Community Observation on Carrow Wind Farm Noise Monitoring Positions

Introduction

This community observation relates to the proposed Carrow Wind Farm noise assessment methodology and, specifically, the positioning and representativeness of the background noise monitoring stations identified in the EIAR Chapter 12 – Noise and Vibration.

The observation is based on:

- The EIAR Chapter 12 documentation;
- Table 12-6 Measurement Location Coordinates;
- Figure 12-2 Indicative Measurement Locations;
- The mapped monitoring station positions prepared from the published coordinates;
- The surrounding residential pattern and local topography shown on the site layout maps.

The purpose of this observation is not to oppose renewable energy in principle, but to ensure that any assessment of environmental noise impacts on local residents is transparent, representative, scientifically robust, and protective of residential amenity and human health.

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1. Overview of Monitoring Locations

The EIAR identifies five unattended background noise monitoring locations:

Station	Receptor Ref	ITM Easting	ITM Northing
A	H227	594667	651652
B	H201	597166	650766
C	H152	596189	649654
D	H164	593663	649743
E	H200	592386	650783

These locations are stated to represent “noise sensitive locations” surrounding the proposed development.

The EIAR also states that 371 noise sensitive locations (NSLs) were identified within approximately 3 km of the proposed turbines.

2. Community Concerns Regarding Representativeness

2.1 Limited Number of Monitoring Locations

A principal concern is whether five monitoring locations are sufficient to adequately represent the acoustic environment experienced by residents distributed across a wide rural and topographically varied landscape.

The proposed development includes:

- Multiple turbine clusters;
- Significant elevation changes;
- Valleys and ridgelines;
- Forestry and open ground transitions;
- Existing wind farm interactions;
- Potential cumulative noise effects.

Residents are concerned that five monitoring positions may not fully capture:

- Variations in nighttime background noise;
- Wind shear effects;
- Seasonal acoustic conditions;
- Local sheltering and channeling effects;
- Areas susceptible to amplitude modulation;
- Low ambient noise conditions during calm periods.

2.2 Distribution of Monitoring Locations

The mapped monitoring locations appear concentrated around certain sections of the development footprint while other potentially affected residential areas may have limited direct representation.

Community members request clarification on:

- Why these specific locations were selected;
- Whether any proposed turbine sectors are underrepresented;
- Whether locations with known quiet nighttime conditions were excluded;
- Whether any homes closer to prevailing downwind directions should also have been monitored.

2.3 Reliance on Representative Locations

The EIAR states that the monitoring positions are “representative” of nearby receptors.

Residents are concerned that:

- Conditions experienced at one dwelling may not accurately represent another dwelling nearby;
- Rural acoustic environments can vary significantly over relatively short distances;
- Local terrain, vegetation, orientation, and exposure may alter noise propagation;
- A representative model may underestimate impacts at the most sensitive receptors.

The community therefore requests additional explanation regarding:

- The methodology used to determine representativeness;
- The margin of uncertainty within the modelling;
- Whether sensitivity testing was undertaken;
- Whether worst-case receptor conditions were specifically assessed.

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3. Concerns Regarding Night-Time Acoustic Environment

The EIAR references WHO guidance and acknowledges that low background noise conditions can increase sensitivity to external sound.

Residents are particularly concerned regarding:

- Sleep disturbance;
- Intermittent turbine noise;
- Amplitude modulation (“thumping” or “whoomphing”);
- Tonal characteristics;
- Cumulative nighttime effects.

The EIAR itself acknowledges:

- That amplitude modulation can occur under certain atmospheric conditions;
- That such conditions may persist for several hours;
- That occurrences may be difficult to predict at planning stage.

Community members consider that:

- Existing uncertainty should justify a precautionary approach;
- Additional baseline monitoring may be warranted;

- Post-construction independent verification should be mandatory.

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4. Concern Regarding Absence of Low Frequency and Infrasound Assessment

The EIAR states that no assessment criteria are proposed for low frequency noise or infrasound.

While the documentation references current guidance suggesting such effects are generally below physiological thresholds, residents remain concerned that:

- Perceptibility and annoyance are not always the same issue;
- Individual sensitivity may vary;
- Cumulative long-term exposure remains scientifically debated;
- Existing guidance documents are themselves under ongoing review.

