not one that I could locate.

Given the scale and height of the proposed turbines, and the potential impact on nearby residential amenity, a dedicated and independently reviewable shadow flicker assessment should have been provided. In particular, it is unclear how existing vegetation screening, seasonal changes in foliage, local topography, cumulative effects, and worst-case sunlight conditions were incorporated into the modelling. The absence of a detailed technical appendix limits the ability of affected residents and the planning authority to fully assess the likely extent and significance of shadow flicker impacts and whether the proposed mitigation measures are adequate and enforceable.

I respectfully request clarification as to:

- predicted annual shadow flicker hours affecting my property; and
- /A ...

- A viewable model showing a real time effect of shadow flicker on my property

There are 3 links to shadow flicker research contained within the planning submission EIA, Appendix 5-1 which refer to specific articles - one is from 2007, and the other two links do not work, in any case the information is so old as to be irrelevant to the current application where size and density are vastly increased.

Furthermore I would request that, should planning permission be granted then the company be required to adhere to all and any future guidelines that may come in to existence during the lifetime of the wind farm's operation and subsequent decommissioning.

4. Conclusion

For the reasons outlined above, I respectfully submit that the proposed development gives rise to significant unresolved concerns regarding:

- residential amenity,
- visual impact,
- operational noise both audible and inaudible,
- groundwater protection,
- structural risk,
- and shadow flicker.

I further submit that the applicant has not adequately demonstrated that these impacts can be satisfactorily avoided or mitigated.

Accordingly, I respectfully request that An Coimisiún Pleanála refuse permission for the proposed development, or alternatively require substantial revision of the turbine layout and the implementation of enhanced protective measures for nearby residents.

5. Request for Oral Hearing

Given the complexity of the issues involved, including noise assessment, hydrogeology, residential amenity impacts, and interpretation of Development Plan setback provisions, I respectfully request that an Oral Hearing be convened in respect of this application.

6. Statutory Fee

The statutory fee of €50 will be paid in full during the portal submission process.

Signed:



Joanne Sayer

Date: 27 May 2026