Residents therefore request that:

- Any future operational complaints process include low-frequency investigation capability;
- Monitoring equipment capable of extended frequency analysis be considered;
- Independent post-construction monitoring be made available upon substantiated complaint.

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5. Cumulative Impact Concerns

The EIAR acknowledges nearby wind farm developments including:

- Cappagh White;
- Glencarbry;
- Glenough;
- Hollyford;
- Turaheen;
- Other nearby existing and proposed projects.

Community members are concerned that:

- Incremental cumulative noise effects may become significant over time;
- Existing baseline conditions may already be influenced by operational turbines;

- Future cumulative conditions may differ materially from present-day measurements.

Clarification is requested regarding:

- Whether baseline surveys excluded existing turbine influence;
- How cumulative amplitude modulation was considered;
- Whether future operational overlap scenarios were modelled.

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6. Request for Independent and Transparent Monitoring

Residents request that any planning approval include conditions requiring:

1. Independent post-construction noise monitoring;
2. Public access to operational monitoring results;
3. Complaint-triggered monitoring at affected dwellings;
4. Monitoring during worst-case meteorological conditions;
5. Assessment of tonal and amplitude modulation characteristics;
6. Periodic review of compliance over the operational life of the project.

The community further requests that:

- Monitoring locations be agreed in consultation with affected residents;
- Data collection methodologies be publicly available;
- Raw monitoring data be retained and independently reviewable.

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7. Human Rights and Residential Amenity Considerations

Residents submit that the planning authority should ensure that:

- Residential amenity is fully protected;
- Any interference with home life is proportionate and evidence-based;
- Noise assessment methodologies are sufficiently precautionary where scientific uncertainty exists.

Community members note that:

- Rural residents may experience particularly low nighttime background noise environments;
- Small increases in recurring noise may therefore have disproportionate impact;

- The long operational lifespan of the project increases the significance of assessment accuracy.

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8. Community Requests to the Planning Authority

The community respectfully requests that An Coimisiún Pleanála:

1. Review whether five monitoring stations are sufficient for the scale and complexity of the proposed development;
2. Require clarification on how representative receptors were selected;
3. Require additional detail regarding uncertainty margins within the acoustic modelling;
4. Consider whether further baseline monitoring should be undertaken;
5. Require robust post-construction compliance monitoring conditions;
6. Ensure that any future complaint mechanism is transparent, accessible, and independently verifiable;
7. Apply a precautionary approach where uncertainty exists regarding nighttime and cumulative effects.

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9. Additional Resident and Environmental Concerns

9.1 Residential Health and Sleep Disturbance Concerns

Residents within the Carrow area have raised serious concerns regarding the potential impact of both the construction and operational phases of the proposed development on sleep quality, health and residential amenity.

Particular concerns include:

- continuous turbine noise;
- low-frequency noise;
- amplitude modulation (“thumping” or “whoomphing”);
- intermittent nighttime turbine noise;
- cumulative noise interaction with existing wind farms;
- vibration perception;
- construction traffic disturbance;
- and prolonged sleep disruption.

Residents note that some households within the wider area already experience heightened sensitivity to nighttime disturbance and are concerned that standardised predictive noise

modelling may not fully capture the real-world impact of recurring turbine noise under low-background nighttime conditions.

The community therefore requests that:

- nighttime operational impacts receive particular scrutiny;
- post-construction independent verification be required;
- and complaint-triggered monitoring protocols be independently administered.

9.2 Adequacy of Noise Monitoring and Predictive Modelling

The EIAR confirms that:

- only five background monitoring stations were used;
- 371 noise sensitive locations (NSLs) were identified within approximately 3 km of the proposed turbines;
- and the operational assessment relies heavily on representative receptor modelling.

Community members remain concerned that:

- the monitoring network may not fully capture acoustic variability across the upland terrain;
- nighttime low-background conditions may be underrepresented;
- and terrain-driven propagation effects may increase audibility at downslope dwellings.

Specific concern arises regarding receptors surrounding:

- Carrow;
- Scart;
- Barraderry;
- Glencarbry;
- Carrigadoo;
- and the southern and eastern turbine cluster.

The mapped monitoring locations suggest that large areas of the development rely on representative assumptions rather than direct long-term receptor monitoring.

Residents request additional scrutiny regarding:

- the representativeness of the selected monitoring positions;
- uncertainty margins within the modelling;
- assumptions regarding vegetation and forestry screening;

- and whether future forestry removal may substantially alter operational impacts.

9.3 Turbine-Specific Concerns

Particular concern has been expressed regarding the cumulative interaction of Turbines T1, T3, T10, T12 and T14.

Residents submit that these turbines appear positioned such that nearby dwellings may experience:

- simultaneous exposure to multiple turbines;
- cumulative amplitude modulation;
- repeated shadow flicker exposure;
- increased nighttime audibility;
- and visual overbearing effects.

Residents are concerned that:

- stable atmospheric conditions;
- downslope propagation;
- valley channelling;
- and reduced nighttime ambient sound

may increase operational audibility beyond that predicted within standard models.

9.4 Shadow Flicker Concerns

The proposed development also raises concerns regarding shadow flicker impacts at nearby residential properties.

Residents located south, southeast and east of the turbine array may experience repeated low-angle sunlight interruption during morning and evening periods, particularly during winter months.

While existing literature indicates that modern wind turbines generally operate below frequencies typically associated with photosensitive epilepsy triggers, residents remain concerned regarding:

- repetitive flicker exposure;
- annoyance;
- stress;
- concentration impacts;
- and cumulative residential disturbance.

Residents request:

- clear identification of potentially affected dwellings;
- transparent modelling assumptions;
- and enforceable operational mitigation where exceedances occur.

9.5 Hydrology, Water Quality and Ecological Concerns

Community concerns also extend to hydrology, sedimentation risk and downstream ecological protection.

Residents note that:

- the proposed development involves extensive upland excavation;
- approximately 51.6 hectares of forestry removal;
- road construction;
- drainage alteration;
- borrow pit extraction;
- and substantial hardstanding infrastructure.

Residents are concerned regarding:

- sediment mobilisation;
- peat instability;
- downstream water quality deterioration;
- hydrological alteration;
- and cumulative catchment impacts.

Particular concern arises regarding the Aughnaglanny and East Multeen catchments and the potential downstream effects on:

- Freshwater Pearl Mussel habitat;
- lamprey species;
- aquatic ecology;
- and sensitive river systems already considered environmentally stressed.

Community members note that:

- Freshwater Pearl Mussels are critically endangered;
- NPWS correspondence has referenced known populations within the wider catchment;
- and sedimentation events may cause irreversible ecological damage.

Residents submit that the precautionary principle should apply where scientific uncertainty exists regarding downstream ecological risk.

9.6 Hen Harrier and Protected Species Concerns

The EIAR records Hen Harrier observations within and adjacent to the proposed development area during both breeding and winter survey periods.

Residents are concerned that:

- breeding-related activity was observed;
- foraging and commuting behaviour was recorded;
- and a known nest site exists within the wider area.

Community members believe the ecological significance of the site for Hen Harrier activity may therefore be greater than reflected within the assessment.

Additional concerns have also been raised regarding:

- Irish Hare habitat;
- Pine Marten presence;
- habitat fragmentation;
- disturbance effects;
- and cumulative biodiversity pressures.

Residents submit that:

- the wider landscape already experiences substantial forestry activity and wind energy development;
- cumulative ecological pressure may be underestimated;
- and precautionary ecological assessment standards should apply.

9.7 EU Environmental Law and Precautionary Principle

Residents note that Ireland has binding obligations under:

- the Water Framework Directive;
- the Habitats Directive;
- the Birds Directive;
- Environmental Impact Assessment legislation;
- and the precautionary principle embedded within EU environmental law.

Community members submit that:

- where scientific uncertainty remains regarding environmental harm;
- where cumulative impacts are difficult to quantify;
- or where protected habitats and species may be adversely affected,

An Coimisiún Pleanála should apply the precautionary principle in full.

Conclusion

The community acknowledges the importance of renewable energy development and climate obligations. However, residents also believe that environmental assessment processes must remain rigorous, transparent, and protective of residential amenity.

Given the scale of the proposed development, the complexity of the terrain, and the acknowledged uncertainties surrounding wind turbine noise characteristics, residents request careful scrutiny of the noise monitoring methodology and the representativeness of the selected monitoring positions.

The community respectfully asks that these concerns be fully considered before any planning determination is made.

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